CTS

CREFS Actuation Instrumentation ~~(Without Setpoint Control Program)~~
3.3.7~~A~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.1.2 Enter applicable Conditions and Required Actions for one CREFS train made inoperable by inoperable CREFS actuation instrumentation. OR B.2 Place both trains in ~~emergency [radiation protection]~~ recirculation mode.	Immediately Immediately
C. Required Action and associated Completion Time for Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours
D. Required Action and associated Completion Time for Condition A or B not met during movement of ~~[recently]~~ irradiated fuel assemblies, or during CORE ALTERATIONS.	D.1 Suspend movement of ~~[recently]~~ irradiated fuel assemblies. AND D.2 Suspend CORE ALTERATIONS	Immediately Immediately
E. ~~[~~ Required Action and associated Completion Time for Condition A or B not met in MODE 5 or 6.	E.1 Initiate action to restore one CREFS train to OPERABLE status.	Immediately ~~]~~

Table 3.3-6 ACTION 29.b

Table 3.3-6 ACTIONS 29a and 29b

DOC M07, Table 3.3-6 ACTION 29b

MHC003

DOC M07, Table 3.3-6 ACTION 29b

CTS

CREFS Actuation Instrumentation ~~(Without Setpoint Control Program)~~ 3.3.7~~A~~ 1

SURVEILLANCE REQUIREMENTS

----------NOTE----------

4.3.3.1 Refer to Table 3.3.7-1 to determine which SRs apply for each CREFS Actuation Function. 1

	SURVEILLANCE		FREQUENCY	
Table 4.3-3 Instrument 2.c	SR 3.3.7.1	Perform CHANNEL CHECK.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	4
Table 4.3-3 Instrument 2.c	SR 3.3.7.2	Perform COT.	~~[92 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	4
	~~SR 3.3.7.3~~	~~Perform ACTUATION LOGIC TEST.~~	~~[31 days on a STAGGERED TEST BASIS~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~	4

CTS

CREFS Actuation Instrumentation ~~(Without Setpoint Control Program)~~
3.3.7~~A~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
~~SR 3.3.7.4 Perform MASTER RELAY TEST.~~	~~[31 days on a STAGGERED TEST BASIS~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~
~~----------REVIEWER'S NOTE----------~~ ~~The Frequency of 92 days on a STAGGERED TEST BASIS is applicable to the actuation logic processed through the Relay or Solid State Protection System.~~ ~~----------~~	
DOC M05 SR 3.3.7.~~5~~ 3 ----------NOTE---------- This Surveillance is only applicable to the actuation logic of the ESFAS Instrumentation. ---------- Perform ACTUATION LOGIC TEST.	~~[92 days on a STAGGERED TEST BASIS~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program~~]~~

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CTS

CREFS Actuation Instrumentation ~~(Without Setpoint Control Program)~~
3.3.7~~A~~

1

V

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY	
~~----------REVIEWER'S NOTE----------~~ ~~The Frequency of 92 days on a STAGGERED TEST BASIS is applicable to the master relays processed through the Solid State Protection System.~~ ~~----------~~			6
DOC M05 SR 3.3.7.~~6~~ 4	----------NOTE---------- This Surveillance is only applicable to the master relays of the ESFAS Instrumentation. ----------		5
	Perform MASTER RELAY TEST.	~~[~~ 92 days on a STAGGERED TEST BASIS ~~OR~~ In accordance with the Surveillance Frequency Control Program~~]~~	4 4
DOC M05 SR 3.3.7.~~7~~ 5	Perform SLAVE RELAY TEST.	~~[~~ ~~[92] days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program~~]~~	5 4 4

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CTS

CREFS Actuation Instrumentation ~~(Without Setpoint Control Program)~~ 3.3.7~~A~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
DOC M04 SR 3.3.7.~~8~~	----------NOTE---------- Verification of setpoint is not required. ----------	
	Perform TADOT.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~
Table 4.3-3 Instrument 2.c SR 3.3.7.~~9~~	Perform CHANNEL CALIBRATION.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

CTS

CREFS Actuation Instrumentation ~~(Without Setpoint Control Program)~~
3.3.7~~A~~

1

V

Table 3.3.7-1 (page 1 of 1)
CREFS Actuation Instrumentation

V

1

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT	
DOC M04 1. Manual Initiation	1, 2, 3, 4, ~~[~~5, 6~~]~~, (a)	2 trains	SR 3.3.7.~~8~~ (6)	NA	2, 5
DOC M05 2. Automatic Actuation Logic and Actuation Relays	1, 2, 3, 4, ~~[~~5, 6~~]~~, (a)	2 trains	~~SR 3.3.7.3~~ ~~SR 3.3.7.4~~ (3) SR 3.3.7.~~5~~ (4) SR 3.3.7.~~6~~ (5) SR 3.3.7.~~7~~	NA	2, 5
Table 4.3-3 Instrument 2.c 3. Control Room Radiation					3
a. ~~Control Room Atmosphere~~	~~1, 2, 3, 4 [5, 6], (a)~~	~~[2]~~	~~SR 3.3.7.1~~ ~~SR 3.3.7.2~~ ~~SR 3.3.7.9~~	~~≤ [2] mR/hr~~ 400 cpm (b)	5
~~b.~~ Control Room Air Intakes	1, 2, 3, 4, ~~[~~5, 6~~]~~, (a)	~~[~~2~~]~~	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.~~9~~ (7)	≤ ~~[2] mR/hr~~	5, 2, 3, 5
DOC M06 4. Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for all initiation functions and requirements.				MHC003

Table 4.3-3 Instrument 2.c
DOC A04
Table 3.3-6 Footnote **

(a) During movement of ~~[recently]~~ irradiated fuel assemblies~~]~~, During CORE ALTERATIONS.

(b) Equivalent to 1.0 x 10^{-5} µCi/cc.

2, 7, 3

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JUSTIFICATION FOR DEVIATIONS
ITS 3.3.7, CONTROL ROOM EMERGENCY VENTILATION SYSTEM (CREVS)
ACTUATION INSTRUMENTATION

1. The type of Setpoint Control Program (Without Setpoint Control Program) and the Specification designator "A" are deleted since they are unnecessary. This information is provided in NUREG 1431, Rev. 4.0 to assist in identifying the appropriate Specification to be used as a model for the plant specific ITS conversion, but serves no purpose in the plant specific implementation. In addition, ISTS 3.3.7B (with Setpoint Control Program Specification) is not used and is not shown. Furthermore, the title of the Specification has been changed from "Control Room Emergency Filtration System (CREFS) Actuation Instrumentation" to " Control Room Emergency Ventilation System (CREVS) Actuation Instrumentation" since Sequoyah Nuclear Plant (SQN) does not have a CREFS.

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 3.3.7.1, SR 3.3.7.2, SR 3.3.7.5, SR 3.3.7.6, SR 3.3.7.7, SR 3.3.7.8, and SR 3.3.7.9 (ITS SR 3.3.7.1, SR 3.3.7.2, SR 3.3.7.3, SR 3.3.7.4, SR 3.3.7.5, SR 3.3.7.6, and SR 3.3.7.7) 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.

5. The ACTUATION LOGIC TEST and MASTER RELAY TEST for SQN are processed through the Solid State Protection System. Since ISTS SR 3.3.7.5 and ISTS SR 3.3.7.6 are the appropriate Surveillance for the ACTUATION LOGIC TEST and MASTER RELAY TEST when they are processed through the Solid State Protection System, ISTS SR 3.3.7.3 and SR 3.3.7.4 have been deleted and the subsequent Surveillance Requirements have been renumbered.

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.

MHC003

7. ISTS Table 3.3.7-1, Footnote (a) has been revised to state, “During movement of irradiated fuel assemblies, During CORE ALTERATIONS.” ISTS 3.3.7A Condition D has been revised to state, “Required Action and associated Completion Time for Condition A or B not met during movement of irradiated fuel assemblies, or during CORE ALTERATIONS.” ISTS 3.3.7A has been revised to add Required Action D.2 that states, “Suspend CORE ALTERATIONS,” with an immediate Completion Time. CTS 3.3.3.1, Table 3.3-6, ACTION 29 requires, in part, the suspension of CORE ALTERATIONS if two channels of Process Monitors, Control Room Isolation Instrumentation are inoperable and one train of CREVS is not maintained in the recirculation mode of operation and the required Actions for one train of CREVS made inoperable by inoperable CREVS actuation instrumentation is not completed within 1 hour during the movement of irradiated fuel. ITS 3.3.7 has been revised to retain the CTS requirement to suspend CORE ALTERATIONS and specify the condition when the ACTION is applicable.

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

B 3.3 INSTRUMENTATION

B 3.3.7A Control Room Emergency Filtration System (CREFS) Actuation Instrumentation (Without Setpoint Control Program)

BASES

BACKGROUND

The CREFS provides an enclosed control room environment from which the unit can be operated following an uncontrolled release of radioactivity. During normal operation, the Auxiliary Building Ventilation System provides control room ventilation. Upon receipt of an actuation signal, the CREFS initiates filtered ventilation and pressurization of the control room. This system is described in the Bases for LCO 3.7.10, "Control Room Emergency Filtration System."

The actuation instrumentation consists of redundant radiation monitors in the air intakes and control room area. A high radiation signal from any of these detectors will initiate both trains of the CREFS. The control room operator can also initiate CREFS trains by manual switches in the control room. The CREFS is also actuated by a safety injection (SI) signal. The SI Function is discussed in LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation."

APPLICABLE SAFETY ANALYSES

The control room must be kept habitable for the operators stationed there during accident recovery and post accident operations.

The CREFS acts to terminate the supply of unfiltered outside air to the control room, initiate filtration, and pressurize the control room. These actions are necessary to ensure the control room is kept habitable for the operators stationed there during accident recovery and post accident operations by minimizing the radiation exposure of control room personnel.

In MODES 1, 2, 3, and 4, the radiation monitor actuation of the CREFS is a backup for the SI signal actuation. This ensures initiation of the CREFS during a loss of coolant accident or steam generator tube rupture.

The radiation monitor actuation of the CREFS in MODES 5 and 6, and during movement of [recently] irradiated fuel assemblies are the primary means to ensure control room habitability in the event of a fuel handling or waste gas decay tank rupture accident.

MHC003

The CREFS actuation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

BASES

LCO

The LCO requirements ensure that instrumentation necessary to initiate the CREFS is OPERABLE.

1. Manual Initiation

The LCO requires two channels OPERABLE. The operator can initiate the CREFS at any time by using either of two switches in the control room. This action will cause actuation of all components in the same manner as any of the automatic actuation signals.

The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual actuation circuitry to ensure the operator has manual initiation capability.

Each channel consists of one ~~push~~ hand switch ~~button~~ and the interconnecting wiring to the actuation logic cabinet.

2. Automatic Actuation Logic and Actuation Relays

The LCO requires two trains of Actuation Logic and Relays OPERABLE to ensure that no single random failure can prevent automatic actuation.

Automatic Actuation Logic and Actuation Relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b., SI, in LCO 3.3.2. The applicable MODES and specified conditions for the CREFS portion of these functions are different and less restrictive than those specified for their SI roles. If one or more of the SI functions becomes inoperable in such a manner that only the CREFS function is affected, the Conditions applicable to their SI function need not be entered. The less restrictive Actions specified for inoperability of the CREFS Functions specify sufficient compensatory measures for this case.

3. Control Room Radiation

The LCO specifies ~~two required Control Room Atmosphere Radiation Monitors and~~ two required Control Room Air Intake Radiation Monitors to ensure that the radiation monitoring instrumentation necessary to initiate the CREFS remains OPERABLE.

For sampling systems, channel OPERABILITY involves more than OPERABILITY of channel electronics. OPERABILITY ~~may~~ also requires correct valve lineups, sample pump operation, ~~and filter motor operation,~~ as well as detector OPERABILITY~~, if these supporting features are necessary for trip to occur under the conditions assumed by the safety analyses~~.

BASES

LCO (continued)

4. Safety Injection

Refer to LCO 3.3.2, Function 1, for all initiating Functions and requirements.

APPLICABILITY

The CREFS Functions must be OPERABLE in MODES 1, 2, 3, 4, ~~and~~ during movement of ~~[recently]~~ irradiated fuel assemblies~~, and during CORE ALTERATIONS~~. ~~The Functions must also be OPERABLE in MODES [5 and 6] when required for a waste gas decay tank rupture accident,~~ to ensure a habitable environment for the control room operators.

The Applicability for the CREFS actuation on the ESFAS Safety Injection Functions are specified in LCO 3.3.2. Refer to the Bases for LCO 3.3.2 for discussion of the Safety Injection Function Applicability.

ACTIONS

The most common cause of channel inoperability is outright failure or drift ~~of the bistable or process module~~ sufficient to exceed the tolerance allowed by the unit specific calibration procedures. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a COT, when the process instrumentation is set up for adjustment to bring it within specification. If the Trip Setpoint is less conservative than the tolerance specified by the calibration procedure, the channel must be declared inoperable immediately and the appropriate Condition entered.

A Note has been added to the ACTIONS indicating that separate Condition entry is allowed for each Function. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.7-1 in the accompanying LCO. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

A.1

Condition A applies to the actuation logic train Function of the CREFS, the radiation monitor channel Functions, and the manual channel Functions.

BASES

ACTIONS (continued)

If one train is inoperable, or one radiation monitor channel is inoperable in one or more Functions, 7 days are permitted to restore it to OPERABLE status. The 7 day Completion Time is the same as is allowed if one train of the mechanical portion of the system is inoperable. The basis for this Completion Time is the same as provided in LCO 3.7.10. If the channel/train cannot be restored to OPERABLE status, one CREFS train must be placed in the ~~emergency radiation protection~~ mode of operation. This accomplishes the actuation instrumentation Function and places the unit in a conservative mode of operation.

~~The Required Action for Condition A is modified by a Note that requires placing one CREFS train in the toxic gas protection mode instead of the [radiation protection] mode of operation if the automatic transfer to toxic gas protection mode is inoperable. This ensures the CREFS train is placed in the most conservative mode of operation relative to the OPERABILITY of the associated actuation instrumentation.~~

B.1.1, B.1.2, and B.2

Condition B applies to the failure of two CREFS actuation trains, two radiation monitor channels, or two manual channels. The first Required Action is to place one CREFS train in the ~~emergency [radiation protection]~~ mode of operation immediately. This accomplishes the actuation instrumentation Function that may have been lost and places the unit in a conservative mode of operation. The applicable Conditions and Required Actions of LCO 3.7.10 must also be entered for the CREFS train made inoperable by the inoperable actuation instrumentation. This ensures appropriate limits are placed upon train inoperability as discussed in the Bases for LCO 3.7.10.

Alternatively, both trains may be placed in the ~~emergency [radiation protection]~~ mode. This ensures the CREFS function is performed even in the presence of a single failure.

~~The Required Action for Condition B is modified by a Note that requires placing one CREFS train in the toxic gas protection mode instead of the [radiation protection] mode of operation if the automatic transfer to toxic gas protection mode is inoperable. This ensures the CREFS train is placed in the most conservative mode of operation relative to the OPERABILITY of the associated actuation instrumentation.~~

BASES

ACTIONS (continued)

C.1 and C.2

Condition C applies when the Required Action and associated Completion Time for Condition A or B have not been met and the unit is in MODE 1, 2, 3, or 4. The unit must be brought to a MODE in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1 and D.2

MHC003

Condition D applies when the Required Action and associated Completion Time for Condition A or B have not been met when ~~[recently]~~ irradiated fuel assemblies are being moved or when CORE ALTERATIONS are being performed. Movement of ~~[recently]~~ irradiated fuel assemblies must be suspended immediately to reduce the risk of accidents that would require CREFS actuation.

E.1

Condition E applies when the Required Action and associated Completion Time for Condition A or B have not been met in MODE 5 or 6. Actions must be initiated to restore the inoperable train(s) to OPERABLE status immediately to ensure adequate isolation capability in the event of a ~~waste gas decay tank rupture~~ fuel handling accident.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that Table 3.3.7-1 determines which SRs apply to which CREFS Actuation Functions.

SR 3.3.7.1

Performance of the CHANNEL CHECK ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

BASES

SURVEILLANCE REQUIREMENTS (continued)

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

~~[The Frequency of 12 hours is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.~~

~~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 3.3.7.2

A COT is performed on each required channel to ensure the entire channel will perform the intended function. This test verifies the capability of the instrumentation to provide the CREFS actuation. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable COT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology. ~~[The Frequency of 92 days is based on the known reliability of the monitoring equipment and has been shown to be acceptable through operating experience.~~

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

~~SR 3.3.7.3~~

~~SR 3.3.7.3 is the performance of an ACTUATION LOGIC TEST. The train being tested is placed in the bypass condition, thus preventing inadvertent actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function. In addition, the master relay coil is pulse tested for continuity. This verifies that the logic modules are OPERABLE and there is an intact voltage signal path to the master relay coils. [This test is performed every 31 days on a STAGGERED TEST BASIS. The Frequency is acceptable based on instrument reliability and industry operating experience.~~

~~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 3.3.7.4

SR 3.3.7.4 is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay, verifying contact operation and a low voltage continuity check of the slave relay coil. Upon master relay contact operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity. [This test is performed every 31 days on a STAGGERED TEST BASIS. The Frequency is acceptable based on instrument reliability and industry operating experience.

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 3.3.7.5

SR 3.3.7.5 is the performance of an ACTUATION LOGIC TEST. The train being tested is placed in the bypass condition, thus preventing inadequate actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function. In addition, the master relay coil is pulse tested for continuity. This verifies that the logic modules are OPERABLE and there is an intact voltage signal path to the master relay coils. [This test is performed ever 92 days on a STAGGERED TEST BASIS. The Surveillance interval is justified in Reference 1.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. (Ref. 1)

KAB061

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.

The SR is modified by a Note stating that the Surveillance is only applicable to the actuation logic of the ESFAS Instrumentation.

SR 3.3.7.6 is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay, verifying contact operation and a low voltage continuity check of the slave relay coil. Upon master relay contact operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity. This test is performed every 92 days on a STAGGERED TEST BASIS. The Surveillance interval is justified in Reference 1.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. (Ref. 1)

KAB061

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.

The SR is modified by a Note stating that the Surveillance is only applicable to the master relays of the ESFAS Instrumentation.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.7.~~7~~

SR 3.3.7.~~7~~ is the performance of a SLAVE RELAY TEST. The SLAVE RELAY TEST is the energizing of the slave relays. Contact operation is verified in one of two ways. Actuation equipment that may be operated in the design mitigation MODE is either allowed to function or is placed in a condition where the relay contact operation can be verified without operation of the equipment. Actuation equipment that may not be operated in the design mitigation MODE is prevented from operation by the SLAVE RELAY TEST circuit. For this latter case, contact operation is verified by a continuity check of the circuit containing the slave relay.
~~[This test is performed every [92] days. The Frequency is acceptable based on instrument reliability and industry operating experience.~~

~~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 3.3.7.~~8~~

SR 3.3.7.~~8~~ is the performance of a TADOT. This test is a check of the Manual Actuation Functions. Each Manual Actuation Function is tested up to, and including, the master relay coils. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. In some instances, the test includes actuation of the end device (i.e., pump starts, valve cycles, etc.).

BASES

SURVEILLANCE REQUIREMENTS (continued)

The test also includes trip devices that provide actuation signals directly to the Solid State Protection System, bypassing the analog process control equipment. ~~[The Frequency of 18 months is based on the known reliability of the Function and the redundancy available, and has been shown to be acceptable through operating experience.~~

~~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.~~
~~]~~

The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Functions tested have no setpoints associated with them.

SR 3.3.7.~~9~~

CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology.

~~[The Frequency of 18 months is based on operating experience and is consistent with the typical industry refueling cycle.~~

~~OR~~

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

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~REVIEWER'S NOTE~~

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

REFERENCES ~~1. WCAP-15376, Rev. 0, October 2000.~~ None

stet

KAB061

B 3.3 INSTRUMENTATION

B 3.3.7A Control Room Emergency Filtration System (CREFS) Actuation Instrumentation
(Without Setpoint Control Program)

BASES

BACKGROUND

The CREFS provides an enclosed control room environment from which the unit can be operated following an uncontrolled release of radioactivity. During normal operation, the Auxiliary Building Ventilation System provides control room ventilation. Upon receipt of an actuation signal, the CREFS initiates filtered ventilation and pressurization of the control room. This system is described in the Bases for LCO 3.7.10, "Control Room Emergency Filtration System."

The actuation instrumentation consists of redundant radiation monitors in the air intakes and control room area. A high radiation signal from any of these detectors will initiate both trains of the CREFS. The control room operator can also initiate CREFS trains by manual switches in the control room. The CREFS is also actuated by a safety injection (SI) signal. The SI Function is discussed in LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation."

APPLICABLE SAFETY ANALYSES

The control room must be kept habitable for the operators stationed there during accident recovery and post accident operations.

The CREFS acts to terminate the supply of unfiltered outside air to the control room, initiate filtration, and pressurize the control room. These actions are necessary to ensure the control room is kept habitable for the operators stationed there during accident recovery and post accident operations by minimizing the radiation exposure of control room personnel.

In MODES 1, 2, 3, and 4, the radiation monitor actuation of the CREFS is a backup for the SI signal actuation. This ensures initiation of the CREFS during a loss of coolant accident or steam generator tube rupture.

The radiation monitor actuation of the CREFS in MODES 5 and 6, and during movement of [recently] irradiated fuel assemblies are the primary means to ensure control room habitability in the event of a fuel handling or waste gas decay tank rupture accident.

The CREFS actuation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

BASES

LCO

The LCO requirements ensure that instrumentation necessary to initiate the CREFS is OPERABLE.

1. Manual Initiation

The LCO requires two channels OPERABLE. The operator can initiate the CREFS at any time by using either of two switches in the control room. This action will cause actuation of all components in the same manner as any of the automatic actuation signals.

The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual actuation circuitry to ensure the operator has manual initiation capability.

Each channel consists of one ~~push~~ hand switch ~~button~~ and the interconnecting wiring to the actuation logic cabinet.

2. Automatic Actuation Logic and Actuation Relays

The LCO requires two trains of Actuation Logic and Relays OPERABLE to ensure that no single random failure can prevent automatic actuation.

Automatic Actuation Logic and Actuation Relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b., SI, in LCO 3.3.2. The applicable MODES and specified conditions for the CREFS portion of these functions are different and less restrictive than those specified for their SI roles. If one or more of the SI functions becomes inoperable in such a manner that only the CREFS function is affected, the Conditions applicable to their SI function need not be entered. The less restrictive Actions specified for inoperability of the CREFS Functions specify sufficient compensatory measures for this case.

3. Control Room Radiation

The LCO specifies ~~two required Control Room Atmosphere Radiation Monitors and~~ two required Control Room Air Intake Radiation Monitors to ensure that the radiation monitoring instrumentation necessary to initiate the CREFS remains OPERABLE.

For sampling systems, channel OPERABILITY involves more than OPERABILITY of channel electronics. OPERABILITY ~~may~~ also requires correct valve lineups, sample pump operation, ~~and filter motor operation,~~ as well as detector OPERABILITY~~, if these supporting features are necessary for trip to occur under the conditions assumed by the safety analyses~~.

BASES

LCO (continued)

4. Safety Injection

Refer to LCO 3.3.2, Function 1, for all initiating Functions and requirements.

APPLICABILITY

The CREFS Functions must be OPERABLE in MODES 1, 2, 3, 4, and during movement of ~~[recently]~~ irradiated fuel assemblies. ~~The Functions must also be OPERABLE in MODES [5 and 6] when required for a waste gas decay tank rupture accident,~~ to ensure a habitable environment for the control room operators.

The Applicability for the CREFS actuation on the ESFAS Safety Injection Functions are specified in LCO 3.3.2. Refer to the Bases for LCO 3.3.2 for discussion of the Safety Injection Function Applicability.

ACTIONS

The most common cause of channel inoperability is outright failure or drift ~~of the bistable or process module~~ sufficient to exceed the tolerance allowed by the unit specific calibration procedures. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a COT, when the process instrumentation is set up for adjustment to bring it within specification. If the Trip Setpoint is less conservative than the tolerance specified by the calibration procedure, the channel must be declared inoperable immediately and the appropriate Condition entered.

A Note has been added to the ACTIONS indicating that separate Condition entry is allowed for each Function. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.7-1 in the accompanying LCO. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

A.1

Condition A applies to the actuation logic train Function of the CREFS, the radiation monitor channel Functions, and the manual channel Functions.

BASES

ACTIONS (continued)

If one train is inoperable, or one radiation monitor channel is inoperable in one or more Functions, 7 days are permitted to restore it to OPERABLE status. The 7 day Completion Time is the same as is allowed if one train of the mechanical portion of the system is inoperable. The basis for this Completion Time is the same as provided in LCO 3.7.10. If the channel/train cannot be restored to OPERABLE status, one CREFS train must be placed in the ~~emergency radiation protection~~ mode of operation. This accomplishes the actuation instrumentation Function and places the unit in a conservative mode of operation.

~~The Required Action for Condition A is modified by a Note that requires placing one CREFS train in the toxic gas protection mode instead of the [radiation protection] mode of operation if the automatic transfer to toxic gas protection mode is inoperable. This ensures the CREFS train is placed in the most conservative mode of operation relative to the OPERABILITY of the associated actuation instrumentation.~~

B.1.1, B.1.2, and B.2

Condition B applies to the failure of two CREFS actuation trains, two radiation monitor channels, or two manual channels. The first Required Action is to place one CREFS train in the ~~emergency [radiation protection]~~ mode of operation immediately. This accomplishes the actuation instrumentation Function that may have been lost and places the unit in a conservative mode of operation. The applicable Conditions and Required Actions of LCO 3.7.10 must also be entered for the CREFS train made inoperable by the inoperable actuation instrumentation. This ensures appropriate limits are placed upon train inoperability as discussed in the Bases for LCO 3.7.10.

Alternatively, both trains may be placed in the ~~emergency [radiation protection]~~ mode. This ensures the CREFS function is performed even in the presence of a single failure.

~~The Required Action for Condition B is modified by a Note that requires placing one CREFS train in the toxic gas protection mode instead of the [radiation protection] mode of operation if the automatic transfer to toxic gas protection mode is inoperable. This ensures the CREFS train is placed in the most conservative mode of operation relative to the OPERABILITY of the associated actuation instrumentation.~~

BASES

ACTIONS (continued)

C.1 and C.2

Condition C applies when the Required Action and associated Completion Time for Condition A or B have not been met and the unit is in MODE 1, 2, 3, or 4. The unit must be brought to a MODE in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1 and D.2

MHC003

Condition D applies when the Required Action and associated Completion Time for Condition A or B have not been met when ~~[recently]~~ irradiated fuel assemblies are being moved or CORE ALTERATIONS are being performed. Movement of ~~[recently]~~ irradiated fuel assemblies must be suspended immediately to reduce the risk of accidents that would require CREFS actuation and CORE ALTERATIONS.

E.1

Condition E applies when the Required Action and associated Completion Time for Condition A or B have not been met in MODE 5 or 6. Actions must be initiated to restore the inoperable train(s) to OPERABLE status immediately to ensure adequate isolation capability in the event of a ~~waste gas decay tank rupture~~ fuel handling accident.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that Table 3.3.7-1 determines which SRs apply to which CREFS Actuation Functions.

SR 3.3.7.1

Performance of the CHANNEL CHECK ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

BASES

SURVEILLANCE REQUIREMENTS (continued)

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

~~[The Frequency of 12 hours is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.~~

~~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 3.3.7.2

A COT is performed on each required channel to ensure the entire channel will perform the intended function. This test verifies the capability of the instrumentation to provide the CREFS actuation. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable COT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology. ~~[The Frequency of 92 days is based on the known reliability of the monitoring equipment and has been shown to be acceptable through operating experience.~~

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

~~SR 3.3.7.3~~

~~SR 3.3.7.3 is the performance of an ACTUATION LOGIC TEST. The train being tested is placed in the bypass condition, thus preventing inadvertent actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function. In addition, the master relay coil is pulse tested for continuity. This verifies that the logic modules are OPERABLE and there is an intact voltage signal path to the master relay coils. [This test is performed every 31 days on a STAGGERED TEST BASIS. The Frequency is acceptable based on instrument reliability and industry operating experience.~~

~~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 3.3.7.4

SR 3.3.7.4 is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay, verifying contact operation and a low voltage continuity check of the slave relay coil. Upon master relay contact operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity. [This test is performed every 31 days on a STAGGERED TEST BASIS. The Frequency is acceptable based on instrument reliability and industry operating experience.

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 3.3.7.5

SR 3.3.7.5 is the performance of an ACTUATION LOGIC TEST. The train being tested is placed in the bypass condition, thus preventing inadequate actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function. In addition, the master relay coil is pulse tested for continuity. This verifies that the logic modules are OPERABLE and there is an intact voltage signal path to the master relay coils. [This test is performed ever 92 days on a STAGGERED TEST BASIS. The Surveillance interval is justified in Reference 1.

OR

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. (Ref. 1)

KAB061

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.~~
~~]~~

The SR is modified by a Note stating that the Surveillance is only applicable to the actuation logic of the ESFAS Instrumentation.~~]~~

~~[~~ SR 3.3.7.~~6~~

SR 3.3.7.~~6~~ is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay, verifying contact operation and a low voltage continuity check of the slave relay coil. Upon master relay contact operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity. ~~[This test is performed every 92 days on a STAGGERED TEST BASIS. The Surveillance interval is justified in Reference 1.~~

~~OR~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. (Ref. 1) KAB061

~~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.~~
~~]~~

The SR is modified by a Note stating that the Surveillance is only applicable to the master relays of the ESFAS Instrumentation.~~]~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.7.~~7~~

SR 3.3.7.~~7~~ is the performance of a SLAVE RELAY TEST. The SLAVE RELAY TEST is the energizing of the slave relays. Contact operation is verified in one of two ways. Actuation equipment that may be operated in the design mitigation MODE is either allowed to function or is placed in a condition where the relay contact operation can be verified without operation of the equipment. Actuation equipment that may not be operated in the design mitigation MODE is prevented from operation by the SLAVE RELAY TEST circuit. For this latter case, contact operation is verified by a continuity check of the circuit containing the slave relay.
~~[This test is performed every [92] days. The Frequency is acceptable based on instrument reliability and industry operating experience.~~

~~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 3.3.7.~~8~~

SR 3.3.7.~~8~~ is the performance of a TADOT. This test is a check of the Manual Actuation Functions. Each Manual Actuation Function is tested up to, and including, the master relay coils. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. In some instances, the test includes actuation of the end device (i.e., pump starts, valve cycles, etc.).

BASES

SURVEILLANCE REQUIREMENTS (continued)

The test also includes trip devices that provide actuation signals directly to the Solid State Protection System, bypassing the analog process control equipment. ~~[The Frequency of 18 months is based on the known reliability of the Function and the redundancy available, and has been shown to be acceptable through operating experience.~~

~~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.~~
~~]~~

The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Functions tested have no setpoints associated with them.

SR 3.3.7.~~9~~

CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology.

~~[The Frequency of 18 months is based on operating experience and is consistent with the typical industry refueling cycle.~~

~~OR~~

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

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~REVIEWER'S NOTE~~

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

~~]~~

REFERENCES ~~1. WCAP-15376, Rev. 0, October 2000.~~ None

stet

KAB061

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.7 BASES, CONTROL ROOM EMERGENCY VENTILATION SYSTEM (CREVS) ACTUATION INSTRUMENTATION

1. The type of Setpoint Control Program (Without Setpoint Control Program) and the Specification designator "A" are deleted since they are unnecessary. This information is provided in NUREG 1431, Rev. 4.0 to assist in identifying the appropriate Specification to be used as a model for the plant specific ITS conversion, but serves no purpose in the plant specific implementation. In addition, ISTS B 3.3.7B (with Setpoint Control Program Specification) is not used and is not shown. Furthermore, the title of the Specification has been changed from "Control Room Emergency Filtration System (CREFS) Actuation Instrumentation" to " Control Room Emergency Ventilation System (CREVS) Actuation Instrumentation" since Sequoyah Nuclear Plant (SQN) does not have a CREFS.

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. Changes are made to be consistent with changes made to other Specifications.

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

6. ISTS SR 3.3.7.1, SR 3.3.7.2, SR 3.3.7.5, SR 3.3.7.6, SR 3.3.7.7, SR 3.3.7.8, and SR 3.3.7.9 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.

7. 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 3.3.7, CONTROL ROOM EMERGENCY VENTILATION SYSTEM (CREVS) ACTUATION INSTRUMENTATION

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

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ATTACHMENT 8

ITS 3.3.8, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS) ACTUATION INSTRUMENTATION

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

ITS

A01

ITS 3.3.8

3/4.3.3 MONITORING INSTRUMENTATION

Auxiliary Building Gas Treatment System (ABGTS) ACTUATION

A02

~~RADIATION MONITORING~~ INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

Auxiliary Building Gas Treatment System (ABGTS) actuation

A02

LCO 3.3.8

3.3.3.1 The ~~radiation monitoring~~ instrumentation channels shown in Table 3.3-6 shall be OPERABLE with their alarm/trip setpoints within the specified limits.

MHC006

APPLICABILITY: As shown in Table 3.3-6.

Applicability

ACTION:

STET

inoperable due to

Action A

a. ~~With a radiation monitoring channel alarm/trip setpoint exceeding the value shown in Table 3.3-6, adjust the setpoint to within the limit within 4 hours or declare the channel inoperable.~~

M01

ACTION B

b. With one or more radiation monitoring channels inoperable, take the ACTION shown in Table 3.3-6.

ACTIONS Note ~~1~~

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

ABGTS actuation

A02

SR Table Note

4.3.3.1 Each ~~radiation monitoring~~ instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and ~~CHANNEL FUNCTIONAL TEST~~ operations for the MODES and at the frequencies shown in Table 4.3-3.

CHANNEL OPERATIONAL TEST (COT)

M02

ITS A01 ITS 3.3.8

Table 3.3.8-1

TABLE 3.3-6

Auxiliary Building Gas Treatment System (ABGTS) A02

~~RADIATION MONITORING~~ INSTRUMENTATION

MHC006

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	~~MEASUREMENT RANGE~~	ACTION
1. AREA MONITOR					
Function ~~2~~ 1 a. Fuel ~~Storage~~ Pool Area (Spent)	1 (b)	*	≤ 151 mR/hr	~~10^{-1} – 10^{4} mR/hr~~	26
2. PROCESS MONITORS					
a. Containment Purge Air	1	1, 2, 3, 4 & 6	≤ 8.5x 10^{-3} µ Ci/cc	10 - 10^{7} cpm	28
b. Containment					
i. Deleted					
ii. Particulate Activity					
RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10^{7} cpm	27
c. Control Room Isolation	2	ALL MODES and during movement of irradiated fuel assemblies	≤ 400 cpm**	10 - 10^{7} cpm	29

Add proposed Table 3.3.8-1 Function ~~3~~ 2

Add proposed Table 3.3.8-1 Footnote (b)

Applicability * ~~With fuel in the storage pool or building~~ During movement of recently irradiated fuel assemblies in the auxiliary building

** Equivalent to 1.0 x 10^{-5} µCi/cc.

With fuel stored in the spent fuel pool or during movement of irradiated fuel assemblies

MHC006

LA01 ~~M03~~ A01 LA01 M04 See ITS 3.3.6 See ITS 3.4.15 M05 M04 ~~L01~~ See ITS 3.3.7 M08

ITS A01 ITS 3.3.8

TABLE 3.3-6 (Continued)

ACTION STATEMENTS

MHC006

~~A03~~ ~~Add proposed ACTION Note 2~~

ACTION B

ACTION 26 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, ~~perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours.~~

Add proposed ACTION B M06

~~M07~~ ~~Add proposed ACTION C for Function 2~~

ACTION 27 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.

See ITS 3.4.15

ACTION 28 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.9 (MODE 6) and 3.3.2.1 (MODES 1, 2, 3, and 4).

See ITS 3.3.6

ACTION 29 -

a. With one channel inoperable, place the associated control room emergency ventilation system (CREVS) train in recirculation mode of operation within 7 days or be at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With two channels inoperable, within 1 hour initiate and maintain operation of one CREVS train in the recirculation mode of operation and enter the required Actions for one CREVS train made inoperable by inoperable CREVS actuation instrumentation.

Or

place both trains in the recirculation mode of operation within one hour.

See ITS 3.3.7

If the completion time of Action 29b cannot be met in Modes 1, 2, 3, and 4, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

If the completion time of Action 29b cannot be met during the movement of irradiated fuel assemblies, suspend core alterations and suspend movement of irradiated fuel assemblies.

If the completion time of Action 29b cannot be met in Modes 5 and 6, initiate action to restore one CREVS train.

~~M03~~ ~~Add proposed ACTIONS A, B, C, and D for Function 1~~

MHC006

ITS A01 ITS 3.3.8

Table 3.3.8-1

TABLE 4.3-3

Auxiliary Building Gas Treatment System (ABGTS) A02

~~RADIATION MONITORING~~ INSTRUMENTATION SURVEILLANCE REQUIREMENTS

COT M02

MHC006

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION	~~CHANNEL FUNCTIONAL TEST~~	MODES FOR WHICH SURVEILLANCE REQUIRED	
Add proposed SR 3.3.8.3 for Table 3.3.8-1 Function 1 at a Frequency of ~~18~~ months					~~M03~~
1. AREA MONITOR				In accordance with the Surveillance Frequency Control Program	LA02
Function ~~2~~ 1 a. Fuel ~~Storage~~ Pool Area (Spent)	~~S~~ SR 3.3.8.1	~~R~~ SR 3.3.8.~~1~~	~~Q~~ SR 3.3.8.2	*	A01
2. PROCESS MONITORS					
a. Containment Purge Air Exhaust	S	R	Q	1, 2, 3, 4 & 6	See ITS 3.3.6
b. Containment					See ITS 3.4.15
i. Deleted					
ii. Particulate Activity					
RCS Leakage Detection	S	R	Q	1, 2, 3, & 4	
c. Control Room Isolation	S	R	Q	ALL MODES	See ITS 3.3.7

3

*~~With fuel in the storage pool or building~~.

~~During movement of recently irradiated fuel assemblies in the auxiliary building~~ ~~L01~~

MHC006

With fuel stored in the spent fuel pool or during movement of irradiated fuel assemblies M08

ITS A01 ITS 3.3.8

INSTRUMENTATION

3/4.3.3 MONITORING INSTRUMENTATION

Auxiliary Building Gas Treatment System (ABGTS) Actuation A02

~~RADIATION MONITORING~~ INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

Auxiliary Building Gas Treatment System (ABGTS) actuation A02

LCO 3.3.8 3.3.3.1 The ~~radiation monitoring~~ instrumentation channels shown in Table 3.3-6 shall be OPERABLE with their alarm/trip setpoints within the specified limits.

Applicability APPLICABILITY: As shown in Table 3.3-6.

STET inoperable due to MHC006

ACTION:

Action A a. ~~With a radiation monitoring channel alarm/trip setpoint exceeding the value shown in Table 3.3-6, adjust the setpoint to within the limit within 4 hours or declare the channel inoperable.~~ M01

ACTION B b. With one or more radiation monitoring channels inoperable, take the ACTION shown in Table 3.3-6.

ACTIONS Note ~~1~~ c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

ABGTS actuation A02

SR Table Note 4.3.3.1 Each ~~radiation monitoring~~ instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and ~~CHANNEL FUNCTIONAL TEST~~ operations for the MODES and at the frequencies shown in Table 4.3-3.

CHANNEL OPERATIONAL TEST (COT) M02

ITS A01 ITS 3.3.8

Table 3.3.8-1

TABLE 3.3-6
~~RADIATION MONITORING~~ INSTRUMENTATION

Auxiliary Building Gas Treatment System (ABGTS) — A02

MHC006

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	~~MEASUREMENT RANGE~~	ACTION
1. AREA MONITOR					
Add proposed Table 3.3.8-1 Function 1 — ~~M03~~					
Function ~~2~~ 1 a. Fuel ~~Storage~~ Spent Pool Area — A01, LA01	1 (b) — M04	*	≤151 mR/hr	~~10^{-1} - 10^{4} mR/hr~~	26
2. PROCESS MONITORS					
a. Containment Purge Air	1	1, 2, 3, 4 & 6	≤8.5 x 10^{-3} µCi/cc	10 - 10^{7} cpm	28 — See ITS 3.3.6
b. Containment					See ITS 3.4.15
i. Deleted					
ii. Particulate Activity					
RCS Leakage Detection	1	1, 2, 3 & 4	N/A	10 - 10^{7} cpm	27
c. Control Room Isolation	2	ALL MODES and during movement of irradiated fuel assemblies	≤ 400 cpm**	10 - 10^{7} cpm	29 — See ITS 3.3.7

Add proposed Table 3.3.8-1 Function ~~3~~ 2 — M05

Add proposed Table 3.3.8-1 Footnote (b) — M04

Applicability

* ~~With fuel in the storage pool or building~~ During movement of recently irradiated fuel assemblies in the auxiliary building — ~~L01~~

** Equivalent to 1.0 x 10^{-5} µCi/cc. — See ITS 3.3.7

MHC006

With fuel stored in the spent fuel pool or during movement of irradiated fuel assemblies — M08

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ITS

A01

ITS 3.3.8

MHC006

TABLE 3.3-6 (Continued)

ACTION STATEMENTS

A03

Add proposed ACTION Note 2

Add proposed ACTION B

M06

ACTION B

ACTION 26 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, ~~perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours~~.

Add proposed ACTION C for Function 2

M07

ACTION 27 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.

See ITS 3.4.15

ACTION 28 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.9 (MODE 6) and 3.3.2 (MODES 1, 2, 3, and 4).

See ITS 3.3.6

ACTION 29 -

a. With one channel inoperable, place the associated control room emergency ventilation system (CREVS) train in recirculation mode of operation within 7 days or be at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With two channels inoperable, within 1 hour initiate and maintain operation of one CREVS train in the recirculation mode of operation and enter the required Actions for one CREVS train made inoperable by inoperable CREVS actuation instrumentation.

Or

place both trains in the recirculation mode of operation within one hour.

See ITS 3.3.7

If the completion time of Action 29b cannot be met in Modes 1, 2, 3, and 4, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

If the completion time of Action 29b cannot be met during the movement of irradiated fuel assemblies, suspend core alterations and suspend movement of irradiated fuel assemblies.

If the completion time of Action 29b cannot be met in Modes 5 and 6, initiate action to restore one CREVS train.

Add proposed ACTIONS A, B, C, and D for Function 1

M03

MHC006

ITS A01 ITS 3.3.8

Table 3.3.8-1

TABLE 4.3-3

Auxiliary Building Gas Treatment System (ABGTS) — A02

RADIATION ~~MONITORING~~ INSTRUMENTATION SURVEILLANCE REQUIREMENTS

COT — M02

MHC006

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION	~~CHANNEL FUNCTIONAL TEST~~	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. AREA MONITOR				
a. Fuel ~~Storage~~ Pool Area (Spent)	~~S~~ SR 3.3.8.1	~~R~~ SR 3.3.8.4	~~Q~~ SR 3.3.8.2	*
2. PROCESS MONITORS				
a. Containment Purge Air Exhaust	S	R	Q	1, 2, 3, 4 & 6
b. Containment				
i. Deleted				
ii. Particulate Activity				
RCS Leakage Detection	S	R	Q	1, 2, 3 & 4
c. Control Room Isolation	S	R	Q	ALL MODES

Add proposed SR 3.3.8.3 for Table 3.3.8-1 Function 1 at a Frequency of ~~18 months~~ — ~~M03~~

In accordance with the Surveillance Frequency Control Program — LA02

Function ~~2~~ — 1

3

A01

See ITS 3.3.6

See ITS 3.4.15

See ITS 3.3.7

* ~~With fuel in the storage pool or building~~.

~~During movement of recently irradiated fuel assemblies in the auxiliary building~~ — ~~L01~~

MHC006

With fuel stored in the spent fuel pool or during movement of irradiated fuel assemblies — M08

DISCUSSION OF CHANGES
ITS 3.3.8, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS) ACTUATION INSTRUMENTATION

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 3.3.3.1 requires, in part, the Radiation Monitoring Instrumentation channels to be OPERABLE. CTS 3.3.3.1 ACTIONS a and b provide the Required Actions and associated Completion Time for when the Radiation Monitoring Instrumentation is inoperable. CTS 4.3.3.1 requires, in part, that each Radiation Monitoring Instrumentation channel be demonstrated OPERABLE.
CTS Table 3.3-6 lists the instruments required to be OPERABLE, the Applicable MODE, and the appropriate ACTIONS to take for inoperable Radiation Monitoring Instrumentation. CTS Table 4.3-3 provides the Surveillance Requirements for the Radiation Monitoring Instrumentation. ITS LCO 3.3.8 requires that the Auxiliary Building Gas Treatment System (ABGTS) Actuation Instrumentation for each Function in Table 3.3.8-1 to be OPERABLE. ITS 3.3.8 ACTIONS ~~A~~, B~~, C, and D~~ provide the Required Actions and associated Completion Time for when the ABGTS actuation instrumentation is inoperable. ITS SR 3.3.8.1, SR 3.3.8.2, ~~SR 3.3.8.3,~~ and SR 3.3.8.~~4~~ provide the testing requirements for each ABGTS actuation instrument in Table 3.3.8-1. ITS Table 3.3.8-1 lists the instruments that are required to be OPERABLE, the Applicable MODE, and the appropriate ACTIONS to take for inoperable ABGTS instrumentation. This changes the CTS by having a separate Specification for the ABGTS actuation instrumentation in lieu of including it in the Radiation Monitoring Instrumentation Specifications.

and

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MHC006

This change is acceptable because the technical requirements for the Radiation Monitoring Instrumentation are maintained with the change in format. The ABGTS Actuation Instrumentation continues to require the OPERABILITY of the Radiation Monitoring instrumentation. This change is designated as administrative because it does not result in a technical change to the CTS.

~~A03~~ ~~The ACTIONS for CTS 3.3.3.1 do not contain a Note allowing separate Condition entry for each Function. ITS 3.3.8 ACTIONS Note 2 states that separate Condition entry is allowed for each Function. This changes the CTS by specifically allowing separate Condition entry for each Function in ITS Table 3.3.8-1.~~

~~This change is acceptable because it clearly states the current requirement. The CTS considers each Radiation Monitoring Instrument Function to be separate and independent. 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 3.3.8, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS) ACTUATION INSTRUMENTATION

MHC006

MORE RESTRICTIVE CHANGES

M01 CTS 3.3.3.1 ACTION a requires that when a radiation monitor channel alarm/trip setpoint exceeds the value shown in Table 3.3-6, to adjust the setpoint within 4 hours or declare the channel inoperable. ITS 3.3.8 ~~does not contain an ACTION~~ for adjusting a setpoint that exceeds the required valued. ~~Instead, ITS 3.3.8 ACTION B requires that when one required radiation monitoring channel is inoperable (i.e., setpoint not within tolerance) to enter the applicable Required Actions immediately~~. This changes the CTS by not allowing adjustment of the setpoint in 4 hours before declaring the channel inoperable.

Condition A allows 4 hours

; however, entry into ITS 3.3.8 Condition A requires declaring the channel inoperable

contains this allowance after declaring the channel inoperable and entering ITS 3.3.8 Condition A.

The purpose of CTS 3.3.3.1 ACTION a is to allow adjustment of the radiation monitor setpoint to within limits before declaring the channel inoperable. ~~Although~~ ITS ~~does not include this allowance, restoration such that the LCO is met, is always an option~~. This change is acceptable because the channel requirements in ITS 3.3.8 will ensure that the required radiation monitoring channel is OPERABLE. The proposed ITS ACTION for when ~~one~~ channel is inoperable will ensure that the Required Actions and Completion Times used establish remedial measures that when taken minimize risk associated with continued operation. This change is designated as more restrictive because more stringent Required Actions and Completion Times are being applied in the ITS than were applied in the CTS.

the required

M02 CTS 4.3.3.1 requires, in part, that the Radiation Monitoring Instrumentation on Table 4.3-3 be demonstrated OPERABLE by performance of CHANNEL FUNCTIONAL TEST. CTS Table 4.3-3 Instrument 1.a (Area Monitor – Fuel Storage Pool Area) requires a CHANNEL FUNCTIONAL TEST. ITS Table 3.3.8-1 Function ~~2~~ 1 (Spent Fuel Pool Area Radiation Monitor) requires the performance of ITS SR 3.3.8.2. ITS SR 3.3.8.2 requires the performance of a CHANNEL OPERATIONAL TEST (COT). This changes the CTS by requiring a COT instead of a CHANNEL FUNCTIONAL TEST.

This change is acceptable because the COT continues to perform a test similar to the current CHANNEL FUNCTIONAL TEST. CTS defines a CHANNEL FUNCTIONAL TEST based on the type of channel. In CTS a CHANNEL FUNCTIONAL TEST shall be: for Analog channels, the injection of a simulated signal into the channel as close to the sensor as practicable to verify OPERABILITY including alarm and/or trip functions; for Bistable channels, the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions; and for Digital channels, the injection of a simulated signal into the channel as close to the sensor input to the process racks as practicable to verify OPERABILITY including alarm and/or trip functions. This does not include the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors as does the CHANNEL CALIBRATION. The COT provides a similar test and includes adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy. This change is designated as more restrictive because the ITS requires additional acceptance criteria that is not required in the CTS.

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DISCUSSION OF CHANGES
ITS 3.3.8, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS) ACTUATION INSTRUMENTATION

M03 CTS 3.3.3.1 does not contain a requirement for the manual initiation of ABGTS. ITS Table 3.3.8-1 Function 1 requires two channels of manual initiation for ABGTS to be OPERABLE in MODES 1, 2, 3, and 4 and during movement of recently irradiated fuel assemblies in the auxiliary building. ITS Table 3.3.8-1 Function 1 also requires performance of SR 3.3.8.3. ITS SR 3.3.8.3 requires performance of a TADOT every 18 months. (See DOC LA02 for the discussion related to moving the Surveillance Frequency to the Surveillance Frequency Control Program.) Additionally, ITS SR 3.3.8.3 contains a Note stating that verification of the setpoint is not required. Furthermore, ITS 3.3.8 contains compensatory actions to take if one or both ABGTS manual initiation channels are inoperable. ITS 3.3.8 ACTION A requires, in part, that with one manual initiation channel inoperable, to place one ABGTS train in operation. ITS 3.3.8 ACTION B requires, in part, that with two manual initiation channels inoperable, to place one train of ABGTS in operation immediately and to immediately enter the applicable Conditions and Required Actions of LCO 3.7.12. ITS 3.3.8 ACTION C requires that when the Required Action and associated Completion Time for Condition A or B are not met during movement of recently irradiated fuel assemblies in the auxiliary building, to immediately suspend movement of recently irradiated fuel assemblies in the auxiliary building. ITS 3.3.8 ACTION D requires that when the Required Action and associated Completion Time for Condition A or B are not met in MODE 1, 2, 3, or 4, to be in MODE 3 in 6 hours and in MODE 5 in 36 hours. This changes the CTS by requiring a new Function, Applicability, ACTIONS and Surveillance Requirement for the manual initiation of ABGTS.

Not Used

MHC006

The purpose the ABGTS manual initiation is to allow the operator to initiate ABGTS at any time. This change is acceptable because the addition of ABGTS manual initiation requirements will ensure that proper redundancy is maintained. This change is designated as more restrictive because additional requirements are being added to the ITS that were not required in the CTS.

M04 CTS Table 3.3-6 Minimum Channels OPERABLE column requires one channel for Functional Unit 1.a (Area Monitor, Fuel Storage Pool Area). ITS Table 3.3.8-1 Required Channels column requires one channel OPERABLE for Function ~~2~~ 1 (Spent Fuel Pool Area Radiation Monitor) modified by footnote (b) that states the Required Channel shall be associated with the ABGTS train required OPERABLE by LCO 3.7.12. This changes the CTS by specifying that the required Spent Fuel Pool Area Radiation Monitor shall be associated with the OPERABLE ABGTS train.

The purpose of CTS Table 3.3-6 Functional Unit 1.a (Area Monitor, Fuel Storage Pool Area) is to provide an indication of abnormal radiation levels and actuate ABGTS if necessary. This change is acceptable because it ensures the required radiation monitoring channel is associated with the OPERABLE ABGTS train. Thus if the radiation monitor's setpoint is exceeded a train of ABGTS will be available to start to mitigate any potential release. This change is designated as more restrictive because additional limitations are placed on what constitutes a required channel.

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DISCUSSION OF CHANGES
ITS 3.3.8, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS) ACTUATION INSTRUMENTATION

M05 CTS 3.3.3.1 states that the Radiation Monitoring Instrumentation channels shown in Table 3.3-6 shall be OPERABLE. CTS Table 3.3-6 lists the radiation monitor required for the fuel storage pool area. ITS LCO 3.3.8 states that the ABGTS actuation instrumentation for each Function in Table 3.3.8-1 shall be OPERABLE. ITS Table 3.3.8-1 lists the required ABGTS instrument Functions which includes Containment Isolation – Phase A (Function ~~3~~). ITS Table 3.3.8-1 Function ~~3~~ provides a statement referring to LCO 3.3.2, "ESFAS Instrumentation," Function 3.a for all initiation functions and requirements. This changes the CTS by specifying an additional instrumentation actuation Function for the ABGTS.

The purpose of CTS 3.3.3.1 and Table 3.3-6 is to specify the required Functions and instrumentation to ensure the ABGTS actuates as assumed in the accident analysis. The Containment Isolation – Phase A signal from the ESFAS provides an actuation of ABGTS that is credited in the loss of coolant accident. This change is acceptable because it will result in a more complete listing of the Functions that actuate ABGTS. The inclusion of the Containment Isolation – Phase A signal with the other credited ABGTS instrumentation provides a complete list of the required ABGTS instrumentation with a common set of Actions to assure the unit is placed in a safe condition when the required instrumentation is inoperable. Therefore, the proposed change ensures the radioactive materials in the Auxiliary Building Secondary Containment Enclosure atmosphere following an accident are filtered and adsorbed prior to being exhausted to the environment. This change is designated as more restrictive because more ABGTS actuation instrumentation will be required in ITS than was required in CTS.

M06 CTS Table 3.3-6 "MINIMUM CHANNELS OPERABLE" column, for Instrument 1.a, only requires one Area Monitor – Fuel Storage Pool Area channel to be OPERABLE with fuel in the storage pool or building. CTS Table 3.3-6 ACTION 26 applies when the number of OPERABLE channels is less than required by the Minimum Channels OPERABLE requirement. ACTION 26 requires the performance of an area survey of the monitored area with portable monitoring instrumentation at least once per 24 hours. ITS Table 3.3.8-1 Function ~~2~~ requires one Spent Fuel Pool Area Radiation Monitor to be OPERABLE during movement of irradiated fuel assemblies ~~in the auxiliary building~~. ITS 3.3.8 ACTION B requires that when one required ~~channel~~ is inoperable, ~~to place one ABGTS train in operation and to~~ enter the applicable Conditions and Required Action for LCO 3.7.12 for one train made inoperable by inoperable actuation instrumentation. This changes the CTS by requiring more stringent ACTIONS for the inoperable channels~~.~~ (See DOC ~~L01~~ for a discussion on the change to the Applicability.)

The purpose of the Spent Fuel Pool Area Radiation Monitor is to provide indication of high radiation in the Fuel Storage Pool area. This change is acceptable because when ~~one~~ required Spent Fuel Pool Area Radiation Monitor channel is inoperable~~, placing the ABGTS in operation accomplishes the Spent Fuel Pool Area Radiation Monitor instrument function. Additionally~~, entering the Conditions and Required Actions for the ABGTS Specification (ITS 3.7.12) will ~~allow 7 days to restore one inoperable ABGTS train to OPERABLE status~~. This

2
MHC006
1
or with fuel stored in the spent fuel pool.
for reasons other than addressed in Condition A or the Required Action and associated Completion Time of Condition A not met
radiation monitoring
immediately
required
M08
the
require suspending movement of irradiated fuel assemblies and suspending all crane operation with loads over the spent fuel pool

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DISCUSSION OF CHANGES
ITS 3.3.8, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS) ACTUATION INSTRUMENTATION

change is designated as more restrictive because more stringent Required Actions and Completion Times are required in the ITS than were required in the CTS.

M07 CTS 3.3.3.1, Table 3.3-6, ACTION 26, is associated with Functional Unit 1.a (Area Monitor, Fuel Storage Pool Area) and requires that with the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, to perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours. ITS 3.3.8 ACTION C requires if the Required Action and associated Completion Time for Condition B, one required radiation monitor inoperable, is not met during movement of recently irradiated fuel assemblies in the auxiliary building, to immediately suspend movement of recently irradiated fuel assemblies in the auxiliary building. This changes the CTS by adding explicit Required Actions to exit the MODE of Applicability if remedial action cannot be completed within the allotted time.

Not Used

MHC006

The purpose of Required Actions is 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. This change is acceptable because it provides Required Actions to exit the MODE of Applicability that must be taken if the time allotted to establish the required remedial measures or complete the repair of inoperable features is exceeded. This change is designated as more restrictive because more stringent Required Actions and Completion Times are required in the ITS than were required in the CTS.

M08 See Insert 1

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-6 for Radiation Monitoring Instrumentation has five columns stating various requirements for the Radiation Monitoring Instrumentation. These columns are labeled "MINIMUM CHANNELS OPERABLE," "APPLICABLE MODES," ALARM/TRIP SETPOINT," "MEASUREMENT RANGE," AND "ACTION." ITS Table 3.3.8-1 does not contain the "MEASUREMENT RANGE" column. This changes the CTS by moving the information of the "MEASUREMENT RANGE" column 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 the number of required channels, the Applicable MODES, the alarm/trip setpoint, and the appropriate Condition to enter if a required channel becomes inoperable. Also, this change is acceptable because the removed information will be

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Insert 1

M08 CTS 3.3.3.1, Table 3.3-6, Instrument 1.a (Area Monitor - Fuel Storage Pool Area) and CTS Table 4.3-3 Instrument 1.a (Area Monitor - Fuel Storage Pool Area) state that the requirements of the Fuel Storage Pool Area Monitors are applicable when there is fuel in the storage pool or building. CTS 3.9.12 requires that one train of ABGTS shall be be OPERABLE whenever irradiated fuel is in the storage pool. CTS 3.9.4 requires that one train of ABGTS is OPERABLE during movement of irradiated fuel within the containment. An OPERABLE train of ABGTS also requires the actuation signal to be OPERABLE. ITS Table 3.3.8-1 Function 1 (Spent Fuel Pool Area Radiation Monitor) states that the Applicable MODE is with fuel stored in the spent fuel pool or during movement of irradiated fuel assemblies. This changes CTS by adding an additional requirement to have the required Spent Fuel Pool Area Radition Monitor to be OPERABLE anytime there is movement of irradiated fuel assemblies.

The purpose of CTS Table 3.3-6 Functional Unit 1.a is to ensure that the required Fuel Storage Pool Area Monitor is OPERABLE to start equipment necessary to mitigate the consequences of a fuel handling accident. This change is acceptable because it changes the Mode of Applicability to include the potential fuel handling accident that could occur while moving irradiated fuel assemblies. Therefore, the proposed change ensures that any postulated fuel handling accident will be monitored by an OPERABLE instrument channel. This change is designated as more restrictive because the Mode of Applicability required for ITS has increased over what was required in CTS.

MHC006

DISCUSSION OF CHANGES
ITS 3.3.8, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS) ACTUATION INSTRUMENTATION

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 Table 4.3-3 Instrument 1.a requires a CHANNEL CHECK every shift (12 hours), a CHANNEL FUNCTIONAL TEST every quarter (92 days), and a CHANNEL CALIBRATION every refueling cycle (18 months). ~~In addition, SR 3.3.8.3 has been added for ITS Table 3.3.8-1 Function 1 with a Frequency of 18 months as discussed in DOC M03.~~ ITS SR 3.3.8.1, SR 3.3.8.2, ~~SR 3.3.8.3,~~ and SR 3.3.~~8.4~~ require similar Surveillances and 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.

MHC006

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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 2 – Relaxation of Applicability)* CTS Table 3.3-6 Instrument 1.a (Area Monitor – Fuel Storage Pool Area) and CTS Table 4.3-3 Instrument 1.a (Area Monitor – Fuel Storage Pool Area) state that the requirements of the Fuel Storage Pool Area Monitors are applicable when there is fuel in the storage pool or building. ITS Table 3.3.8-1 Function 2 states that the Applicable MODE is during movement of recently irradiated fuel assemblies in the auxiliary building. This changes the CTS by only requiring the Spent Fuel Pool Monitors to be OPERABLE when there is a potential for a fuel handling accident in the auxiliary building (i.e., during movement of recently irradiated fuel assemblies in the auxiliary building).

Not Used

MHC006

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DISCUSSION OF CHANGES
ITS 3.3.8, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS) ACTUATION INSTRUMENTATION

The purpose of CTS Table 3.3-6 Functional Unit 1.a is to ensure that the Fuel Storage Pool Area Monitors are OPERABLE to mitigate the consequences of a fuel handling accident. 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 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 with acceptable results. The ITS Bases define a recently irradiated fuel assembly as having occupied part of a critical reactor within the previous 100 hours. Therefore, the ITS imposes the controls on the ABGTS Actuation Instrumentation 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.

MHC006

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

CTS

~~FBACS~~ Actuation Instrumentation ~~(Without Setpoint Control Program)~~

ABGTS

3.3.8~~A~~ (1)

3.3 INSTRUMENTATION

Auxiliary Building Gas Treatment ABGTS

3.3.8~~A~~ ~~Fuel Building Air Cleanup~~ System (~~FBACS~~) Actuation Instrumentation ~~(Without Setpoint Control Program)~~ (1)

ABGTS

3.3.3.1 LCO 3.3.8 The ~~FBACS~~ actuation instrumentation for each Function in Table 3.3.8-1 shall be OPERABLE. (1)

3.3.3.1 Applicability APPLICABILITY: According to Table 3.3.8-1.

MHC006

ACTIONS

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

3.3.3.1 ACTION c ~~1.~~ LCO 3.0.3 is not applicable. (9)

DOC A03 ~~2. Separate Condition entry is allowed for each Function.~~ (9)

required radiation monitoring

CONDITION	REQUIRED ACTION	COMPLETION TIME
M01 DOC ~~M03~~ 3.3.3.1 Action a A. One ~~or more Functions with one~~ channel ~~or train~~ inoperable. ~~manual initiation~~	A.1 ~~Place one~~ ~~FBACS~~ ~~train in operation~~. ABGTS	~~7 days~~ 4 hours Adjust setpoint to within limit due to trip setpoint not within limit (9) (~~4~~ ~~2~~) (10)
DOC ~~M03~~ B. ~~One or more Functions with two channels or two trains inoperable.~~ ~~Two manual initiation~~	~~B.1.1 Place one FBACS train in operation.~~ ABGTS STET ~~AND~~ B.~~1.~~2 Enter applicable Conditions and Required Actions of LCO 3.7.~~13~~, "~~Fuel Building Air Cleanup~~ System (~~FBACS~~)," for one train made inoperable by inoperable actuation instrumentation. 12 Auxiliary Building Gas Treatment ABGTS required ~~OR~~ ~~B.2 Place both trains in emergency [radiation protection] mode.~~	~~Immediately~~ (9) (~~3~~ ~~4~~ ~~2~~) (11) Immediately (~~2~~ ~~3~~) (4) (1) ~~Immediately~~ (3)
3.3.3.1 ACTION b Table 3.3-6 ACTION 26 ~~OR~~ One required radiation monitoring channel inoperable. for reasons other than Condition A OR Required Action and associated Completion Time of Condition A not met. DOC M06		

SEQUOYAH UNIT 1 Amendment XXX

CTS

~~FBACS~~ Actuation Instrumentation ~~(Without Setpoint Control Program)~~

3.3.8~~A~~

ABGTS

1

MHC006

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~DOC M03~~ ~~DOC M07~~ C. ~~Required Action and associated Completion Time for Condition A or B not met during movement of [recently] irradiated fuel assemblies in the fuel building.~~ auxiliary	C.1 ~~[~~recently~~]~~ irradiated fuel assemblies in the ~~fuel~~ building. auxiliary	Immediately
~~DOC M03~~ ~~[~~ D. ~~Required Action and associated Completion Time for Condition A or B not met in MODE 1, 2, 3, or 4.~~	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours ~~36 hours]~~

~~5~~ ~~2~~ 12 ~~5~~ ~~2~~

~~5~~ 5 ~~5~~

SURVEILLANCE REQUIREMENTS

----------NOTE----------

4.3.3.1 Refer to Table 3.3.8-1 to determine which SRs apply for each ~~FBACS~~ Actuation Function.

ABGTS

1

SURVEILLANCE		FREQUENCY
Table 4.3-3 Instrument 1.a SR 3.3.8.1	Perform CHANNEL CHECK.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

6

6

CTS

ABGTS

1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
Table 4.3-3 Instrument 1.a	SR 3.3.8.2	Perform COT.	~~[92 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	6 6
	~~SR 3.3.8.3~~	~~[Perform ACTUATION LOGIC TEST.~~	~~[31 days on a STAGGERED TEST BASIS~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~	5
~~DOC M03~~	SR 3.3.8.~~4~~ 3	----------NOTE---------- Verification of setpoint is not required. ---------- Perform TADOT.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	~~5~~ ~~6~~ 13 ~~6~~

MHC006

2

CTS

~~FBACS~~ Actuation Instrumentation ~~(Without Setpoint Control Program)~~
3.3.8~~A~~

ABGTS

1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.8.~~5~~ 4	Perform CHANNEL CALIBRATION.	~~[[18] months~~ 5 6 ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 6

Table 4.3-3 Instrument 1.a

3

MHC006

CTS

~~FBACS~~ Actuation Instrumentation ~~(Without Setpoint Control Program)~~
3.3.8~~A~~

Table 3.3.8-1 (page 1 of 1)
~~FBACS~~ Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
~~1. Manual Initiation~~	~~[1,2,3,4], (a)~~	~~2~~	~~SR 3.3.8.4~~	~~NA~~
~~2. [Automatic Actuation Logic and Actuation Relays~~	~~1,2,3,4, (a)~~	~~2 trains~~	~~SR 3.3.8.3~~	~~NA]~~
~~3.~~ Fuel ~~Building~~ Radiation				
~~a. Gaseous~~	~~[1,2,3,4],~~ (a)	~~[2]~~	SR 3.3.8.1 SR 3.3.8.2 SR 3.3.8.~~5~~	≤ ~~[2]~~ mR/hr
~~b. Particulate~~	~~[1,2,3,4], (a)~~	~~[2]~~	~~SR 3.3.8.1~~ ~~SR 3.3.8.2~~ ~~SR 3.3.8.5~~	~~≤ [2] mR/hr~~

(a) ~~During movement of [recently] irradiated fuel assemblies in the fuel building~~.

auxiliary

(b) Required Channel shall be associated with the ABGTS train required OPERABLE per LCO 3.7.12

~~3.~~	Containment Isolation - Phase A	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 3.a for all initiation functions and requirements.

With fuel stored in the spent fuel pool,
During movement of irradiated fuel assemblies.

CTS

~~FBACS~~ Actuation Instrumentation ~~(Without Setpoint Control Program)~~ 3.3.8~~A~~ (1)

ABGTS

3.3 INSTRUMENTATION

Auxiliary Building Gas Treatment ABGTS

3.3.8~~A~~ ~~Fuel Building Air Cleanup~~ System (~~FBACS~~) Actuation Instrumentation ~~(Without Setpoint Control Program)~~ (1)

ABGTS

3.3.3.1 LCO 3.3.8 The ~~FBACS~~ actuation instrumentation for each Function in Table 3.3.8-1 shall be OPERABLE. (1)

MHC006

3.3.3.1 Applicability APPLICABILITY: According to Table 3.3.8-1.

ACTIONS

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

3.3.3.1 ACTION c ~~1.~~ LCO 3.0.3 is not applicable. (9)

DOC A03 ~~2. Separate Condition entry is allowed for each Function.~~ (9)

required radiation monitoring

CONDITION	REQUIRED ACTION	COMPLETION TIME
M01 DOC ~~M03~~ 3.3.3.1 Action a A. One ~~or more Functions with one~~ channel ~~or train~~ inoperable. manual initiation	A.1 ~~Place one~~ ~~FBACS~~ ~~train in operation.~~ ABGTS	~~7 days~~ 4 hours (9) (1) (2) (10)
Adjust setpoint to within limit due to trip setpoint not within limit		
DOC ~~M03~~ B. ~~One or more Functions with two~~ channels ~~or two trains inoperable.~~ Two manual initiation	~~B.1.1~~ ~~Place one~~ ~~FBACS~~ ~~train in operation.~~ ABGTS	~~Immediately~~ (9) (3) (1) (2) (11)
STET ~~AND~~		
3.3.3.1 ACTION b Table 3.3-6 ACTION 26 ~~OR~~ One required radiation monitoring channel inoperable.	B.~~1.~~2 Enter applicable Conditions and Required Actions of LCO 3.7.~~13~~, "~~Fuel Building Air Cleanup~~ System (~~FBACS~~)," for one train made inoperable by inoperable actuation instrumentation. 12 Auxiliary Building Gas Treatment ABGTS	Immediately (2) (3) (4) (1) required
for reasons other than Condition A		
OR Required Action and associated Completion Time of Condition A not met.		
DOC M06	~~OR~~ ~~B.2 Place both trains in emergency [radiation protection] mode.~~	~~Immediately~~ (3)

CTS

~~FBACS~~ Actuation Instrumentation ~~(Without Setpoint Control Program)~~

3.3.8~~A~~

ACTIONS (continued)

MHC006

CONDITION	REQUIRED ACTION	COMPLETION TIME
DOC M03 DOC M07 C. ~~Required Action and associated Completion Time for Condition A or B not met during movement of [recently] irradiated fuel assemblies in the fuel building.~~ auxiliary	C.1 ~~[~~recently~~]~~ irradiated fuel assemblies in the ~~fuel~~ building. auxiliary	Immediately
DOC M03 D. ~~[~~ Required Action and associated Completion Time for Condition A or B not met in MODE 1, 2, 3, or 4.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours ~~36 hours]~~

SURVEILLANCE REQUIREMENTS

----------NOTE----------

4.3.3.1 Refer to Table 3.3.8-1 to determine which SRs apply for each ~~FBACS~~ Actuation Function.

SURVEILLANCE		FREQUENCY
Table 4.3-3 Instrument 1.a SR 3.3.8.1	Perform CHANNEL CHECK.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

CTS

1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
Table 4.3-3 Instrument 1.a	SR 3.3.8.2	Perform COT.	~~[92 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	6 6
	~~SR 3.3.8.3~~	~~[Perform ACTUATION LOGIC TEST.~~	~~[31 days on a STAGGERED TEST BASIS~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~	5
~~DOC M03~~	SR 3.3.8.~~4~~ 3	----------NOTE---------- Verification of setpoint is not required. ---------- Perform TADOT.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	~~5~~ ~~6~~ 13 ~~6~~

MHC006

2

CTS

~~FBACS~~ Actuation Instrumentation ~~(Without Setpoint Control Program)~~ 1

ABGTS

3.3.8~~A~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
Table 4.3-3 Instrument 1.a SR 3.3.8.~~5~~ ~~4~~ 3	Perform CHANNEL CALIBRATION.	~~[[18] months~~ 5 6 ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 6

MHC006

CTS

~~FBACS~~ Actuation Instrumentation ~~(Without Setpoint Control Program)~~
3.3.8~~A~~

ABGTS

1

Table 3.3.8-1 (page 1 of 1)
~~FBACS~~ Actuation Instrumentation

ABGTS

1

MHC006

FUNCTION	APPLICABLE MODES OR SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT	
~~DOC M03~~ ~~1. Manual Initiation~~	~~[1,2,3,4], (a)~~	~~2~~	~~SR 3.3.8.4~~ 3	~~NA~~	13 ~~5~~
~~2. [Automatic Actuation Logic and Actuation Relays~~	~~1,2,3,4, (a)~~	~~2 trains~~	~~SR 3.3.8.3~~	~~NA]~~	5
1 Spent Pool Area Monitor Table 3.3-6 Instrument 1.a 2 3. Fuel ~~Building~~ Radiation		1 (b)		151	5 4
~~a. Gaseous~~	~~[1,2,3,4],~~ (a)	~~[2]~~	SR 3.3.8.1 SR 3.3.8.2 SR 3.3.8.~~5~~ 4 3	≤ ~~[2]~~ mR/hr	5
~~b. Particulate~~	~~[1,2,3,4], (a)~~	~~[2]~~	~~SR 3.3.8.1~~ ~~SR 3.3.8.2~~ ~~SR 3.3.8.5~~	~~≤ [2] mR/hr~~	7 8

(a) ~~During movement of [recently] irradiated fuel assemblies in the fuel building~~.

~~auxiliary~~

14 ~~5~~ ~~4~~

2

DOC M04 (b) Required Channel shall be associated with the ABGTS train required OPERABLE per LCO 3.7.12

DOC M05 ~~3.~~ Containment Isolation - Phase A — Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 3.a for all initiation functions and requirements.

2

With fuel stored in the spent fuel pool,
During movement of irradiated fuel assemblies.

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.8, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS) ACTUATION INSTRUMENTATION

1. The type of Setpoint Control Program (Without Setpoint Control Program) and the Specification designator "A" are deleted since they are unnecessary. This information is provided in NUREG 1431, Rev. 4.0 to assist in identifying the appropriate Specification to be used as a model for the plant specific ITS conversion, but serves no purpose in the plant specific implementation. In addition, ISTS 3.3.8B (with Setpoint Control Program Specification) is not used and is not shown. Furthermore, the title of the Specification has been changed from "Fuel Building Air Cleanup System (FBACS) Actuation Instrumentation" to "Auxiliary Building Gas Treatment System (ABGTS) Actuation Instrumentation" since Sequoyah Nuclear Plant (SQN) does not have an FBACS.

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 3.3.8 Required Action B.2 provides an option of placing both trains of the FBACS in the emergency [radiation protection] mode immediately when one or more Functions in ISTS Table 3.3.8-1 with two channels or two trains are inoperable. ITS 3.3.8 does not contain this Required Action since the ABGTS does not have an emergency mode of operation. ~~Furthermore, ISTS 3.3.8 Required Actions B.1.1 and B.1.2 have been renumbered as ITS 3.3.8 Required Actions B.1 and B.2 to reflect the removal of the ISTS option. Additionally, the "AND" logic connector has been moved to the correct position due to the deletion of ISTS 3.3.8 Required Action B.2.~~ MHC006

4. Changes are made to be consistent with changes made to ISTS LCO 3.7.13. The Title and the number for this specification were changed and are reflected in ITS 3.3.8.

or deleted

5. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. The brackets are removed, the proper plant specific information/value is inserted to reflect the current licensing basis, and subsequent items are renumbered as required.

3

6. ISTS SR 3.3.8.1, SR 3.3.8.2, ~~SR 3.3.8.4~~, and SR 3.3.8.5 (ITS SR 3.3.8.1, SR 3.3.8.2, ~~SR 3.3.8.3~~, and SR 3.3.8.~~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.

1

7. ISTS Table 3.3.8-1 Function 3 specifies two Gaseous Radiation Monitors (Function 3.a) and two Particulate Radiation Monitors (Function 3.b) for the Fuel Storage Radiation Function. ITS Table 3.3.8-1 Function ~~2~~ only requires one Spent Fuel Pool Area Radiation Monitor for Table 3.3.8-1 Function ~~2~~. This change is acceptable because the fuel storage pool area radiation monitor is the monitor used in the current licensing bases for the ABGTS actuation.

8. Changes are made to ISTS Table 3.3.8-1 to reflect that the ABGTS receives a signal from Containment Isolation – Phase A which is part of ITS 3.3.2, "Engineered Safety Features Actuation System (ESFAS) Instrumentation."

MHC006

Add Insert 1

Enclosure 2, Volume 8, Rev. 1, Page 1056 of 1148

Insert 1

MHC006

9. ISTS Table 3.3.8-1 contains requirements for three FBACS (ABGTS) actuation instrumentation functions, Function 1 - Manual Initiation, Function 2 - Automatic Actuation Logic and Actuation Relays, and Function 3 - Fuel Building Radiation. ITS Table 3.3.8-1 has been revised to delete ISTS 3.3.8A Functions 1 and 2 (See JFDs 5 and 13 concerning the deletion of the functions). Therefore, ISTS 3.3.8A has been revised to delete ACTIONS NOTE 2 and revise Conditions A and B to address ITS Table 3.3.8-1, Function 1, Spent Fuel Pool Area Radiation Monitor. This change is acceptable because the current licensing basis does not require the Manual Initiation or Automatic Actuation Logic and Actuation Relays Function.

10. ISTS 3.3.8A ACTION A requires placing one train of the FBACS (ABGTS) in operation within 7 days if one or more Functions with one channel or train are inoperable. ITS 3.3.8 ACTION A requires adjusting the trip setpoint to within limit within 4 hours if the required radiation monitoring channel is inoperable due to the trip setpoint not within limit. The revised Required Action allows 4 hours to adjust the trip setpoint within limit before requiring entry into ITS 3.3.8 Condition B. CTS 3.3.3.1 Action a allows 4 hours to adjust the radiation monitoring trip setpoint to within limit before declaring the channel inoperable. If the trip setpoint is not within limit, the channel is inoperable and ITS 3.3.8 Required Action A.1 provides compensatory actions commensurate with actions required by the current licensing basis.

11. ISTS 3.3.8A ACTION B requires immediately placing one train of FBACS (ABGTS) in operation or entering the applicable Conditions and Required Actions of LCO 3.7.13 (ITS LCO 3.7.12) for one train made inoperable by inoperable actuation instrumentation if one or more Functions with two channels or two trains are inoperable. ITS 3.3.8 ACTION B has been revised to require immediately entering the applicable Conditions and Required Actions of LCO 3.7.12, “Auxiliary Building Gas Treatment System (ABGTS),” for one required train made inoperable by inoperable actuation instrumentation if one required radiation monitoring channel is inoperable for reasons other than Condition A or the Required Actions and associated Completion Time of Condition A is not met. The required spent fuel pool radiation monitor provides indication of a release associated with a fuel handling accident. This change is acceptable because LCO 3.7.12 provides compensatory actions to stop activities that could result in a fuel handling accident.

12. ISTS 3.3.8A Condition C has been deleted. ITS 3.3.8 Conditions A and B have been revised to provide compensatory actions required during the movement of irradiated fuel assemblies. Therefore, this Condition is not required.

13. ISTS Table 3.3.8-1 Function 1, Manual Initiation, and the associated Surveillance Requirement, ISTS 3.3.8.4 (Perform TADOT) are deleted. CTS does not require a manual initiation function for ABGTS actuation instrumentation. Therefore, this change is acceptable because it maintains the current licensing basis.

14. ISTS Table 3.3.8-1 requires Function 3 (ITS 3.3.8 Function 1 - Spent Fuel Pool Area Radiation Monitor) OPERABLE in MODES [1,2,3,4] (a), where Footnote (a) is during the movement of [recently] irradiated fuel assemblies in the fuel building. ITS Table 3.3.8-1, Function 1 is only required OPERABLE in MODE (a). ITS Table 3.3.8-1, Footnote (a) has been revised to state, “With fuel stored in the spent fuel pool, During movement of irradiated fuel assemblies.” The required spent fuel pool radiation monitor provides indication of a release associated with a fuel handling accident. Therefore, the Mode of Applicability has been changed to align the instrumentation requirements of ITS LCO 3.3.8 with the Mode of Applicability requirements of ITS LCO 3.7.12.

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

~~FBACS~~ Actuation Instrumentation ~~(Without Setpoint Control Program)~~
B 3.3.8~~A~~

B 3.3 INSTRUMENTATION

B 3.3.8A ~~Fuel Building Air Cleanup~~ System (~~FBACS~~) Actuation Instrumentation ~~(Without Setpoint Control Program)~~

BASES

BACKGROUND

The ~~FBACS~~ ensures that radioactive materials in the ~~fuel~~ building atmosphere following a fuel handling accident ~~[~~involving handling ~~recently~~ irradiated fuel~~]~~ or a loss of coolant accident (LOCA) are filtered and adsorbed prior to exhausting to the environment. The system is described in the Bases for LCO 3.7.~~13~~, "~~Fuel Building Air Cleanup~~ System." The system initiates filtered ventilation of ~~the fuel building~~ automatically following receipt of a high radiation signal ~~(gaseous or particulate)~~ or a ~~safety injection (SI)~~ signal. Initiation may also be performed manually as needed from the main control room.

~~High gaseous and particulate~~ radiation, ~~each~~ monitored by either of two monitors, provides ~~FBACS~~ initiation. Each ~~FBACS~~ train is initiated by high radiation detected by a channel dedicated to that train. ~~There are a total of two channels, one for each train. Each channel contains a gaseous and particulate monitor.~~ High radiation detected by ~~any~~ monitor or ~~an SI~~ signal from the Engineered Safety Features Actuation System (ESFAS) initiates ~~fuel~~ building isolation and starts the ~~FBACS~~. These actions function to prevent exfiltration of contaminated air by initiating filtered ventilation, which imposes a negative pressure on the ~~fuel building. Since the radiation monitors include an air sampling system, various components such as sample line valves, sample line heaters, sample pumps, and filter motors are required to support monitor OPERABILITY.~~

During plant operations with the containment open to the auxiliary building, the ABSCE boundary is extended to include the area inside the containment building and the shield building.

APPLICABLE SAFETY ANALYSES

The ~~FBACS~~ ensures that radioactive materials in the ~~fuel building~~ atmosphere following a ~~fuel handling accident [involving handling recently irradiated fuel]~~ ~~or a~~ LOCA are filtered and adsorbed prior to being exhausted to the environment. This action reduces the radioactive content in the ~~fuel~~ building exhaust following a LOCA ~~or fuel handling accident~~ so that offsite doses remain within the limits specified in 10 CFR 100 (Ref. 1).

~~for LOCA or 10 CFR 50.67 (Ref. 2) for fuel handling accident~~

The ~~FBACS~~ actuation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

High radiation initiation of ABGTS for a fuel handling accident will ensure the auxiliary building secondary containment enclosure (ABSCE) boundary is established such that the release point for the fission products will correspond to the release point assumed in the fuel handling accident analysis so that control room doses remain within the limits specified in 10 CFR 50.67.(Ref.2)

LCO

The LCO requirements ensure that instrumentation necessary to initiate the ~~FBACS~~ is OPERABLE.

4 **INSERT 1**

exhaust air from the fuel handling area, ECCS pump rooms, and waste packaging area

BASES

LCO (continued)

MHC006

1. Manual Initiation

The LCO requires two channels OPERABLE. The operator can initiate the FBACS at any time by using either of two switches in the control room. This action will cause actuation of all components in the same manner as any of the automatic actuation signals.

The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual actuation circuitry to ensure the operator has manual initiation capability.

Each channel consists of one push button and the interconnecting wiring to the actuation logic cabinet.

2. Automatic Actuation Logic and Actuation Relays

The LCO requires two trains of Actuation Logic and Relays OPERABLE to ensure that no single random failure can prevent automatic actuation.

Automatic Actuation Logic and Actuation Relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b., SI, in LCO 3.3.2. The applicable MODES and specified conditions for the FBACS portion of these functions are different and less restrictive than those specified for their SI roles. If one or more of the SI functions becomes inoperable in such a manner that only the FBACS function is affected, the Conditions applicable to their SI function need not be entered. The less restrictive Actions specified for inoperability of the FBACS functions specify sufficient compensatory measures for this case.

MHC006

3. Fuel Building Radiation

The LCO specifies two required Gaseous Radiation Monitor channels and two required Particulate Radiation Monitor channels to ensure that the radiation monitoring instrumentation necessary to initiate the FBACS remains OPERABLE.

For sampling systems, channel OPERABILITY involves more than OPERABILITY of channel electronics. OPERABILITY may also require correct valve lineups, sample pump operation, filter motor operation, detector OPERABILITY, if these supporting features are necessary for actuation to occur under the conditions assumed by the safety analyses.

4 ~~**INSERT 2**~~

~~one of two sets of manual initiation hand switches in the control room. Each Auxiliary Building Isolation (ABI) manual hand switch will initiate its respective train of ABGTS.~~

4 **INSERT 3**

One radiation monitor is dedicated to each train of ABGTS.

5 **INSERT 4** MHC006

The measurement range for the Spent Fuel Pool Area Monitors is 10^{-1} to 10^{4} mR/hr.

The Required Channels value is modified by a footnote stating that the Required Channel shall be associated with the ABGTS train required OPERABLE per LCO 3.7.12. This ensures a valid actuation signal will start a train of ABGTS.

2

~~3.~~ Containment Isolation - Phase A

Refer to LCO 3.3.2, Function 3.a., for all initiating Functions and requirements.

BASES

LCO (continued)

Only the Trip Setpoint is specified for each ~~FBACS~~ Function in the LCO. The Trip Setpoint limits account for instrument uncertainties, which are defined in ~~the Unit Specific Setpoint Calibration~~ Procedure (Ref. ~~2~~).

APPLICABILITY

~~The manual FBACS initiation must be OPERABLE in MODES [1, 2, 3, and 4] and when moving [recently] irradiated fuel assemblies in the fuel building, to ensure the FBACS operates to remove fission products associated with leakage after a LOCA or a fuel handling accident [involving handling recently irradiated fuel].~~ The automatic ~~FBACS~~ actuation instrumentation is ~~also~~ required in MODES ~~[~~1, 2, 3, and 4~~]~~ to remove fission products caused by post LOCA Emergency Core Cooling Systems leakage.

High radiation initiation of the ~~FBACS~~ must be OPERABLE in any MODE during movement of ~~[recently]~~ irradiated fuel assemblies ~~in the fuel building~~ to ensure automatic initiation of the ~~FBACS~~ when the potential for ~~the limiting~~ fuel handling accident exists. ~~[Due to radioactive decay, the FBACS instrumentation 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).]~~

~~While in MODES 5 and 6 without fuel handling [involving handling recently irradiated fuel] in progress, the FBACS instrumentation need not be OPERABLE since a fuel handling accident [involving handling recently irradiated fuel] cannot occur.~~

ACTIONS

The most common cause of channel inoperability is outright failure or drift ~~of the bistable or process module~~ sufficient to exceed the tolerance allowed by unit specific calibration procedures. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a COT, when the process instrumentation is set up for adjustment to bring it within specification. If the Trip Setpoint is less conservative than the tolerance specified by the calibration procedure, the channel must be declared inoperable immediately and the appropriate Condition entered.

LCO 3.0.3 is not applicable while in MODE 5 or 6. However, since ~~recently~~ irradiated fuel assembly movement ~~is~~ 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 ~~recently~~ 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.

BASES

ACTIONS (continued)

MHC006

~~A second Note has been added to the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.8-1 in the accompanying LCO. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.~~

area radiation monitor being inoperable solely due to the trip setpoint not within limits.

4 hours

the required radiation monitor

the required

adjust the setpoint and

A.1

Condition A applies to the ~~actuation logic train function of the Solid State Protection System (SSPS), the radiation monitor functions, and the manual function~~. Condition A applies to the failure of ~~a single actuation logic train, radiation monitor channel, or~~ manual channel. If ~~one~~ channel ~~or train~~ is inoperable, a period of ~~7 days~~ is allowed ~~to~~ restore it to OPERABLE status. If the ~~train~~ cannot be restored to OPERABLE status, ~~one FBACS train must be placed in operation. This accomplishes the actuation instrumentation function and places the unit in a conservative mode of operation. The 7 day Completion Time is the same as is allowed if one train of the mechanical portion of the system is inoperable. The basis for this time is the same as that provided in LCO 3.7.13~~.

channel
ABGTS

the Required Action and associated Completion Time of Condition B would apply.

~~and~~

~~B.1.1; B.1.2; B.2~~

MHC006

~~one required~~

~~Condition B applies to the failure of two FBACS actuation logic trains, two radiation monitors, or two manual channels. The Required Action is to place one FBACS train in operation immediately. This accomplishes the actuation instrumentation function that may have been lost and places the unit in a conservative mode of operation. The applicable Conditions and Required Actions of LCO 3.7.13 must also be entered for the FBACS train made inoperable by the inoperable actuation instrumentation. This ensures appropriate limits are placed on train inoperability as discussed in the Bases for LCO 3.7.13.~~

ABGTS

~~Alternatively, both trains may be placed in the emergency [radiation protection] mode. This ensures the FBACS Function is performed even in the presence of a single failure.~~

ABGTS

or the required channel is inoperable for reasons other than the trip setpoint not within limit.

BASES

ACTIONS (continued)

MHC006

B

~~C~~.1

S

or movement of loads over the spent fuel pool

Condition ~~C~~ applies when the Required Action and associated Completion Time for Condition A ~~or B~~ have not been met ~~and [recently] irradiated fuel assemblies are being moved in the fuel building. Movement~~ of ~~[recently]~~ irradiated fuel assemblies ~~in the fuel building must~~ be suspended immediately to eliminate the potential for events that could require ~~FBACS~~ actuation.

auxiliary

auxiliary

Entry into the applicable Conditions and Required Actions of LCO 3.7.12 will require that movement

ABGTS

~~D.1 and D.2~~

~~Condition D applies when the Required Action and associated Completion Time for Condition A or B have not been met and the unit is in MODE 1, 2, 3, or 4. The unit must be brought to a MODE in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to MODE 3 within 6 hours and 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

A Note has been added to the SR Table to clarify that Table 3.3.8-1 determines which SRs apply to which ~~FBACS~~ Actuation Functions.

ABGTS

SR 3.3.8.1

Performance of the CHANNEL CHECK ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~[The Frequency of 12 hours is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.~~

~~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 3.3.8.2

A COT is performed on each required channel to ensure the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable COT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. This test verifies the capability of the instrumentation to provide the ~~FBACS~~ actuation. There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology.

~~[The Frequency of 92 days is based on the known reliability of the monitoring equipment and has been shown to be acceptable through operating experience.~~

~~OR~~

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

BASES

SURVEILLANCE REQUIREMENTS (continued)

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

SR 3.3.8.3

[SR 3.3.8.3 is the performance of an ACTUATION LOGIC TEST. All possible logic combinations, with and without applicable permissives, are tested for each protection function. [The actuation logic is tested every 31 days on a STAGGERED TEST BASIS. The Frequency is based on the known reliability of the relays and controls and the multichannel redundancy available, and has been shown to be acceptable through operating experience.

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.
----------]]

MHC006

SR 3.3.8.4

SR 3.3.8.4 is the performance of a TADOT. This test is a check of the manual actuation functions. Each manual actuation function is tested up to, and including, the master relay coils. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per

BASES

SURVEILLANCE REQUIREMENTS (continued)

MHC006

refueling interval with applicable extensions. In some instances, the test includes actuation of the end device (e.g., pump starts, valve cycles, etc.). [The Frequency of 18 months is based on operating experience and is consistent with the typical industry refueling cycle.

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.
----------]

The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Functions tested have no setpoints associated with them.

SR 3.3.8.3

CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy. There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology.

[The Frequency of [18] months is based on operating experience and is consistent with the typical industry refueling cycle.

OR

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

ABGTS

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.~~

~~]~~

8

REFERENCES

1. 10 CFR 100.11.
2. 10 CFR 50.67
3. ~~2~~. ~~Unit Specific Setpoint Calibration~~ TI-18, Radiation Monitoring Procedure.

4

4 1

B 3.3 INSTRUMENTATION

B 3.3.8A ~~Fuel Building Air Cleanup~~ System (~~FBACS~~) Actuation Instrumentation ~~(Without Setpoint Control Program)~~

BASES

BACKGROUND

The ~~FBACS~~ ensures that radioactive materials in the ~~fuel~~ building atmosphere following a fuel handling accident ~~[~~involving handling ~~recently~~ irradiated fuel~~]~~ or a loss of coolant accident (LOCA) are filtered and adsorbed prior to exhausting to the environment. The system is described in the Bases for LCO 3.7.~~13~~, "~~Fuel Building Air Cleanup~~ System." The system initiates filtered ventilation of ~~the fuel building~~ automatically following receipt of a high radiation signal ~~(gaseous or particulate)~~ or a ~~safety injection (SI)~~ signal. Initiation may also be performed manually as needed from the main control room.

High ~~gaseous and particulate~~ radiation, ~~each~~ monitored by either of two monitors, provides ~~FBACS~~ initiation. Each ~~FBACS~~ train is initiated by high radiation detected by a channel dedicated to that train. ~~There are a total of two channels, one for each train. Each channel contains a gaseous and particulate monitor.~~ High radiation detected by ~~any~~ monitor or ~~an~~ ~~SI~~ signal from the Engineered Safety Features Actuation System (ESFAS) initiates ~~fuel~~ building isolation and starts the ~~FBACS~~. These actions function to prevent exfiltration of contaminated air by initiating filtered ventilation, which imposes a negative pressure on the ~~fuel building. Since the radiation monitors include an air sampling system, various components such as sample line valves, sample line heaters, sample pumps, and filter motors are required to support monitor OPERABILITY.~~

During plant operations with the containment open to the auxiliary building, the ABSCE boundary is extended to include the area inside the containment building and the shield building.

APPLICABLE SAFETY ANALYSES

The ~~FBACS~~ ensures that radioactive materials in the ~~fuel building~~ atmosphere following a ~~fuel handling accident [involving handling recently~~ irradiated fuel~~]~~ ~~or a~~ LOCA are filtered and adsorbed prior to being exhausted to the environment. This action reduces the radioactive content in the ~~fuel~~ building exhaust following a LOCA ~~or fuel handling accident~~ so that offsite doses remain within the limits specified in 10 CFR 100 (Ref. 1).

The ~~FBACS~~ actuation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

High radiation initiation of ABGTS for a fuel handling accident will ensure the auxiliary building secondary containment enclosure (ABSCE) boundary is established such that the release point for the fission products will correspond to the release point assumed in the fuel handling accident analysis so that control room doses remain within the limits specified in 10 CFR 50.67.(Ref.2)

LCO

The LCO requirements ensure that instrumentation necessary to initiate the ~~FBACS~~ is OPERABLE.

4 **INSERT 1**

exhaust air from the fuel handling area, ECCS pump rooms, and waste packaging area

BASES

LCO (continued)

1. Manual Initiation

The LCO requires two channels OPERABLE. The operator can initiate the FBACS at any time by using either of two switches in the control room. This action will cause actuation of all components in the same manner as any of the automatic actuation signals.

The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual actuation circuitry to ensure the operator has manual initiation capability.

Each channel consists of one push button and the interconnecting wiring to the actuation logic cabinet.

2. Automatic Actuation Logic and Actuation Relays

The LCO requires two trains of Actuation Logic and Relays OPERABLE to ensure that no single random failure can prevent automatic actuation.

Automatic Actuation Logic and Actuation Relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b., SI, in LCO 3.3.2. The applicable MODES and specified conditions for the FBACS portion of these functions are different and less restrictive than those specified for their SI roles. If one or more of the SI functions becomes inoperable in such a manner that only the FBACS function is affected, the Conditions applicable to their SI function need not be entered. The less restrictive Actions specified for inoperability of the FBACS functions specify sufficient compensatory measures for this case.

3. Fuel Building Radiation

The LCO specifies two required Gaseous Radiation Monitor channels and two required Particulate Radiation Monitor channels to ensure that the radiation monitoring instrumentation necessary to initiate the FBACS remains OPERABLE.

For sampling systems, channel OPERABILITY involves more than OPERABILITY of channel electronics. OPERABILITY may also require correct valve lineups, sample pump operation, filter motor operation, detector OPERABILITY, if these supporting features are necessary for actuation to occur under the conditions assumed by the safety analyses.

4 ~~**INSERT 2**~~

~~one of two sets of manual initiation hand switches in the control room. Each Auxiliary Building Isolation (ABI) manual hand switch will initiate its respective train of ABGTS.~~

MHC006

4 **INSERT 3**

One radiation monitor is dedicated to each train of ABGTS.

5 **INSERT 4**

The measurement range for the Spent Fuel Pool Area Monitors is 10^{-1} to 10^{4} mR/hr.

The Required Channels value is modified by a footnote stating that the Required Channel shall be associated with the ABGTS train required OPERABLE per LCO 3.7.12. This ensures a valid actuation signal will start a train of ABGTS.

2

~~3.~~ Containment Isolation - Phase A

Refer to LCO 3.3.2, Function 3.a., for all initiating Functions and requirements.

BASES

LCO (continued)

Only the Trip Setpoint is specified for each ~~FBACS~~ Function in the LCO. The Trip Setpoint limits account for instrument uncertainties, which are defined in ~~the Unit Specific Setpoint Calibration~~ Procedure (Ref. ~~2~~).

APPLICABILITY

~~The manual FBACS initiation must be OPERABLE in MODES [1, 2, 3, and 4] and when moving [recently] irradiated fuel assemblies in the fuel building, to ensure the FBACS operates to remove fission products associated with leakage after a LOCA or a fuel handling accident [involving handling recently irradiated fuel].~~ The automatic ~~FBACS~~ actuation instrumentation is ~~also~~ required in MODES ~~[~~1, 2, 3, and 4~~]~~ to remove fission products caused by post LOCA Emergency Core Cooling Systems leakage.

~~High radiation initiation of the FBACS must be OPERABLE in any MODE during movement of [recently] irradiated fuel assemblies in the fuel building to ensure automatic initiation of the FBACS when the potential for the limiting fuel handling accident exists. [Due to radioactive decay, the FBACS instrumentation 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).]~~

~~While in MODES 5 and 6 without fuel handling [involving handling recently irradiated fuel] in progress, the FBACS instrumentation need not be OPERABLE since a fuel handling accident [involving handling recently irradiated fuel] cannot occur.~~

ACTIONS

The most common cause of channel inoperability is outright failure or drift ~~of the bistable or process module~~ sufficient to exceed the tolerance allowed by unit specific calibration procedures. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a COT, when the process instrumentation is set up for adjustment to bring it within specification. If the Trip Setpoint is less conservative than the tolerance specified by the calibration procedure, the channel must be declared inoperable immediately and the appropriate Condition entered.

LCO 3.0.3 is not applicable while in MODE 5 or 6. However, since ~~recently~~ 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 ~~recently~~ 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.

BASES

ACTIONS (continued)

A second Note has been added to the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.8-1 in the accompanying LCO. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

MHC006

area radiation monitor being inoperable solely due to the trip setpoint not within limits.

4 hours

the required radiation monitor

the required

adjust the setpoint and

the Required Action and associated Completion Time of Condition B would apply.

A.1

Condition A applies to the actuation logic train function of the Solid State Protection System (SSPS), the radiation monitor functions, and the manual function. Condition A applies to the failure of a single actuation logic train, radiation monitor channel, or manual channel. If one channel or train is inoperable, a period of 7 days is allowed to restore it to OPERABLE status. If the train cannot be restored to OPERABLE status, one FBACS train must be placed in operation. This accomplishes the actuation instrumentation function and places the unit in a conservative mode of operation. The 7 day Completion Time is the same as is allowed if one train of the mechanical portion of the system is inoperable. The basis for this time is the same as that provided in LCO 3.7.13.

channel
ABGTS
and
12

B.1.1, B.1.2, B.2

one required

Condition B applies to the failure of two FBACS actuation logic trains, two radiation monitors, or two manual channels. The Required Action is to place one FBACS train in operation immediately. This accomplishes the actuation instrumentation function that may have been lost and places the unit in a conservative mode of operation. The applicable Conditions and Required Actions of LCO 3.7.13 must also be entered for the FBACS train made inoperable by the inoperable actuation instrumentation. This ensures appropriate limits are placed on train inoperability as discussed in the Bases for LCO 3.7.13.

MHC006

Alternatively, both trains may be placed in the emergency [radiation protection] mode. This ensures the FBACS Function is performed even in the presence of a single failure.

ABGTS

or the required channel is inoperable for reasons other than the setpoint not within limit.

BASES

ACTIONS (continued)

B

~~C~~.1

S

or movement of loads over the spent fuel pool

MHC006

Condition ~~C~~ applies when the Required Action and associated Completion Time for Condition A ~~or B~~ have not been met ~~and [recently]~~ auxiliary ~~irradiated fuel assemblies are being moved in the fuel building.~~ auxiliary ~~Movement of [recently]~~ irradiated fuel assemblies ~~in the fuel building~~ must be suspended immediately to eliminate the potential for events that could require ~~FBACS~~ actuation.

Entry into the applicable Conditions and Required Actions of LCO 3.7.12 will require that movement

ABGTS

~~D.1 and D.2~~

~~Condition D applies when the Required Action and associated Completion Time for Condition A or B have not been met and the unit is in MODE 1, 2, 3, or 4. The unit must be brought to a MODE in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to MODE 3 within 6 hours and 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

A Note has been added to the SR Table to clarify that Table 3.3.8-1 determines which SRs apply to which ~~FBACS~~ Actuation Functions.

ABGTS

SR 3.3.8.1

Performance of the CHANNEL CHECK ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~[The Frequency of 12 hours is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.~~

~~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 3.3.8.2

A COT is performed on each required channel to ensure the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable COT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. This test verifies the capability of the instrumentation to provide the ~~FBACS~~ actuation. There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology.

~~[The Frequency of 92 days is based on the known reliability of the monitoring equipment and has been shown to be acceptable through operating experience.~~

~~OR~~

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

BASES

SURVEILLANCE REQUIREMENTS (continued)

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

SR 3.3.8.3

[SR 3.3.8.3 is the performance of an ACTUATION LOGIC TEST. All possible logic combinations, with and without applicable permissives, are tested for each protection function. [The actuation logic is tested every 31 days on a STAGGERED TEST BASIS. The Frequency is based on the known reliability of the relays and controls and the multichannel redundancy available, and has been shown to be acceptable through operating experience.

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 3.3.8.4

MHC006

SR 3.3.8.4 is the performance of a TADOT. This test is a check of the manual actuation functions. Each manual actuation function is tested up to, and including, the master relay coils. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per

BASES

SURVEILLANCE REQUIREMENTS (continued)

refueling interval with applicable extensions. In some instances, the test includes actuation of the end device (e.g., pump starts, valve cycles, etc.).

MHC006

[The Frequency of 18 months is based on operating experience and is consistent with the typical industry refueling cycle.

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.
----------]

The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Functions tested have no setpoints associated with them.

SR 3.3.8.5

MHC006

CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy. There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology.

[The Frequency of [18] months is based on operating experience and is consistent with the typical industry refueling cycle.

OR

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

ABGTS

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.~~

~~]~~

8

REFERENCES

1. 10 CFR 100.11.
2. 10 CFR 50.67
3. ~~2~~. ~~Unit Specific Setpoint Calibration~~ TI-18, Radiation Monitoring Procedure.

4

4 1

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.8 BASES, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS)
ACTUATION INSTRUMENTATION

1. The type of Setpoint Control Program (Without Setpoint Control Program) and the Specification designator "A" are deleted since they are unnecessary. This information is provided in NUREG 1431, Rev. 4.0 to assist in identifying the appropriate Specification to be used as a model for the plant specific ITS conversion, but serves no purpose in the plant specific implementation. In addition, ISTS B 3.3.8B (with Setpoint Control Program Specification) is not used and is not shown. Furthermore, the title of the Specification has been changed from "Fuel Building Air Cleanup System (FBACS) Actuation Instrumentation" to "Auxiliary Building Gas Treatment System (ABGTS) Actuation Instrumentation" since Sequoyah Nuclear Plant (SQN) does not have an FBACS.

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 ISTS LCO 3.7.13. The Title and the number for this specification were changed and are reflected in the Bases of ITS B 3.3.8.

4. 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.

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

6. Typographical/grammatical error corrected. 3

MHC006

7. ISTS SR 3.3.8.1, SR 3.3.8.2, ~~SR 3.3.8.4~~, and SR 3.3.8.5 (ITS SR 3.3.8.1, SR 3.3.8.2, ~~SR 3.3.8.3~~, and SR 3.3.8.4~~)~~ 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.

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.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.8, AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS) ACTUATION INSTRUMENTATION

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

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ATTACHMENT 9

ITS 3.3.9, BORON DILUTION MONITORING INSTRUMENTATION (BDMI)

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

ITS

A01

ITS 3.3.9

3/4.3 INSTRUMENTATION

BORON DILUTION MONITORING

A02

3/4.3.1 ~~REACTOR TRIP SYSTEM~~ INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

boron dilution monitoring

A02

LCO 3.3.9

3.3.1.1 As a minimum, the ~~reactor trip system~~ instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE.

See ITS 3.3.1

Applicability

APPLICABILITY: As shown in Table 3.3-1.

Add proposed Applicability Note

L01

ACTION:

ACTION B

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

boron dilution monitoring

A02

See ITS 3.3.1

SR 3.3.9.1, SR 3.3.9.2, SR 3.3.9.3

4.3.1.1.1 Each ~~reactor trip system~~ instrumentation channel and interlock shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and ~~CHANNEL FUNCTIONAL TEST~~ operations for the MODES and at the frequencies shown in Table 4.3-1.

CHANNEL OPERATIONAL TEST (COT)

M01

4.3.1.1.2 The logic for the interlocks shall be demonstrated OPERABLE prior to each reactor startup unless performed during the preceeding 92 days. The total interlock function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation.

See ITS 3.3.1

4.3.1.1.3 The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be verified to be within its limit at least once per 18 months. Neutron detectors are exempt from response time testing. Each verification shall include at least one train such that both trains are verified at least once per 36 months and one channel per function such that all channels are verified at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the "Total No. of Channels" column of Table 3.3.1.

See ITS 3.3.1

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ITS

A01

ITS 3.3.9

TABLE 3.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION

LA01

	FUNCTIONAL UNIT	~~TOTAL NO. OF CHANNELS~~	~~CHANNELS TO TRIP~~	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION	
1.	Manual Reactor Trip	2	1	2	1, 2, and *	1	
2.	Power Range, Neutron Flux	4	2	3	1, 2	2	
3.	Power Range, Neutron Flux High Positive Rate	4	2	3	1, 2	2	See ITS 3.3.1
4.	Power Range, Neutron Flux, High Negative Rate	4	2	3	1, 2	2	
5.	Intermediate Range, Neutron Flux	2	1	2	1, 2, and *	3, 17	
6.	Source Range, Neutron Flux						
	A. Startup	2	1	2	2##, and *	4	See ITS 3.3.1
	B. Shutdown	~~2~~	~~0~~	1	3, 4 and 5	5	
7.	Overtemperature ΔT Four Loop Operation	4	2	3	1, 2	6	
8.	Overpower ΔT Four Loop Operation	4	2	3	1, 2	6	
9.	Pressurizer Pressure-Low	4	2	3	1, 2	6	See ITS 3.3.1
10.	Pressurizer Pressure—High	4	2	3	1, 2	6	
11.	Pressurizer Water Level—High	3	2	2	1, 2	6	

LA01

LCO 3.3.9, Applicability, ACTION A

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ITS A01 ITS 3.3.9

TABLE 3.3-1 (Continued)

ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below the P-6 (Block of Source Range Reactor Trip) setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.

b. Above the P-6 (Block of Source Range Reactor Trip) setpoint, but below 5% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER.

c. Above 5% of RATED THERMAL POWER, POWER OPERATION may continue.

d. Above 10% of RATED THERMAL POWER, the provisions of Specification 3.0.3 are not applicable.

See ITS 3.3.1

ACTION 4 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below the P-6 (Block of Source Range Reactor Trip) setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.

b. Above the P-6 (Block of Source Range Reactor Trip) setpoint, operation may continue.

KAB049

ACTION A

ACTION 5 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, verify compliance with ~~the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable~~, within 1 hour and at least once per 12 hours thereafter.

~~Add proposed Required Actions A.1, A.2.1, and A.2.2.1~~

SR 3.1.1.1

A03 ~~M02~~

ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1.1.

See ITS 3.3.1

ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 6 hours or THERMAL POWER is reduced to less than P-9 within 10 hours.

ITS A01 ITS 3.3.9

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

M01 COT

	FUNCTIONAL UNIT	CHANNEL CHECK SR 3.3.9.1	CHANNEL CALIBRATION SR 3.3.9.3	~~CHANNEL FUNCTIONAL TEST~~ SR 3.3.9.2	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1.	Manual Reactor Trip	N.A.	N.A.	S/U(1)and R(9)	1, 2, and *
2.	Power Range, Neutron Flux	S	D(2), (3) and Q(6)	Q	1, 2
3.	Power Range, Neutron Flux, High Positive Rate	N.A.	R(6)	Q	1, 2
4.	Power Range, Neutron Flux, High Negative Rate	N.A.	R(6)	Q	1, 2
5.	Intermediate Range, Neutron Flux	S	R(6)	S/U(1)	1, 2, and *
6.	Source Range, Neutron Flux	~~S~~(7)	~~R~~(6)	~~M and S/U(1)~~	2, 3, 4, 5, and *
7.	Overtemperature Delta T	S	R	Q	1, 2
8.	Overpower Delta T	S	R	Q	1, 2
9.	Pressurizer Pressure--Low	S	R	Q	1, 2
10.	Pressurizer Pressure--High	S	R	Q	1, 2
11.	Pressurizer Water Level—High	S	R	Q	1, 2
12.	Loss of Flow - Single Loop	S	R	Q	1
13.	Loss of Flow - Two Loops	S	R	N.A.	1
14.	Steam Generator Water Level--Low-Low				
	A. Steam Generator Water Level--Low-Low (Adverse)	S	R	Q	1, 2
	B. Steam Generator Water Level--Low-Low (EAM)	S	R	Q	1, 2
	C. RCS Loop ΔT	S	R	Q	1, 2
	D. Containment Pressure (EAM)	S	R	Q	1, 2

See ITS 3.3.1

See ITS 3.3.1

SR 3.3.9.1, SR 3.3.9.2, SR 3.3.9.3

L02

L03

~~184 days~~

In accordance with the Surveillance Frequency Control Program

LA02

See ITS 3.3.1

ITS

A01

ITS 3.3.9

TABLE 4.3-1 (Continued)

NOTATION

*	-	With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.
**	-	Above the P-9 (Power Range Neutron Flux) interlock.

See ITS 3.3.1

~~(1) - If not performed in previous 31 days.~~ L02

(2)	-	Heat balance only, above 15% of RATED THERMAL POWER. Adjust channel if absolute difference greater than 2 percent.
(3)	-	Compare incore to excore AXIAL FLUX DIFFERENCE above 15% of RATED THERMAL POWER. Recalibrate if the absolute difference greater than or equal to 3 percent. The frequency of this surveillance is every 31 EFPD. This surveillance is not required to be performed until 96 hours after thermal power is ≥ 15% RTP.
(4)	-	Deleted.
(5)	-	Each train or logic channel shall be tested at least every 62 days on a STAGGERED TEST BASIS. The test shall independently verify the OPERABILITY of the undervoltage and automatic shunt trip circuits.

See ITS 3.3.1

SR 3.3.9.3 Note

(6)	-	Neutron detectors may be excluded from CHANNEL CALIBRATION.
(7)	-	Below P-6 (Block of Source Range Reactor Trip) setpoint.
(8)	-	Deleted.
(9)	-	The CHANNEL FUNCTIONAL TEST shall independently verify the operability of the undervoltage and shunt trip circuits for the manual reactor trip function.
(10)	-	Local manual shunt trip prior to placing breaker in service. Each train shall be tested at least every 62 days on a STAGGERED TEST BASIS.
(11)	-	Automatic and manual undervoltage trip.
(12)	-	Prior to exceeding the P-9 interlock whenever the unit has been in HOT STANDBY.

See ITS 3.3.1

Add proposed SR 3.3.9.2 Note ~~L04~~

KAB049

ITS

A01

ITS 3.3.9

3/4.3 INSTRUMENTATION

BORON DILUTION MONITORING

A02

3/4.3.1 ~~REACTOR TRIP SYSTEM~~ INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

boron dilution monitoring

A02

LCO 3.3.9

3.3.1 As a minimum, the ~~reactor trip system~~ instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE.

See ITS 3.3.1

Applicability

APPLICABILITY: As shown in Table 3.3-1.

Add proposed Applicability Note

L01

ACTION:

ACTION B

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

boron dilution monitoring

A02

See ITS 3.3.1

SR 3.3.9.1, SR 3.3.9.2, SR 3.3.9.3

4.3.1.1.1 Each ~~reactor trip system~~ instrumentation channel and interlock shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and ~~CHANNEL FUNCTIONAL TEST~~ operations for the MODES and at the frequencies shown in Table 4.3-1.

CHANNEL OPERATIONAL TEST (COT)

M01

4.3.1.1.2 The logic for the interlocks shall be demonstrated OPERABLE prior to each reactor startup unless performed during the preceeding 92 days. The total interlock function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation.

See ITS 3.3.1

4.3.1.1.3 The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be verified to be within its limit at least once per 18 months. Neutron detectors are exempt from response time testing. Each verification shall include at least one train such that both trains are verified at least once per 36 months and one channel per function such that all channels are verified at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the "Total No. of Channels" column of Table 3.3.1.

See ITS 3.3.1

ITS A01 ITS 3.3.9

TABLE 3.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION

LA01

	FUNCTIONAL UNIT	~~TOTAL NO. OF CHANNELS~~	~~CHANNELS TO TRIP~~	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1.	Manual Reactor Trip	2	1	2	1, 2, and *	1
2.	Power Range, Neutron Flux	4	2	3	1, 2	2
3.	Power Range, Neutron Flux High Positive Rate	4	2	3	1, 2	2
4.	Power Range, Neutron Flux, High Negative Rate	4	2	3	1, 2	2
5.	Intermediate Range, Neutron Flux	2	1	2	1, 2, and *	3, 17
6.	Source Range, Neutron Flux					
	A. Startup	2	1	2	2##, and *	4
	B. Shutdown	~~2~~	~~0~~	1	3, 4 and 5	5
7.	Overtemperature ΔT Four Loop Operation	4	2	3	1, 2	6
8.	Overpower ΔT Four Loop Operation	4	2	3	1, 2	6
9.	Pressurizer Pressure-Low	4	2	3	1, 2	6
10.	Pressurizer Pressure—High	4	2	3	1, 2	6
11.	Pressurizer Water Level—High	3	2	2	1, 2	6

See ITS 3.3.1

See ITS 3.3.1

LCO 3.3.9, Applicability, ACTION A

LA01

See ITS 3.3.1

ITS

A01

ITS 3.3.9

TABLE 3.3-1 (Continued)

ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below the P-6 (Block of Source Range Reactor Trip) setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.

b. Above the P-6 (Block of Source Range Reactor Trip) setpoint, but below 5% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER.

c. Above 5% of RATED THERMAL POWER, POWER OPERATION may continue.

See ITS 3.3.1

d. Above 10% of RATED THERMAL POWER, the provisions of Specification 3.0.3 are not applicable.

ACTION 4 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below the P-6 (Block of Source Range Reactor Trip) setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.

b. Above the P-6 (Block of Source Range Reactor Trip) setpoint, operation may continue.

KAB049

ACTION A

ACTION 5 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement, verify compliance with ~~the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable~~, within 1 hour and at least once per 12 hours thereafter.

~~Add proposed Required Actions A.1, A.2.1, and A.2.2.1~~

~~M02~~

SR 3.1.1.1

A03

ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1.1.

See ITS 3.3.1

ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the inoperable channel is placed in the tripped condition within 6 hours or THERMAL POWER is reduced to less than P-9 within 10 hours.

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ITS A01 ITS 3.3.9

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

M01 COT

	FUNCTIONAL UNIT	CHANNEL CHECK SR 3.3.9.1	CHANNEL CALIBRATION SR 3.3.9.3	~~CHANNEL FUNCTIONAL TEST~~ SR 3.3.9.2	MODES FOR WHICH SURVEILLANCE IS REQUIRED	
1.	Manual Reactor Trip	N.A.	N.A.	S/U(1)and R(9)	1, 2, and *	
2.	Power Range, Neutron Flux	S	D(2), (3) and Q(6)	Q	1, 2	
3.	Power Range, Neutron Flux, High Positive Rate	N.A	R(6)	Q	1, 2	See ITS 3.3.1
4.	Power Range, Neutron Flux, High Negative Rate	N.A	R(6)	Q	1, 2	
5.	Intermediate Range, Neutron Flux	S	R(6)	S/U(1)	1, 2, and *	See ITS 3.3.1
6.	Source Range, Neutron Flux	~~S~~(7)	~~R~~(6)	~~M and S/U(1)~~	2, 3, 4, 5, and *	L02
7.	Overtemperature ΔT	S	R	Q	1, 2	L03
8.	Overpower ΔT	S	R	Q	1, 2	~~184 days~~
9.	Pressurizer Pressure--Low	S	R	Q	1, 2	In accordance with the Surveillance Frequency Control Program
10.	Pressurizer Pressure--High	S	R	Q	1, 2	
11.	Pressurizer Water Level—High	S	R	Q	1, 2	
12.	Loss of Flow - Single Loop	S	R	Q	1	LA02
13.	Loss of Flow - Two Loops	S	R	N.A.	1	
14.	Steam Generator Water Level--Low-Low					See ITS 3.3.1
	A. Steam Generator Water Level--Low-Low (Adverse)	S	R	Q	1, 2	
	B. Steam Generator Water Level--Low-Low (EAM)	S	R	Q	1, 2	
	C. RCS Loop ΔT	S	R	Q	1, 2	
	D. Containment Pressure (EAM)	S	R	Q	1, 2	

SR 3.3.9.1, SR 3.3.9.2 SR 3.3.9.3

ITS

A01

ITS 3.3.9

Table 4.3-1 (Continued)

NOTATION

* - With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.

** - Above the P-9 (Power Range Neutron Flux) interlock.

See ITS 3.3.1

~~(1) - If not performed in previous 31 days.~~ L02

(2) - Heat balance only, above 15% of RATED THERMAL POWER. Adjust channel if absolute difference greater than 2 percent.

(3) - Compare incore to excore AXIAL FLUX DIFFERENCE above 15% of RATED THERMAL POWER. Recalibrate if the absolute difference greater than or equal to 3 percent. The frequency of this surveillance is every 31 EFPD. This surveillance is not required to be performed until 96 hours after thermal power is ≥ 15% RTP.

See ITS 3.3.1

(4) - Deleted.

(5) - Each train or logic channel shall be tested at least every 62 days on a STAGGERED TEST BASIS. The test shall independently verify the OPERABILITY of the undervoltage and automatic shunt trip circuits.

SR 3.3.9.3 Note

(6) - Neutron detectors may be excluded from CHANNEL CALIBRATION.

(7) - Below P-6 (Block of Source Range Reactor Trip) setpoint.

(8) - Deleted.

(9) - The CHANNEL FUNCTIONAL TEST shall independently verify the operability of the undervoltage and shunt trip circuits for the manual reactor trip function.

(10) - Local manual shunt trip prior to placing breaker in service. Each train shall be tested at least every 62 days on a STAGGERED TEST BASIS.

See ITS 3.3.1

(11) - Automatic and manual undervoltage trip.

(12) - Prior to exceeding the P-9 interlock whenever the unit has been in HOT STANDBY.

~~Add proposed SR 3.3.9.2 Note~~ ~~L04~~

KAB049

DISCUSSION OF CHANGES
ITS 3.3.9, BORON DILUTION MONITORING INSTRUMENTATION

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 LCOs 3.3.1.1 (Unit 1) and 3.3.1 (Unit 2), requires the Reactor Trip System Instrumentation channels and interlocks shown in Table 3.3-1 to be OPERABLE and requires that each channel be demonstrated OPERABLE by performance of the tests specified in CTS Table 4.3-1, including Functional Unit 6.B (Source Range, Neutron Flux, Shutdown). ITS 3.3.9, "Boron Dilution Monitoring Instrumentation (BDMI)," provides similar OPERABILITY and testing requirements for the source range neutron flux monitoring channels. This changes the CTS by providing a separate Specification for the Source Range, Neutron Flux, Shutdown Function (Boron Dilution Monitoring Instrumentation), in lieu of including it with the Reactor Trip System Instrumentation Specification.

This change is acceptable because the technical requirements for the Source Range, Neutron Flux, Shutdown Instrumentation are maintained with the change in format. The Boron Dilution Monitoring Instrumentation Specification continues to require the OPERABILITY and testing of the source range neutron flux monitoring instrumentation. This change is designated as administrative because it does not result in a technical change to the CTS.

A03 CTS Table 3.3-1 ACTION 5, which is the ACTION referenced in Table 3.3-1 for Functional Unit 6.B (Source Range, Neutron Flux – Shutdown), requires within one hour and every twelve hours thereafter, that when both channels are inoperable in MODES 3, 4, and 5 to verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable.
ITS 3.3.9 Required Action ~~A.2.2.2~~ requires, in part, that when the required source range neutron flux monitoring channel is inoperable, to perform SR 3.1.1.1. This changes the CTS by changing the presentation of how to perform the verification of compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2.

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This change is acceptable because the requirement have not changed. In CTS, the SHUTDOWN MARGIN specification was in two separate Specifications. CTS 3.1.1.1 contained the requirements for the SHUTDOWN MARGIN when T_{avg} was greater than or equal to 200 degrees Fahrenheit. CTS 3.1.1.2 contained the requirements for the SHUTDOWN MARGIN when T_{avg} was less than or equal to 200 degrees Fahrenheit. The ITS combined these two CTS Specifications into ITS 3.1.1, "SHUTDOWN MARGIN." Therefore, stating in ITS 3.3.9 Required Action ~~A.2.2.2~~, to perform SR 3.1.1.1 is the same as the CTS Table 3.3-1 ACTION 5 statement to verify compliance with the SHUTDOWN MARGIN

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requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable. This change is considered a change in presentation and, therefore, is considered as an administrative change since it does not result in a technical change to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS 4.3.1.1.1 requires, in part, the reactor trip system instrumentation shall be demonstrated OPERABLE by performance of a CHANNEL FUNCTIONAL TEST for the MODES and Frequencies shown in Table 4.3-1. Table 4.3-1 Functional Unit 6 requires a CHANNEL FUNCTIONAL TEST of the Source Range Neutron Flux. ITS SR 3.3.9.1 requires performance of a CHANNEL OPERABILITY TEST (COT) for each source range neutron flux monitoring channel. This changes the CTS by requiring a COT instead of a CHANNEL FUNCTIONAL TEST.

This change is acceptable because the COT continues to perform a test similar to the current CHANNEL FUNCTIONAL TEST. CTS defines a CHANNEL FUNCTIONAL TEST based on the type of channel. In CTS a CHANNEL FUNCTIONAL TEST shall be: for Analog channels, the injection of a simulated signal into the channel as close to the sensor as practicable to verify OPERABILITY including alarm and/or trip functions; for Bistable channels, the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions; and for digital channels, the injection of a simulated signal into the channel as close to the sensor input to the process racks as practicable to verify OPERABILITY including alarm and/or trip functions. The CHANNEL OPERATIONAL TEST (COT) provides a similar test with the addition that the COT includes adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy. This change is designated as more restrictive because the ITS requires additional acceptance criteria that is not required in the CTS.

~~M02~~ ~~CTS Table 3.3-1 ACTION 5, which is the ACTION referenced in Table 3.3-1 for Functional Unit 6.B (Source Range, Neutron Flux – Shutdown), requires when both channels are inoperable in MODES 3, 4, and 5 to verify compliance with the SHUTDOWN MARGIN requirements within one hour and every 12 hours thereafter. ITS 3.3.9 ACTION A requires that when the required source range neutron flux monitoring channel is inoperable, to suspend operations involving positive reactivity additions immediately except when plant temperature changes are accounted for in the calculated SDM (Required Action A.1). ITS 3.3.9 ACTION A also requires either the restoration of the required source range neutron flux monitoring channel to OPERABLE status within one hour OR to initiate action to close one combination of unborated water source isolation valves and perform SR 3.1.1.1 within one hour (Required Actions A.2.1, A.2.2.1 and A.2.2.2, respectively). This changes the CTS by adding Required Actions (Required Actions A.1 and A.2.2.1) when the required channel is inoperable.~~ KAB049

~~The purpose of Table 3.3-1 ACTION 5 is to verify that SHUTDOWN MARGIN is still within the required limits when the required source range channel is not available to monitor for changes in core reactivity. This change is acceptable because the added 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. Furthermore, the Required Actions are consistent with safe operation under the specified Conditions. This change is considered more restrictive because additional Required Actions are required in the ITS that were not required in the CTS.~~ KAB049

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-1, "Reactor Trip System Instrumentation," includes three columns stating various requirements for the Source Range Neutron Flux Shutdown Function. These columns are labeled "TOTAL NO. OF CHANNELS," "CHANNELS TO TRIP," and "MINIMUM CHANNELS OPERABLE." For CTS Table 3.3.1 Functional Unit 6.B, the "CHANNELS TO TRIP COLUMN" is "0" (i.e., the Function is required to provide an indication only function and is not required to have a trip function). ITS 3.3.9 does not include the "TOTAL NO. OF CHANNELS" and "CHANNELS TO TRIP" columns. This changes the CTS by moving the information of the "TOTAL NO. OF CHANNELS" and "CHANNELS TO TRIP" columns 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 the number of required channels and the appropriate Condition to enter if a required channel becomes inoperable. 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 4.3.1.1.1 requires that each reactor trip system instrumentation channel be demonstrated OPERABLE by performance of a CHANNEL CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST for the MODES and Frequencies shown in Table 4.3-1. CTS Table 4.3-1 Functional Unit 6 requires performance of a CHANNEL CHECK every 12 hours, a CHANNEL CALIBRATION every refueling outage, and a CHANNEL FUNCTIONAL TEST every month for the source range neutron flux monitors during MODES 3, 4, and 5. ITS SR 3.3.9.1, SR 3.3.9.2, and SR 3.3.9.3 require similar Surveillances and specify the periodic Frequency as, "In accordance with the Surveillance Frequency Control Program." (See DOC M01 for the discussion on changing the

DISCUSSION OF CHANGES
ITS 3.3.9, BORON DILUTION MONITORING INSTRUMENTATION

3

KAB048

CHANNEL FUNCTIONAL TEST to a COT. Also, see DOC L01 for discussion on changing the COT Surveillance Frequency from monthly to 184 days.) This changes the CTS by moving the specified Frequencies for the 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 2 – Relaxation of Applicability)* CTS 3.3.1.1 [3.3.1 Unit 2] Applicability states that the Applicability of each Functional Unit is as shown in Table 3.3-1. For CTS Table 3.3-1 Functional Unit 6.B (Source Range, Neutron Flux, Shutdown) the "Applicable MODES" column lists MODES 3, 4, and 5. ITS 3.3.9, Boron Dilution Monitoring Instrumentation, provides requirements for the Source Range Neutron Flux instruments. ITS 3.3.9 Applicability similarly lists MODES 3, 4, and 5 but is modified by a Note that states, "The high flux at shutdown alarm may be blocked in MODE 3 during reactor startup." This changes the CTS Mode of Applicability for the high flux at shutdown alarm by allowing blocking of the alarm in MODE 3 during reactor startup.

The purpose of CTS Table 3.3-1 Functional Unit 6.B (Source Range, Neutron Flux, Shutdown) is to provide indication of a dilution accident in sufficient time for the operators to respond and mitigate the accident. This change is acceptable because the requirements continue to ensure that the operators would be made aware of a dilution accident in sufficient time to respond and mitigate the accident. A reactor startup is a controlled activity where operator's attention is focused on the reactivity condition of the reactor core. Boron concentration is also monitored as one of the inputs to the estimated critical position calculation. In addition, the source range and intermediate range nuclear instruments are monitored closely specifically looking for indications of an unplanned reactivity rate of change. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

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DISCUSSION OF CHANGES
ITS 3.3.9, BORON DILUTION MONITORING INSTRUMENTATION

L02 *(Category 7 – Relaxation of Surveillance Frequency)* CTS Table 4.3-1 Functional Unit 6 requires a CHANNEL FUNCTIONAL TEST of the Source Range Neutron Flux at startup if not performed within the previous 31 days. The ITS does not require the "during startup if not performed within the previous 31 days" test. This changes the CTS by deleting the requirement to perform the startup Surveillance on the Source Range Neutron Flux.

The purpose of a CHANNEL FUNCTIONAL TEST is to ensure the instrumentation is functioning properly. This change is acceptable because the normal periodic CHANNEL FUNCTIONAL TEST (See DOC M01 for discussion on changing the channel FUNCTIONAL TEST to a COT) Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. This change deletes the requirement to perform the startup Surveillance on the Source Range Neutron Flux channels. ITS SR 3.0.4 requires the periodic Surveillances to be performed and be current prior to entry into the applicability. Once the applicable conditions are entered, the normal, periodic Surveillance Frequency provides adequate assurance of OPERABILITY. Therefore, the removal of this Frequency is considered acceptable. This change is designated as less restrictive because Surveillances will be performed less frequently under ITS than under the CTS.

L03 *(Category 9 – Allowed Outage Time, Surveillance Frequency, and Bypass Time Extensions Based on Generic Topical Reports)* CTS Table 4.3-1 requires a CHANNEL FUNCTIONAL TEST on a monthly bases (M) for Functional Unit 6 (Source Range Neutron Flux). ITS SR 3.3.9.2 requires performance of a COT every 184 days. (See DOC LA02 for discussion on relocating the Surveillance Frequency to the Surveillance Frequency Control Program.) This changes the CTS by changing the frequency of the Surveillances from monthly to 184 days.

The purpose of the CHANNEL FUNCTIONAL TEST/COT is to ensure that the instrumentation is functioning properly. These changes are acceptable and are the result of WCAP-10271, Revision 0 ("Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System"), dated May 1996, and supplements, WCAP-14333, Revision 1 ("Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times"), dated October 1998, or WCAP-15376, Revision 1 ("Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times"), dated March 2003 (or a combination of the WCAPs). TVA has performed evaluations of the applicable changes associated with the three WCAPs to justify the above changes. The evaluations supporting these changes are provided in Enclosure 4 of this submittal. This change is designated as less restrictive because less stringent Frequencies are being applied in the ITS than were applied in the CTS.

~~L04~~ ~~*(Category 7 – Relaxation Of Surveillance Frequency)* CTS Table 4.3-1, in part, requires a FUNCTIONAL TEST for Functional Unit 6.B (Source Range, Neutron Flux, Shutdown) in MODES 2, 3, 4, 5, and with the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal. When in the required MODES, the FUNCTIONAL TEST is required to be performed on a monthly basis (M) and prior to startup (S/U) if not performed in the previous 31 days (Note (1)). ITS SR 3.3.9.2 requires a CHANNEL OPERATIONAL TEST~~ KAB049

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DISCUSSION OF CHANGES
ITS 3.3.9, BORON DILUTION MONITORING INSTRUMENTATION

~~(COT) for the required Boron Dilution Monitoring Instrumentation (Source Range Neutron Flux Monitoring Channel) in MODE 3, 4, and 5. ITS SR 3.3.9.2 is modified by a note stating, "Not required to be performed prior to entering MODE 3 from MODE 2 until 24 hours after entry into MODE 3." This changes the CTS by allowing for a delay in performance of the surveillance.~~

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~~The purpose of the CTS FUNCTIONAL TEST for the Source Range Neutron Flux Function is to ensure the channel will perform the intended Function. This change is acceptable because the delay in surveillance performance is similar to that allowed under SR 3.0.3 when it is determined a surveillance has been missed. The function of the Source Range Neutron flux monitoring channel is to provide the operators indication of a dilution accident with sufficient time for operator action to mitigate the accident (i.e., greater than 15 minutes). The addition of the Note allows a normal shutdown to proceed without a delay for testing in MODE 2 and for a short time in MODE 3 and prevents entry into Required Actions, which are probably unnecessary, should an unplanned reactor trip occur. ITS SR 3.3.9.3 requires a channel calibration of these instrument every 18 months. ITS SR 3.3.9.2 requires a COT performed on the required channel every 184 days when in MODES 3, 4, or 5. ITS SR 3.3.9.1 requires a CHANNEL CHECK be performed every 12 hours while in MODES 3, 4, or 5. Before exiting MODE 6 and entering MODE 5 the required channel's testing must be current and maintained current until MODE 3 is exited and MODE 2 entered. Once in MODE 2 and then MODE 1, the instruments are no longer in their MODE of Applicability and in accordance with ITS SR 3.0.1 the surveillance requirements are not required to be meet. Entry into MODE 3 from MODE 2 without performance of SR 3.3.9.2 is similar to discovery of a Surveillance not being performed within its specified Frequency. Similarly, ITS SR 3.3.1.7 Note and ITS SR 3.0.3, under the condition of a missed surveillance, allows 24 hours to perform surveillance requirements. In addition, the operators will be monitoring the source range nuclear instruments during the plant shutdown performing a qualitative assessment of the channel's behavior where any unusual behavior will be identified and evaluated. This change is designated as less restrictive because a Surveillance will be performed less frequently under the ITS than under the CTS.~~

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

CTS

BDPS (Without Setpoint Control Program)
MI
3.3.9A

1

3.3 INSTRUMENTATION

Monitoring Instrumentation
MI

3.3.9A Boron Dilution Protection System (BDPS) (Without Setpoint Control Program)

1

One source range neutron flux monitoring channel

3.3.1.1, Table 3.3-1 Function 6.B

LCO 3.3.9A Two trains of the BDPS shall be OPERABLE.

2

Applicability, Table 3.3-1 Function 6.B

APPLICABILITY: MODES [2,] 3, 4, and 5.

3

high flux at shutdown alarm

----------NOTE----------

DOC L01

The boron dilution flux doubling signal may be blocked in MODES 2 and 3 during reactor startup.

4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One train inoperable.	A.1 Restore train to OPERABLE status.	72 hours
One required channel B. Two trains inoperable. A OR Required Action and associated Completion Time of Condition A not met.	B.1 A NOTE Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SDM. --- Suspend operations involving positive reactivity additions. AND B.2.1 Restore required channel to OPERABLE status. A OR	Immediately 1 hour

Table 3.3-1 ACTION 5 DOC M02

DOC M02

DOC M02

2

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KAB049

2

SEQUOYAH UNIT 1

5

CTS

BDPS ~~(Without Setpoint Control Program)~~ 1
MI
3.3.9~~A~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~DOC M02~~	~~Initiate action to~~ B.2.2.1 ~~Close~~ ~~one combination of~~ ~~unborated water source isolation valves.~~ A ~~AND~~ B.2.2.2 Perform SR 3.1.1.1. A	~~Immediately~~ ~~1 hour~~ 2 4 9 1 hour 2 AND Once per 12 hours thereafter

Table 3.3-1 ACTION 5

KAB049

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
Table 4.3-1 Function 6 SR 3.3.9.1	Perform CHANNEL CHECK.	~~[12 hours~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 6
Table 4.3-1 Function 6, DOC M01, DOC L01 ~~DOC L04~~ SR 3.3.9.2	Perform COT. ~~NOTE~~ ~~Not required to be performed prior to entering MODE 3 from MODE 2 until 24 hours after entry into MODE 3~~	~~[[184] days~~ 7 6 ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 6

KAB049

CTS

BDPS ~~(Without Setpoint Control Program)~~ (1)
MI
3.3.9~~A~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.9.3 Table 4.3-1 Function 6 and Note (6)	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ----------	
	Perform CHANNEL CALIBRATION.	~~[[18] months~~ (6) ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ (6)

CTS

BDPS (Without Setpoint Control Program) (MI)
3.3.9A (1)

3.3 INSTRUMENTATION

3.3.9A Boron Dilution Protection System (BDPS) (Monitoring Instrumentation; MI) (Without Setpoint Control Program) (1)

3.3.1.1, Table 3.3-1 Function 6.B

LCO 3.3.9A Two trains of the BDPS (One source range neutron flux monitoring channel) shall be OPERABLE. (2)

Applicability, Table 3.3-1 Function 6.B

APPLICABILITY: MODES [2,] 3, 4, and 5. (3)

----------NOTE----------
The boron dilution flux doubling signal (high flux at shutdown alarm) may be blocked in MODES 2 and 3 during reactor startup.
---------- (4)

DOC L01

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One train inoperable.	A.1 Restore train to OPERABLE status.	72 hours (2)
B. (One required channel) Two trains inoperable. (A) OR Required Action and associated Completion Time of Condition A not met.	B.1 (A) NOTE Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SDM. Suspend operations involving positive reactivity additions.	Immediately (2)
	AND	
	B.2.1 (A) Restore one (required channel) train to OPERABLE status.	1 hour (2)
	OR	

Table 3.3-1 ACTION 5 DOC M02

DOC M02

DOC M02

(9) KAB049

CTS

BDPS (Without Setpoint Control Program)
3.3.9A

MI

1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
DOC M02	Initiate action to B.2.2.1 Close unborated water source isolation valves. (A) one combination of	Immediately 1 hour (2) (4)
	AND	9
Table 3.3-1 ACTION 5	B.2.2.2 Perform SR 3.1.1.1. (A)	1 hour (2)
		AND KAB049
		Once per 12 hours thereafter

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
Table 4.3-1 Function 6 SR 3.3.9.1	Perform CHANNEL CHECK.	[12 hours OR In accordance with the Surveillance Frequency Control Program] (6)
Table 4.3-1 Function 6, DOC M01, DOC L01 SR 3.3.9.2	Perform COT. NOTE Not required to be performed prior to entering MODE 3 from MODE 2 until 24 hours after entry into MODE 3	[[184] days (7) OR In accordance with the Surveillance Frequency Control Program] (6) KAB049

DOC L04

CTS

BDPS ~~(Without Setpoint Control Program)~~ 1
MI
3.3.9~~A~~

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.9.3 Table 4.3-1 Function 6 and Note (6)	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ----------	
	Perform CHANNEL CALIBRATION.	~~[[18] months~~ 6 ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 6

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.9, BORON DILUTION MONITORING INSTRUMENTATION (BDMI)

1. The type of Setpoint Control Program (Without Setpoint Control Program) and the Specification designator "A" are deleted since they are unnecessary. This information is provided in NUREG 1431, Rev. 4.0 to assist in identifying the appropriate Specification to be used as a model for the plant specific ITS conversion, but serves no purpose in the plant specific implementation. In addition, ISTS 3.3.9B (with Setpoint Control Program Specification) is not used and is not shown. Additionally, the title of the Specification has been changed from "Boron Dilution Protection System (BDPS)" to "Boron Dilution Monitoring Instrumentation (BDMI)" since an actual "Protection System" does not exist at SQN.

2. ISTS 3.3.9A is not applicable to the SQN design or licensing bases. The BDPS as described in the ISTS is a two train system that provides automatic protection against boron dilution accidents by switching the charging pump suction to the RWST upon a specified high flux signal. Such a system is not part of the SQN plant design. The SQN units rely on detection of the event and operator action to mitigate the accident in MODES 3, 4, and 5.

   CTS 3.3.1.1, Reactor Trip System Instrumentation requires a single channel of source range instrumentation OPERABLE in MODES 3, 4, and 5. This requirement provides the only TS required means to monitor core reactivity under the specified plant condition. The requirement includes MODE 3 where the monitoring function serves as the only "required" means to detect a boron dilution event in progress. Although the source range channel does not actuate a system designed to mitigate a boron dilution event, it does provide the only TS required means of directly indicating neutron flux in the specified MODES. Therefore, the CTS Table 3.3-4 Functional Unit 6.B requirement for a single OPERABLE source range indication channel in MODES 3, 4, and 5 is being retained in ITS 3.3.9. The proposed LCO and ACTIONS have been changed to reflect the current requirement of one source range monitoring instrument channel to identify a possible boron dilution event.

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. ISTS 3.3.9A contains an Applicability Note which states that the boron dilution flux doubling signal may be blocked in MODES 2 and 3 during reactor startup. ITS 3.3.9 Applicability does not include MODE 2 and SQN does not have a boron dilution flux doubling signal but a High Flux at Shutdown alarm. Therefore, this information was changed to reflect the SQN design.

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.

6. ISTS SR 3.3.9.1, SR 3.3.9.2 and SR 3.3.9.3 (ITS SR 3.3.9.1, SR 3.3.9.2 and SR 3.3.9.3) provide two options for controlling the Frequencies of Surveillance Requirements. SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

7. ~~A Note has been added to ISTS SR 3.3.9.2 similar to the Note included in ITS 3.3.1.7 to delay performance of the surveillance when entering MODE 3 from~~ Not Used

(Unit 1) and 3.3.1 (Unit 2) KAB050

1 KAB050

KAB049

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JUSTIFICATION FOR DEVIATIONS
ITS 3.3.9, BORON DILUTION MONITORING INSTRUMENTATION (BDMI)

~~MODE 2 allowing time for performed without entering the Required Actions for an inoperable required channel.~~

Not Used

8. ~~CTS Table 3.3.1 ACTION 5 is associated with Functional Unit 6.B (Source Range, Neutron Flux – Shutdown) and requires that with the number of Source Range channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter. TVA proposes to add a requirement, under this condition, to initiate action to one combination of unborated water source isolation valves immediately. This changes the ISTS requirements on closing the unborated water source isolation valve within one hour to initiating action to close one combination of unborated water source isolation valves immediately. This change from ISTS is justified because the CTS requirements are being retained and completion of the closure of the required isolation valves is being performed in a reasonable time. Requiring one hour for isolation of numerous isolation valves during a plant shutdown with shutdown margin confirmed and monitored is considered unnecessary.~~

KAB049

9. ISTS Required Actions B.1, B.2.1, and B.2.2.1 have been deleted. CTS does not require suspending operations involving positive reactivity, restoring one train to OPERABLE status, or closing unborated water source isolation valves when the required source range neutron flux monitoring channel is inoperable. However, CTS Table 3.3-1, ACTION 5 does require verifying compliance with SHUTDOWN MARGIN (SDM) requirements within 1 hour and at least once per 12 hours thereafter when the required source range neutron flux monitoring channel is inoperable. Therefore, ISTS Required Action B.2.2.2 is retained as ITS Required Action A.1, which requires performance of ITS SR 3.1.1.1 (Verify SDM to be within limits specified in the COLR) within 1 hour and once per 12 hours thereafter.

KAB049

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

BDPS (Without Setpoint Control Program)
B 3.3.9A

MI

1

B 3.3 INSTRUCTION

Monitoring Instrumentation MI

B 3.3.9A Boron Dilution Protection System (BDPS) (Without Setpoint Control Program) 1

BASES

INSERT 1

BACKGROUND

MI

The primary purpose of the BDPS is to mitigate the consequences of the inadvertent addition of unborated primary grade water into the Reactor Coolant System (RCS) when the reactor is in a shutdown condition (i.e., MODES 2, 3, 4, and 5). 1 2 2

INSERT 2

The BDPS utilizes two channels of source range instrumentation. Each source range channel provides a signal to both trains of the BDPS. A unit computer is used to continuously record the counts per minute provided by these signals. At the end of each minute, an algorithm compares the counts per minute value (flux rate) of that 1 minute interval with the counts per minute value for the previous nine, 1 minute intervals. If the flux rate during a 1 minute interval is greater than or equal to twice the flux rate during any of the prior nine 1 minute intervals, the BDPS provides a signal to initiate mitigating actions. 2

Upon detection of a flux doubling by either source range instrumentation train, an alarm is sounded to alert the operator and valve movement is automatically initiated to terminate the dilution and start boration. Valves that isolate the refueling water storage tank (RWST) are opened to supply 2000 ppm borated water to the suction of the charging pumps, and valves which isolate the Chemical and Volume Control System (CVCS) are closed to terminate the dilution.

APPLICABLE SAFETY ANALYSES

MI

The BDPS senses abnormal increases in source range counts per minute (flux rate) and actuates CVCS and RWST valves to mitigate the consequences of an inadvertent boron dilution event as described in FSAR, Chapter 15 (Ref. 1). 1 2

INSERT 3

The accident analyses rely on automatic BDPS actuation to mitigate the consequences of inadvertent boron dilution events.

MI

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

LCO

INSERT 4

LCO 3.3.9 provides the requirements for OPERABILITY of the instrumentation and controls that mitigate the consequences of a boron dilution event. Two redundant trains are required to be OPERABLE to provide protection against single failure. 2

Because the BDPS utilizes the source range instrumentation as its detection system, the OPERABILITY of the detection system, (i.e., the flux doubling algorithm, the alarms, and signals to the various valves) for one SRM is also required for each train in the system to be considered OPERABLE. Therefore, with both SRMs inoperable for supporting the BDPS, both trains are inoperable.

2 **INSERT 1**

provide an indication of inadvertent positive reactivity changes when the reactor is in a shutdown condition (i.e., MODES 3, 4, and 5). Based on this indication, operator action can be taken to

2 **INSERT 2**

The required BDMI consists of one OPERABLE channel of the two channels of source range instrumentation. The requirement for an OPERABLE source range channel ensures the capability to monitor core reactivity and detect a boron dilution event. In order to promptly detect the event in MODES 3, 4, and 5 the required source range instrumentation must provide visual, audible (count rate indication), and alarm in the control room.

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

The installed source range neutron flux monitors are dual chamber unguarded fission chamber detectors. The detectors monitor the neutron flux in counts per second. The instrument range covers six decades of neutron flux (1E+6 cps). The detectors also provide continuous visual indication in the control room, an audible count rate (selectable between the two source range neutron flux channels), and a high flux at shutdown alarm to alert operators to a possible dilution accident.

2 **INSERT 3**

One OPERABLE source range neutron flux channel is required to provide a signal to alert the operator to unexpected changes in core reactivity. Following reactor shutdown the high flux at shutdown alarm setting will be automatically adjusted downward to a nominal value of 3 times the background count rate as the background count rate reduces. The operator does not depend entirely on this alarm setpoint but has audible indication of increasing neutron flux from the audible count rate drawer and visual indication from counts per second meters for each channel on the main control board and source range drawer. The audible count rate from the source range neutron flux monitors provides prompt and definite indication of any boron dilution. The count rate increase is proportional to the subcritical multiplication factor and allows operators to promptly recognize the initiation of a boron dilution event. Two cases are analyzed for a boron dilution accident following reactor shutdown, beginning of life (BOL) with equilibrium xenon and BOL with a clean core. The analysis shows that for both cases > 15 minutes following the high flux at shutdown alarm for operator action time is available before reaching a keff of 1.0. Therefore, the acceptance criterion for this event is met. The source range neutron flux monitoring channel is credited in the boron dilution accident in UFSAR Section 15.2.4 (Ref. 1).

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2

INSERT 4

for instrumentation necessary to detect a boron dilution event and monitor core reactivity. In the applicable plant condition, the specified instrumentation is required to provide a core reactivity monitoring function and is not required to provide a trip function. Therefore, in MODES 3, 4, and 5 a single OPERABLE source range channel with visual, audible (count rate indication), and alarm in the control room is required to provide prompt indication of an inadvertent boron dilution.

BASES

APPLICABILITY

The BDPS must be OPERABLE in MODES [2], 3, 4, and 5 because the safety analysis identifies this system as the primary means to mitigate an inadvertent boron dilution of the RCS.

The BDPS OPERABILITY requirements are not applicable in MODE[S] 1 [and 2] because an inadvertent boron dilution would be terminated by a source range trip, a trip on the Power Range Neutron Flux - High (low setpoint nominally 25% RTP), or Overtemperature ΔT. These RTS Functions are discussed in LCO 3.3.1, "RTS Instrumentation."

In MODE 6, a dilution event is precluded by locked valves that isolate the RCS from the potential source of unborated water (according to LCO 3.9.2, "Unborated Water Source Isolation Valves").

The Applicability is modified by a Note that allows the boron dilution flux doubling signal to be blocked during reactor startup in MODES 2 and 3. Blocking the flux doubling signal is acceptable during startup while in MODE 3, provided the reactor trip breakers are closed with the intent to withdraw rods for startup.

ACTIONS

The most common cause of channel inoperability is outright failure or drift of the bistable or process module sufficient to exceed the tolerance allowed by the unit specific calibration procedure. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination of setpoint drift is generally made during the performance of a COT when the process instrumentation is set up for adjustment to bring it to within specification. If the Trip Setpoint is less conservative than the tolerance specified by the calibration procedure, the channel must be declared inoperable immediately and the appropriate Condition entered.

A.1

With one train of the BDPS OPERABLE, Required Action A.1 requires that the inoperable train must be restored to OPERABLE status within 72 hours. In this Condition, the remaining the BDPS train is adequate to provide protection. The 72 hour Completion Time is based on the BDPS Function and is consistent with Engineered Safety Feature Actuation System Completion Times for loss of one redundant train. Also, the remaining OPERABLE train provides continuous indication of core power status to the operator, has an alarm function, and sends a signal to both trains of the BDPS to assure system actuation.

2 **INSERT 5**

to indicate the need for operator action

BASES

ACTIONS (continued)

B.1, B.2.1, B.2.2.1, and B.2.2.2

With two trains inoperable, or the Required Action and associated Completion Time of Condition A not met, the initial action (Required Action B.1) is to suspend all operations involving positive reactivity additions immediately. This includes withdrawal of control or shutdown rods and intentional boron dilution. A Completion Time of 1 hour is provided to restore one train to OPERABLE status.

As an alternate to restoring one train to OPERABLE status (Required Action B.2.1), Required Action B.2.2.1 requires valves listed in LCO 3.9.2 (Required Action A.2) to be secured to prevent the flow of unborated water into the RCS. Once it is recognized that two trains of the BDPS are inoperable, the operators will be aware of the possibility of a boron dilution, and the 1 hour Completion Time is adequate to complete the requirements of LCO 3.9.2.

Required Action B.2.2.2 accompanies Required Action B.2.2.1 to verify the SDM according to SR 3.1.1.1 within 1 hour and once per 12 hours thereafter. This backup action is intended to confirm that no unintended boron dilution has occurred while the BDPS was inoperable, and that the required SDM has been maintained. The specified Completion Time takes into consideration sufficient time for the initial determination of SDM and other information available in the control room related to SDM.

Required Action B.1 is modified by a Note which permits plant temperature changes provided the temperature change is accounted for in the calculated SDM. Introduction of temperature changes, including temperature increases when a positive MTC exists, must be evaluated to ensure they do not result in a loss of required SDM.

requires the verification of

KAB049

SURVEILLANCE REQUIREMENTS

SR 3.3.9.1

The BDPS trains are subject to a COT and a CHANNEL CALIBRATION.

Performance of the CHANNEL CHECK ensures that gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

MI

1

BASES

SURVEILLANCE REQUIREMENTS (continued)

Agreement criteria are determined by the unit staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the senor or the signal processing equipment has drifted outside its limit.

sensor

6

[The Frequency of 12 hours is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

OR

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

7

----------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

SR 3.3.9.2

the required channel

SR 3.3.9.2 requires the performance of a COT to ensure that each train of the BDPS and associated trip setpoint are fully operational. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable COT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. This test shall include verification that the boron dilution alarm setpoint is equal to or less than an increase of twice the count rate within a 10 minute period. There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology.

MI

alarm

High Flux at Shutdown

three times the background count rate

settings

1

2

6

[The Frequency of [184] days is consistent with the requirements for source range channels in WCAP-15376 (Ref. 2).

OR

7

2

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. (Ref. 1)

KAB063

~~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 3.3.9.3

SR 3.3.9.3 is the performance of a CHANNEL CALIBRATION. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor ~~except the neutron detector of the SRM circuit~~. There is a plant specific program which verifies that the instrument channel functions as required by verifying and as-left and as-found setting are consistent with those established by the setpoint methodology. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy. ~~For the BDPS,~~ the CHANNEL

INSERT 6

CALIBRATION shall include ~~verification that on a simulated or actual boron dilution flux doubling signal the centrifugal charging pump suction valves from the RWST open, and the normal CVCS volume control tank discharge valves close in the required closure time of ≤ 20 seconds.~~

~~[The Frequency of 18 months is based on operating experience and consistency with the typical industry refueling cycle.~~

~~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, ~~Chapter~~ Section [15] 2.4.

stet

KAB063

~~2. WCAP-15376, Revision 0, October 2000.~~

2

INSERT 6

checking the discriminator voltage and adjusting if necessary.

This SR is modified by a Note that states that neutron detectors are excluded from the CHANNEL CALIBRATION.

BDPS (Without Setpoint Control Program)
B 3.3.9A

MI

1

B 3.3 INSTRUCTION

Monitoring Instrumentation MI

B 3.3.9A Boron Dilution Protection System (BDPS) (Without Setpoint Control Program) 1

BASES

INSERT 1

BACKGROUND

MI

The primary purpose of the BDPS is to mitigate the consequences of the inadvertent addition of unborated primary grade water into the Reactor Coolant System (RCS) when the reactor is in a shutdown condition (i.e., MODES 2, 3, 4, and 5). 1 2 2

INSERT 2

The BDPS utilizes two channels of source range instrumentation. Each source range channel provides a signal to both trains of the BDPS. A unit computer is used to continuously record the counts per minute provided by these signals. At the end of each minute, an algorithm compares the counts per minute value (flux rate) of that 1 minute interval with the counts per minute value for the previous nine, 1 minute intervals. If the flux rate during a 1 minute interval is greater than or equal to twice the flux rate during any of the prior nine 1 minute intervals, the BDPS provides a signal to initiate mitigating actions. 2

Upon detection of a flux doubling by either source range instrumentation train, an alarm is sounded to alert the operator and valve movement is automatically initiated to terminate the dilution and start boration. Valves that isolate the refueling water storage tank (RWST) are opened to supply 2000 ppm borated water to the suction of the charging pumps, and valves which isolate the Chemical and Volume Control System (CVCS) are closed to terminate the dilution.

APPLICABLE SAFETY ANALYSES

MI

The BDPS senses abnormal increases in source range counts per minute (flux rate) and actuates CVCS and RWST valves to mitigate the consequences of an inadvertent boron dilution event as described in FSAR, Chapter 15 (Ref. 1). 1 2

INSERT 3

The accident analyses rely on automatic BDPS actuation to mitigate the consequences of inadvertent boron dilution events.

MI

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

LCO

INSERT 4

LCO 3.3.9 provides the requirements for OPERABILITY of the instrumentation and controls that mitigate the consequences of a boron dilution event. Two redundant trains are required to be OPERABLE to provide protection against single failure. 2

Because the BDPS utilizes the source range instrumentation as its detection system, the OPERABILITY of the detection system, (i.e., the flux doubling algorithm, the alarms, and signals to the various valves) for one SRM is also required for each train in the system to be considered OPERABLE. Therefore, with both SRMs inoperable for supporting the BDPS, both trains are inoperable.

2 **INSERT 1**

provide an indication of inadvertent positive reactivity changes when the reactor is in a shutdown condition (i.e., MODES 3, 4, and 5). Based on this indication, operator action can be taken to

2 **INSERT 2**

The required BDMI consists of one OPERABLE channel of the two channels of source range instrumentation. The requirement for an OPERABLE source range channel ensures the capability to monitor core reactivity and detect a boron dilution event. In order to promptly detect the event in MODES 3, 4, and 5 the required source range instrumentation must provide visual, audible (count rate indication), and alarm in the control room.

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

The installed source range neutron flux monitors are dual chamber unguarded fission chamber detectors. The detectors monitor the neutron flux in counts per second. The instrument range covers six decades of neutron flux (1E+6 cps). The detectors also provide continuous visual indication in the control room, an audible count rate (selectable between the two source range neutron flux channels), and a high flux at shutdown alarm to alert operators to a possible dilution accident.

2 **INSERT 3**

One OPERABLE source range neutron flux channel is required to provide a signal to alert the operator to unexpected changes in core reactivity. Following reactor shutdown the high flux at shutdown alarm setting will be automatically adjusted downward to a nominal value of 3 times the background count rate as the background count rate reduces. The operator does not depend entirely on this alarm setpoint but has audible indication of increasing neutron flux from the audible count rate drawer and visual indication from counts per second meters for each channel on the main control board and source range drawer. The audible count rate from the source range neutron flux monitors provides prompt and definite indication of any boron dilution. The count rate increase is proportional to the subcritical multiplication factor and allows operators to promptly recognize the initiation of a boron dilution event. Two cases are analyzed for a boron dilution accident following reactor shutdown, beginning of life (BOL) with equilibrium xenon and BOL with a clean core. The analysis shows that for both cases > 15 minutes following the high flux at shutdown alarm for operator action time is available before reaching a keff of 1.0. Therefore, the acceptance criterion for this event is met. The source range neutron flux monitoring channel is credited in the boron dilution accident in UFSAR Section 15.2.4 (Ref. 1).

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2

INSERT 4

for instrumentation necessary to detect a boron dilution event and monitor core reactivity. In the applicable plant condition, the specified instrumentation is required to provide a core reactivity monitoring function and is not required to provide a trip function. Therefore, in MODES 3, 4, and 5 a single OPERABLE source range channel with visual, audible (count rate indication), and alarm in the control room is required to provide prompt indication of an inadvertent boron dilution.

MI

1

BASES

APPLICABILITY

MI

The BDPS must be OPERABLE in MODES [2], 3, 4, and 5 because the safety analysis identifies this system as the primary means to mitigate an inadvertent boron dilution of the RCS.

1 3 2

INSERT 5

MI

The BDPS OPERABILITY requirements are not applicable in MODE[S] 1 [and 2] because an inadvertent boron dilution would be terminated by a source range trip, a trip on the Power Range Neutron Flux - High (low setpoint nominally 25% RTP), or Overtemperature ΔT. These RTS Functions are discussed in LCO 3.3.1, "RTS Instrumentation."

1 3

In MODE 6, a dilution event is precluded by locked valves that isolate the RCS from the potential source of unborated water (according to LCO 3.9.2, "Unborated Water Source Isolation Valves").

high flux at shutdown alarm

The Applicability is modified by a Note that allows the boron dilution flux doubling signal to be blocked during reactor startup in MODES 2 and 3. Blocking the flux doubling signal is acceptable during startup while in MODE 3, provided the reactor trip breakers are closed with the intent to withdraw rods for startup.

2

ACTIONS

The most common cause of channel inoperability is outright failure or drift of the bistable or process module sufficient to exceed the tolerance allowed by the unit specific calibration procedure. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination of setpoint drift is generally made during the performance of a COT when the process instrumentation is set up for adjustment to bring it to within specification. If the Trip Setpoint is less conservative than the tolerance specified by the calibration procedure, the channel must be declared inoperable immediately and the appropriate Condition entered.

outside

channel

evaluated

A.1

With one train of the BDPS OPERABLE, Required Action A.1 requires that the inoperable train must be restored to OPERABLE status within 72 hours. In this Condition, the remaining the BDPS train is adequate to provide protection. The 72 hour Completion Time is based on the BDPS Function and is consistent with Engineered Safety Feature Actuation System Completion Times for loss of one redundant train. Also, the remaining OPERABLE train provides continuous indication of core power status to the operator, has an alarm function, and sends a signal to both trains of the BDPS to assure system actuation.

4

2

2 **INSERT 5**

to indicate the need for operator action

BASES

ACTIONS (continued)

B.1, B.2.1, B.2.2.1, and B.2.2.2

With two trains inoperable, or the Required Action and associated Completion Time of Condition A not met, the initial action (Required Action B.1) is to suspend all operations involving positive reactivity additions immediately. This includes withdrawal of control or shutdown rods and intentional boron dilution. A Completion Time of 1 hour is provided to restore one train to OPERABLE status.

As an alternate to restoring one train to OPERABLE status (Required Action B.2.1), Required Action B.2.2.1 requires valves listed in LCO 3.9.2 (Required Action A.2) to be secured to prevent the flow of unborated water into the RCS. Once it is recognized that two trains of the BDPS are inoperable, the operators will be aware of the possibility of a boron dilution, and the 1 hour Completion Time is adequate to complete the requirements of LCO 3.9.2.

Required Action B.2.2.2 accompanies Required Action B.2.2.1 to verify the SDM according to SR 3.1.1.1 within 1 hour and once per 12 hours thereafter. This backup action is intended to confirm that no unintended boron dilution has occurred while the BDPS was inoperable, and that the required SDM has been maintained. The specified Completion Time takes into consideration sufficient time for the initial determination of SDM and other information available in the control room related to SDM.

Required Action B.1 is modified by a Note which permits plant temperature changes provided the temperature change is accounted for in the calculated SDM. Introduction of temperature changes, including temperature increases when a positive MTC exists, must be evaluated to ensure they do not result in a loss of required SDM.

requires the verification of

KAB049

SURVEILLANCE REQUIREMENTS

SR 3.3.9.1

The BDPS trains are subject to a COT and a CHANNEL CALIBRATION.

Performance of the CHANNEL CHECK ensures that gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

MI

1

BASES

SURVEILLANCE REQUIREMENTS (continued)

Agreement criteria are determined by the unit staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the senor or the signal processing equipment has drifted outside its limit.

sensor

6

[The Frequency of 12 hours is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

OR

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

7

----------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

SR 3.3.9.2

the required channel

SR 3.3.9.2 requires the performance of a COT to ensure that each train of the BDPS and associated trip setpoint are fully operational. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable COT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. This test shall include verification that the boron dilution alarm setpoint is equal to or less than an increase of twice the count rate within a 10 minute period. There is a plant specific program which verifies that the instrument channel functions as required by verifying the as-left and as-found setting are consistent with those established by the setpoint methodology.

MI

alarm

High Flux at Shutdown

three times the background count rate

settings

1

2

6

[The Frequency of [184] days is consistent with the requirements for source range channels in WCAP-15376 (Ref. 2).

OR

7

2

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. (Ref. 2)

KAB063

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 3.3.9.3

SR 3.3.9.3 is the performance of a CHANNEL CALIBRATION. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor except the neutron detector of the SRM circuit. There is a plant specific program which verifies that the instrument channel functions as required by verifying and as-left and as-found setting are consistent with those established by the setpoint methodology. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy. For the BDPS, the CHANNEL

INSERT 6

CALIBRATION shall include verification that on a simulated or actual boron dilution flux doubling signal the centrifugal charging pump suction valves from the RWST open, and the normal CVCS volume control tank discharge valves close in the required closure time of ≤ 20 seconds.

[The Frequency of 18 months is based on operating experience and consistency with the typical industry refueling cycle.

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 Chapter [15]. 2.4

stet

KAB063

2. WCAP-15376, Revision 0, October 2000.

2

INSERT 6

checking the discriminator voltage and adjusting if necessary.

This SR is modified by a Note that states that neutron detectors are excluded from the CHANNEL CALIBRATION.

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.9 BASES, BORON DILUTION MONITORING INSTRUMENTATION (BDMI)

1. The type of Setpoint Control Program (Without Setpoint Control Program) and the Specification designator "A" are deleted since they are unnecessary. This information is provided in NUREG 1431, Rev. 4.0 to assist in identifying the appropriate Bases to be used as a model for the plant specific ITS conversion, but serves no purpose in the plant specific implementation. In addition, ISTS B 3.3.9B (with Setpoint Control Program Specification) is not used and is not shown. Additionally, the title of the Bases has been changed from "Boron Dilution Protection System (BDPS)" to "Boron Dilution Monitoring Instrumentation (BDMI)" since an actual "Protection System" does not exist at SQN.

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 have been made to be consistent with changes made to the Specification.

5. ~~The paragraph has been moved to after the discussion on Required Action B.1 since the Note is associated with Required Action B.1.~~ KAB049

Not Used

6. Typographical/grammatical error corrected.

7. ISTS SR 3.3.9.1, SR 3.3.9.2 and SR 3.3.9.3 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.

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.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.9, BORON DILUTION MONITORING INSTRUMENTATION (BDMI)

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

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ATTACHMENT 10

Relocated/Deleted Current Technical Specifications (CTS)

CTS 3/4.3.3.10, EXPLOSIVE GAS MONITORING INSTRUMENTATION

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

INSTRUMENTATION

EXPLOSIVE GAS MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.10 The explosive gas monitoring instrumentation channels shown in Table 3.3-13 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.11.2.5 are not exceeded.

APPLICABILITY: As shown in Table 3.3-13

ACTION:

a. With an explosive gas monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above Specification, declare the channel inoperable and take the ACTION shown in Table 3.3-13.

b. With less than the minimum number of explosive gas monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-13. Restore the inoperable instrumentation to OPERABLE status within 30 days and, if unsuccessful, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2.1 to explain why this inoperability was not corrected in a timely manner.

c. The provisions of Specification 3.0.3 are not applicable.

R01

SURVEILLANCE REQUIREMENTS

4.3.3.10 Each explosive gas monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST at the frequencies shown in Table 4.3-9.

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TABLE 3.3-13

EXPLOSIVE GAS MONITORING INSTRUMENTATION

	INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
1.	Deleted			
2.	WASTE GAS DISPOSAL SYSTEM EXPLOSIVE GAS MONITORING SYSTEM			
	a. Hydrogen and Oxygen Monitors	2	**	43

R01

TABLE 3.3-13 (Continued)

TABLE NOTATION

** During waste gas compressor operation.

ACTION 40 – Not used.

ACTION 41 – Not used.

ACTION 42 – Not used.

ACTION 43 – With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, operation of this waste gas disposal system may continue provided grab samples are taken and analyzed either (1) every 4 hours during degassing operations of the reactor coolant system or (2) daily during other operations.

ACTION 44 – Not Used.

R01

TABLE 4.3-9

EXPLOSIVE GAS MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. Deleted				
2. WASTE GAS DISPOSAL SYSTEM EXPLOSIVE GAS MONITORING SYSTEM				
a. Hydrogen Monitor	D	Q(4)	M	**
b. Oxygen Monitor	D	Q(5)	M	**

R01

~~TABLE 4.3-9 (Continued)~~

~~TABLE NOTATION~~

~~** During waste gas compressor operation.~~

~~(1) Not Used.~~

~~(2) Not Uses.~~

~~(3) Not Used.~~

~~(4) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:~~

~~1. One volume percent hydrogen, balance nitrogen, and~~

~~2. Four volume percent hydrogen, balance nitrogen.~~

~~(5) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:~~

~~1. One volume percent oxygen, balance nitrogen, and~~

~~2. Four volume percent oxygen, balance nitrogen.~~

R01

INSTRUMENTATION

EXPLOSIVE GAS MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.10 The explosive gas monitoring instrumentation channels shown in Table 3.3-13 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.11.2.5 are not exceeded.

APPLICABILITY: As shown in Table 3.3-13

ACTION:

a. With an explosive gas monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above Specification, declare the channel inoperable and take the ACTION shown in Table 3.3-13.

b. With less than the minimum number of explosive gas monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-13. Restore the inoperable instrumentation to OPERABLE status within 30 days and, if unsuccessful, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2.1 to explain why this inoperability was not corrected in a timely manner.

c. The provisions of Specification 3.0.3 are not applicable.

R01

SURVEILLANCE REQUIREMENTS

4.3.3.10 Each explosive gas monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST at the frequencies shown in Table 4.3-9.

~~TABLE 3.3-13~~

~~EXPLOSIVE GAS MONITORING INSTRUMENTATION~~

~~INSTRUMENT~~	~~MINIMUM CHANNELS OPERABLE~~	~~APPLICABILITY~~	~~ACTION~~
~~1. DELETED~~			
~~2. WASTE GAS DISPOSAL SYSTEM EXPLOSIVE GAS MONITORING SYSTEM~~			
~~a. Hydrogen and Oxygen Monitors~~	~~2~~	~~**~~	~~43~~

R01

TABLE 3.3-13 (Continued)

TABLE NOTATION

** During waste gas compressor operation.

ACTION 40 - Not used.

ACTION 41 - Not used.

ACTION 42 - Not used.

ACTION 43 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, operation of this waste gas disposal system may continue provided grab samples are taken and analyzed either (1) every 4 hours during degassing operations of the reactor coolant system or (2) daily during other operations.

ACTION 44 - Not used.

R01

TABLE 4.3-9

EXPLOSIVE GAS MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. DELETED				
2. WASTE GAS DISPOSAL SYSTEM EXPLOSIVE GAS MONITORING SYSTEM				
a. Hydrogen Monitor	D	Q(4)	M	**
b. Oxygen Monitor	D	Q(5)	M	**

R01

TABLE 4.3-9 (Continued)

TABLE NOTATION

** During waste gas compressor operation.

(1) Not Used.

(2) Not Used.

(3) Not Used.

(4) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:

1. One volume percent hydrogen, balance nitrogen, and

2. Four volume percent hydrogen, balance nitrogen.

(5) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:

1. One volume percent oxygen, balance nitrogen, and

2. Four volume percent oxygen, balance nitrogen.

R01

DISCUSSION OF CHANGES
CTS 3/4.3.3.10, EXPLOSIVE GAS MONITORING INSTRUMENTATION

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

R01 CTS 3/4.3.3.10 provides the requirements for the explosive gas monitoring instrumentation. The Explosive Gas Monitoring Instrumentation Specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in the gaseous waste processing system is adequately monitored, which will help ensure that the concentration is maintained below the flammability limit. However, the system is designed to contain detonations, and detonations would affect the function of any safety related equipment. The concentration of oxygen in the gaseous Waste Processing System is not an initial assumption of any design basis accident (DBA) or transient analysis. This Specification does not meet the criteria for retention in the Improved Technical Specification (ITS); therefore, it will be retained in the Technical Requirements Manual.

This change is acceptable because CTS 3/4.3.3.10 does not meet the 10 CFR 50.36(c)(2)(ii) criteria for inclusion into the ITS.

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

1. Explosive gas monitoring instrumentation is not used for, nor capable of, detection a significant abnormal degradation of the reactor coolant pressure boundary prior to a DBA. The Explosive Gas Monitoring Instrumentation Specification does not satisfy criterion 1.

2. Explosive gas monitoring instrumentation is not used to indicate the status of, or monitor a process variable, design feature, or operating restriction that is an initial condition of a DBA or transient. In addition, excessive system oxygen is not an indication of a DBA or transient. The Explosive Gas Monitoring Instrumentation does not satisfy criterion 2.

3. Explosive gas monitoring instrumentation is not part of a primary success path in the mitigation of a DBA or transient. In addition, excessive oxygen discharge is not part of a primary success path in mitigating a DBA or transient. The Explosive Gas Monitoring Instrumentation Specification does not satisfy criterion 3.

4. As discussed in Section 4.0 (Appendix A, page A-69) and summarized in Table 1 of WCAP-11618, the loss of the explosive gas monitoring instrumentation was found to be a non-significant risk contributor to core damage frequency and offsite releases. TVA has reviewed this evaluation, considers it applicable to Sequoyah Nuclear Plant (SQN)

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DISCUSSION OF CHANGES
CTS 3/4.3.3.10, EXPLOSIVE GAS MONITORING INSTRUMENTATION

Units 1 and 2, and concurs with the assessment. The Explosive Gas Monitoring Instrumentation Specification does not satisfy criterion 4.

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

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

None

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
CTS 3/4.3.3.10, EXPLOSIVE GAS MONITORING INSTRUMENTATION

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

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ENCLOSURE 2

VOLUME 11

SEQUOYAH NUCLEAR PLANT
UNIT 1 AND UNIT 2

IMPROVED TECHNICAL
SPECIFICATIONS CONVERSION

ITS SECTION 3.6
CONTAINMENT SYSTEMS

LIST OF ATTACHMENTS

1. ITS 3.6.1 – Containment
2. ITS 3.6.2 – Containment Air Lock
3. ITS 3.6.3 – Containment Isolation Valves
4. ITS 3.6.4 – Containment Pressure
5. ITS 3.6.5 – Containment Air Temperature
6. ITS 3.6.6 – Containment Spray
7. ITS 3.6.7 – Shield Building
8. ITS 3.6.8 – Hydrogen Mitigation System
9. ITS 3.6.9 – Vacuum Relief Valves
10. ITS 3.6.10 – Emergency Gas Treatment System (EGTS)
11. ITS 3.6.11 – Air Return System
12. ITS 3.6.12 – Ice Bed
13. ITS 3.6.13 – Ice Condenser Doors
14. ITS 3.6.14 – Divider Barrier Integrity
15. ITS 3.6.15 – Containment Recirculation Drains
16. Relocated/Deleted Current Technical Specifications
17. ISTS Not Adopted

Air Cleanup Subsystem

CSS-041

ATTACHMENT 1

ITS 3.6.1, CONTAINMENT

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

ITS

A01

ITS 3.6.1

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 ~~PRIMARY~~ CONTAINMENT

CONTAINMENT ~~INTEGRITY~~

A02

LIMITING CONDITION FOR OPERATION

LCO 3.6.1 3.6.1.1 ~~Primary~~ CONTAINMENT ~~INTEGRITY~~ shall be ~~maintained~~ OPERABLE.

A02

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

ACTION:

ACTION A ~~Without primary~~ CONTAINMENT ~~INTEGRITY,~~ inoperable restore CONTAINMENT ~~INTEGRITY~~ to OPERABLE status within one hour or

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

A02

SURVEILLANCE REQUIREMENTS

SR 3.6.1.1 4.6.1.1 ~~Primary~~ CONTAINMENT ~~INTEGRITY~~ shall be demonstrated OPERABLE:

A02

~~a.~~ ~~Delete.~~

b. By verifying that each containment air lock is in compliance with the requirements of Specification 3.6.1.3.

See ITS 3.6.2

SR 3.6.1.1 c. Perform required visual examinations and leakage rate testing except for containment air lock testing, in accordance with the Containment Leakage Rate Testing Program.

A03

CONTAINMENT SYSTEMS

SECONDARY CONTAINMENT BYPASS LEAKAGE (DELETED)

LIMITING CONDITION FOR OPERATION

CONTAINMENT SYSTEMS

SECONDARY CONTAINMENT BYPASS LEAKAGE (DELETED)

SURVEILLANCE REQUIREMENTS

Pages 3/4 6-4 through 3/4 6-6a intentionally deleted

ITS

A01

ITS 3.6.1

CONTAINMENT SYSTEMS

CONTAINMENT VESSEL STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

LCO 3.6.1

3.6.1.6 The structural integrity of the containment vessel shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.6.

A02

Applicability

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Add proposed ACTIONS A and B

A04

ACTION A, ACTION B

~~With the structural integrity of the containment vessel not conforming to the above requirements, restore the structural integrity to within the limits prior to increasing the Reactor Coolant System temperature above 200°F.~~

SURVEILLANCE REQUIREMENTS

SR 3.6.1.1

4.6.1.6 The structural integrity of the containment vessel shall be determined ~~during shutdown~~ by a visual inspection ~~of the exposed accessible interior and exterior surfaces of the vessel.~~ This inspection shall be performed in accordance with the Containment Leakage Rate Test Program ~~to verify no apparent changes in appearance of the surfaces or other abnormal degradation~~.

LA01

ITS A01 ITS 3.6.1

DEFINITIONS

CHANNEL FUNCTIONAL TEST

1.6 A CHANNEL FUNCTIONAL TEST shall be:

a. Analog channels - the injection of a simulated signal into the channel as close to the sensor as practicable to verify OPERABILITY including alarm and/or trip functions.

b. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.

c. Digital channels - the injection of a simulated signal into the channel as close to the sensor input to the process racks as practicable to verify OPERABILITY including alarm and/or trip functions.

See ITS Chapter 1.0

CONTAINMENT INTEGRITY

1.7 CONTAINMENT INTEGRITY shall exist when:

~~a. All penetrations required to be closed during accident conditions are either:~~

~~1) Capable of being closed by an OPERABLE containment automatic isolation valve system, or~~

~~2) Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.~~

~~b. All equipment hatches are closed and sealed.~~

~~c. Each air lock is in compliance with the requirements of Specification 3.6.1.3,~~

LA02

SR 3.6.1.1 d. The containment leakage rates are within the limits of Specification 4.6.1.1.c,

~~e. The sealing mechanism associated with each penetration (e.g., welds, bellows, or O-rings) is OPERABLE, and~~

LA02

f. Secondary containment bypass leakage is within the limits of Specification 3.6.3.

See ITS 3.6.3

CONTROLLED LEAKAGE

1.8 This definition has been deleted.

CORE ALTERATION

1.9 CORE ALTERATION shall be the movement of any fuel, sources, reactivity control components, or other components affecting reactivity within the reactor vessel with the head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

See ITS Chapter 1.0

CORE OPERATING LIMIT REPORT

1.10 The CORE OPERATING LIMITS REPORT (COLR) is the unit-specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specification 6.9.1.14. Unit operation within these operating limits is addressed in individual specifications.

ITS

A01

ITS 3.6.1

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 CONTAINMENT

CONTAINMENT ~~INTEGRITY~~

A02

LIMITING CONDITION FOR OPERATION

LCO 3.6.1

3.6.1.1 ~~Primary~~ CONTAINMENT INTEGRITY shall be ~~maintained~~ OPERABLE.

A02

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

ACTION A

ACTION B

~~Without primary~~ CONTAINMENT ~~INTEGRITY~~ inoperable, restore CONTAINMENT ~~INTEGRITY~~ to OPERABLE status within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

A02

SURVEILLANCE REQUIREMENTS

SR 3.6.1.1

4.6.1.1 ~~Primary~~ CONTAINMENT ~~INTEGRITY~~ shall be demonstrated OPERABLE:

A02

~~a.~~ ~~Deleted.~~

b. By verifying that each containment air lock is in compliance with the requirements of Specification 3.6.1.3.

See ITS 3.6.2

SR 3.6.1.1

c. Perform required visual examinations and leakage rate testing except for containment air lock testing, in accordance with the Containment Leakage Rate Testing Program.

A03

ITS

A01

ITS 3.6.1

CONTAINMENT SYSTEMS

SECONDARY CONTAINMENT BYPASS LEAKAGE (DELETED)

LIMITING CONDITION FOR OPERATION

ITS

A01

ITS 3.6.1

CONTAINMENT SYSTEMS

SECONDARY CONTAINMENT BYPASS LEAKAGE (DELETED)

SURVEILLANCE REQUIREMENTS

Pages 3/4 6-4 through 3/4 6-6a intentionally deleted

ITS

A01

ITS 3.6.1

CONTAINMENT SYSTEMS

CONTAINMENT VESSEL STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

LCO 3.6.1

3.6.1.6 The structural integrity of the containment vessel shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.6.

A02

Applicability

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Add proposed ACTIONS A and B

A04

ACTION A, ACTION B

~~With the structural integrity of the containment vessel not conforming to the above requirements, restore the structural integrity to within the limits prior to increasing the Reactor Coolant System temperature above 200°F.~~

SURVEILLANCE REQUIREMENTS

SR 3.6.1.1

4.6.1.6 The structural integrity of the containment vessel shall be determined ~~during shutdown~~ by a visual inspection ~~of the exposed accessible interior and exterior surfaces of the vessel~~. This inspection shall be performed in accordance with the Containment Leakage Rate Test ~~Program to verify no apparent changes in appearance of the surfaces or other abnormal degradation~~.

LA01

ITS

A01

ITS 3.6.1

DEFINITIONS

CHANNEL FUNCTIONAL TEST

1.6 A CHANNEL FUNCTIONAL TEST shall be:

a. Analog channels - the injection of a simulated signal into the channel as close to the sensor as practicable to verify OPERABILITY including alarm and/or trip functions.

b. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.

See ITS Chapter 1.0

c. Digital channels - the injection of a simulated signal into the channel as close to the sensor input to the process racks as practicable to verify OPERABILITY including alarm and/or trip functions.

CONTAINMENT INTEGRITY

1.7 CONTAINMENT INTEGRITY shall exist when:

~~a. All penetrations required to be closed during accident conditions are either:~~

~~1) Capable of being closed by an OPERABLE containment automatic isolation valve system, or~~

~~2) Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.~~

LA02

~~b. All equipment hatches are closed and sealed.~~

~~c. Each air lock is in compliance with the requirements of Specification 3.6.1.3,~~

SR 3.6.1.1 d. The containment leakage rates are within the limits of Specification 4.6.1.1.c,

~~e. The sealing mechanism associated with each penetration (e.g., welds, bellows, or O-rings) is OPERABLE, and~~

LA02

f. Secondary containment bypass leakage is within the limits of Specification 3.6.3.

See ITS 3.6.3

CONTROLLED LEAKAGE

1.8 This definition has been deleted.

CORE ALTERATION

1.9 CORE ALTERATION shall be the movement of any fuel, sources, reactivity control components, or other components affecting reactivity within the reactor vessel with the head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

See ITS Chapter 1.0

CORE OPERATING LIMITS REPORT

1.10 The CORE OPERATING LIMITS REPORT (COLR) is the unit-specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specification 6.9.1.14. Unit operation within these operating limits is addressed in individual specifications.

DISCUSSION OF CHANGES
ITS 3.6.1, CONTAINMENT

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 3/4.6.1 requires CONTAINMENT INTEGRITY. CTS 3.6.1.1 states "Primary CONTAINMENT INTEGRITY shall be maintained." CTS 3.6.1.1 ACTION requires, in part, without primary CONTAINMENT INTEGRITY to restore CONTAINMENT INTEGRITY within one hour." CTS 4.6.1.1.c requires primary CONTAINMENT INTEGRITY to be demonstrated by performance of a visual examination and leak rate testing in accordance with the Containment Leak Rate testing Program. CTS 3.6.1.6 requires the structural integrity of the containment to be maintained within specified parameters. ITS 3.6.1 is the containment specification. ITS LCO 3.6.1 requires the containment to be OPERABLE. ITS 3.6.1 ACTION A requires when containment is inoperable to restore the containment to OPERABLE status within 1 hour. ITS SR 3.6.1.1 requires performance of a visual examination and leak rate testing in accordance with the Containment Leak Rate Testing Program, with an exception for the containment air lock testing. This changes the CTS by replacing the specific CONTAINMENT INTEGRITY definition and all references to it with the requirement for Containment OPERABILITY. Additionally, it changes the CTS by combining CTS 3.6.1.1 and CTS 3.6.1.6 into one specification.

The purpose of CTS 3.6.1.1 and CTS 3.6.1.6 is to provide requirements pertaining to containment OPERABILITY. This portion of the change (combining CTS 3.6.1.1 and 3.6.1.6) is acceptable because moving these requirements into one LCO, ITS LCO 3.6.1, centralizes the requirements. The CTS 3/4.6.1 references to CONTAINMENT INTEGRITY have been deleted because the CTS definition of CONTAINMENT INTEGRITY in CTS 1.7 is incorporated into ITS 3.6.1, 3.6.2 and 3.6.3 and is no longer maintained as a separate definition in the ITS. ITS 3.6.1 requires that the containment shall be OPERABLE. The definition of OPERABLE and the subsequent ITS 3.6.1 LCO, ACTIONS, and Surveillance Requirements are sufficient to encompass the applicable requirements of the CTS definition. This change removes any confusion that may exist between the definition and the specific requirements of the LCO and is a presentation preference consistent with NUREG-1431, Rev. 4.0. Because the aspects of the CONTAINMENT INTEGRITY definition requirements, along with the remainder of the LCOs in the Containment Systems Primary Containment section (i.e., air locks and containment isolation valves), are maintained in subsequent Specifications of ITS, this change is considered acceptable. This change is designated as administrative because it does not result in technical changes to the CTS.

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DISCUSSION OF CHANGES
ITS 3.6.1, CONTAINMENT

A03 CTS 4.6.1.1.c requires performance of visual examinations and leakage rate testing in accordance with the Containment Leakage Rate Testing Program. ITS SR 3.6.1.1 requires this same test, but adds an exception for containment air lock testing. This changes the CTS by excluding the containment air lock testing in the required CTS surveillance.

This change is acceptable because ITS SR 3.6.2.1 requires performance of air lock leakage rate testing. Furthermore, ITS SR 3.6.2.1 is required to be evaluated against the acceptance criteria that are applicable to SR 3.6.1.1. This will ensure the airlock barrel leakage is accounted for in determining the combined Type B and C containment leakage rate. This change is designated as administrative because it does not result in technical changes to the CTS.

A04 CTS 3.6.1.6, ACTION, states, "With the structural integrity of the containment vessel not conforming to the above requirements, restore the structural integrity to within the limits prior to increasing the Reactor Coolant System temperature above 200°F." CTS 3.6.1.6 ACTION does not state what action to take if the structural integrity limits are not met while in MODE 1, 2, 3, or 4. Thus, entry into CTS 3.0.3 is required if CTS 3.6.1.6 is not met while in MODE 1, 2, 3, or 4. CTS 3.0.3 allows 1 hour to prepare for a shutdown and requires the unit to be in HOT STANDBY (ITS MODE 3) within the next 6 hours, HOT SHUTDOWN (ITS MODE 4) within the following 6 hours, and Cold Shutdown (similar to ITS MODE 5) within the subsequent 24 hours (37 hours total). ITS 3.6.1 ACTION A requires that if the containment is inoperable, it must be restored to OPERABLE status within 1 hour. ITS 3.6.1 ACTION B requires that if the Required Action and associated Completion Time are not met (i.e., the containment is not restored to OPERABLE status in 1 hour), the unit must be in MODE 3 within 6 hours and MODE 5 within 36 hours (37 hours total). This changes CTS by stating the ACTIONS rather than deferring to CTS 3.0.3. In addition, it deletes the CTS Actions to restore the limits prior to increasing the Reactor Coolant System temperature above 200°F.

The purpose of CTS 3.0.3 is to place the unit outside the MODE of Applicability within a reasonable amount of time in a controlled manner. CTS 3.6.1.6 is silent on these actions, deferring to CTS 3.0.3 for the actions to accomplish this. This change is acceptable because the ACTIONS specified in ITS 3.6.1 adopt ISTS structure for placing the unit outside the MODE of Applicability while changing the time specified to enter MODE 3 and MODE 5 but still within the plants ability to safely shutdown. In addition, deletion of the current Actions of CTS 3.6.1.6 is acceptable, because CTS 4.0.4 (ITS SR 3.0.4) already precludes entering the MODE of Applicability when the LCO is not met. Therefore, it is not necessary to include these requirements as specific actions in ITS 3.6.1. This change is designated as administrative because it does not result in technical changes to the CTS.

CSS-009

in accordance with the requirements of LCO 3.0.4.

MORE RESTRICTIVE CHANGES

None

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DISCUSSION OF CHANGES
ITS 3.6.1, CONTAINMENT

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of LCO, SR, or other TS Requirement to the TRM, UFSAR, ODCM, NQAP, CLRT Program, IST Program, or ISI Program)* CTS 4.6.1.6 states , "The structural integrity of the containment vessel shall be determined during shutdown by a visual inspection of the exposed accessible interior and exterior surfaces of the vessel. This inspection shall be performed in accordance with the Containment Leakage Rate Test Program to verify no apparent changes in appearance of the surfaces or other abnormal degradation." ITS SR 3.6.1.1 requires the same visual examination in accordance with the Containment Leakage Rate Testing Program but does not include the details of when the testing is performed, what is verified and the acceptance criteria. This changes the CTS by moving the details of the visual examination to the Containment Leakage Rate Testing Program.

The removal of these details associated with the visual examination of the containment vessel is acceptable because this type of information is not necessary to be included in the Technical Specifications in order to provide adequate protection of public health and safety. ITS SR 3.6.1.1 retains the requirement to perform a visual examination in accordance with the Containment Leakage Rate Test Program. This change is acceptable because these types of procedural details will be adequately controlled in the Containment Leakage Rate Test Program requirements in ITS Chapter 5. This change is designated as a less restrictive removal of detail change because details associated with performance of the containment vessel visual examination are being removed from the Technical Specifications.

LA02 *(Type 2 – Removing Descriptions of System Operation)* CTS 1.7 states, in part, "CONTAINMENT INTEGRITY shall exist when: a. All penetrations required to be closed during accident conditions are either: 1) Capable of being closed by an OPERABLE containment automatic isolation valve system, or 2) Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3. b. All equipment hatches are closed and sealed. c. Each air lock is in compliance with the requirements of Specification 3.6.1.3, and e. The sealing mechanism associated with each penetration (e.g., welds, bellows, or 0-rings) is OPERABLE. ITS 3.6.1 states "Containment shall be OPERABLE." This changes the CTS by moving the reference to penetration, equipment hatch and, air lock requirements to the Bases.

The removal of these details, that are related to system operation, 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 for the containment to be OPERABLE and the relocated material describes aspects of OPERABILITY. In addition, the ITS retains the requirement to perform required

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visual inspections and leakage rate testing in accordance with the Containment Leakage Rate Testing Program in accordance with 10 CFR 50 Appendix J, Part B, that would provide verification that the equipment hatch is closed and sealed and the sealing mechanisms are 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 operation is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

None

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

3.6 CONTAINMENT SYSTEMS

3.6.1 Containment ~~(Atmospheric, Subatmospheric, Ice Condenser, and Dual)~~ 1

3.6.1.1. 3.6.1.6 LCO 3.6.1 Containment shall be OPERABLE.

Applicability (3.6.1.1 & 3.6.1.6) APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
3.6.1.1 ACTION, 3.6.1.6 ACTION A. Containment inoperable.	A.1 Restore containment to OPERABLE status.	1 hour
3.6.1.1 ACTION, 3.6.1.6 ACTION B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
4.6.1.1.c, 4.6.1.6 SR 3.6.1.1	Perform required visual examinations and leakage rate testing, except for containment air lock testing, in accordance with the Containment Leakage Rate Testing Program.	In accordance with the Containment Leakage Rate Testing Program 4
~~SR 3.6.1.2~~	~~[Verify containment structural integrity in accordance with the Containment Tendon Surveillance Program.~~	~~In accordance with the Containment Tendon Surveillance Program]~~ 3

3.6 CONTAINMENT SYSTEMS

3.6.1 Containment ~~(Atmospheric, Subatmospheric, Ice Condenser, and Dual)~~ 1

3.6.1.1. 3.6.1.6 LCO 3.6.1 Containment shall be OPERABLE.

Applicability (3.6.1.1 & 3.6.1.6) APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
3.6.1.1 ACTION, 3.6.1.6 ACTION A. Containment inoperable.	A.1 Restore containment to OPERABLE status.	1 hour
3.6.1.1 ACTION, 3.6.1.6 ACTION B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
4.6.1.1.c, 4.6.1.6 SR 3.6.1.1	Perform required visual examinations and leakage rate testing, except for containment air lock testing, in accordance with the Containment Leakage Rate Testing Program.	In accordance with the Containment Leakage Rate Testing Program 4
~~SR 3.6.1.2~~	~~[Verify containment structural integrity in accordance with the Containment Tendon Surveillance Program.~~	~~In accordance with the Containment Tendon Surveillance Program]~~ 3

JUSTIFICATION FOR DEVIATIONS
ITS 3.6.1, CONTAINMENT

1. The type of Containment (Atmospheric, Subatmospheric, Ice Condenser, and Dual) is deleted since it is unnecessary. This information is provided in NUREG-1431, Rev. 4.0, to assist in identifying the appropriate Specification to be used as a model for the plant specific ITS conversion, but serves no purpose in a plant specific implementation.

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 ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants or may not be applicable to all Westinghouse plants. Since Sequoyah (SQN) does not have containment tendons, ISTS SR 3.6.1.2 is not included in SQN's ITS.

4. Editorial correction made.

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

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1~~C~~ Containment ~~(Ice Condenser)~~ 1

BASES

BACKGROUND

The containment is a free standing steel pressure vessel surrounded by a reinforced concrete shield building. The containment vessel, including all its penetrations, is a low leakage steel shell designed to contain the radioactive material that may be released from the reactor core following a design basis loss of coolant accident (LOCA). Additionally, the containment and shield building provide shielding from the fission products that may be present in the containment atmosphere following accident conditions.

The containment vessel is a vertical cylindrical steel pressure vessel with hemispherical dome and a concrete base mat with steel membrane. It is completely enclosed by a reinforced concrete shield building. An annular space exists between the walls and domes of the steel containment vessel and the concrete shield building to provide for the collection, mixing, holdup, and controlled release of containment out leakage. Ice condenser containments utilize an outer concrete building for shielding and an inner steel containment for leak tightness.

Containment piping penetration assemblies provide for the passage of process, service, sampling, and instrumentation pipelines into the containment vessel while maintaining containment integrity. The shield building provides shielding and allows controlled release of the annulus atmosphere under accident conditions, as well as environmental missile protection for the containment vessel and Nuclear Steam Supply System.

The inner steel containment and its penetrations establish the leakage limiting boundary of the containment. Maintaining the containment OPERABLE limits the leakage of fission product radioactivity from the containment to the environment. SR 3.6.1.1 leakage rate requirements comply with 10 CFR 50, Appendix J, Option ~~[A][~~B~~]~~ (Ref. 1), as modified by approved exemptions. 3

The isolation devices for the penetrations in the containment boundary are a part of the containment leak tight barrier. To maintain this leak tight barrier:

BASES

BACKGROUND (continued)

a. All penetrations required to be closed during accident conditions are either:

1. Capable of being closed by an OPERABLE automatic containment isolation system or

2. Closed by manual valves, blind flanges, or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.3, "Containment Isolation Valves,"

b. Each air lock is OPERABLE, except as provided in LCO 3.6.2, "Containment Air Locks,"

c. All equipment hatches are closed, and

INSERT 1

~~[~~d. ~~The pressurized sealing mechanism associated with a penetration is operable, except as provided in LCO 3.6.[ ].]~~

APPLICABLE SAFETY ANALYSES

The safety design basis for the containment is that the containment must withstand the pressures and temperatures of the limiting Design Basis Accident (DBA) without exceeding the design leakage rates.

The DBAs that result in a challenge to containment OPERABILITY from high pressures and temperatures are a LOCA, a steam line break, and a rod ejection accident (REA) (Ref. 2). In addition, release of significant fission product radioactivity within containment can occur from a LOCA or REA. In the DBA analyses, it is assumed that the containment is OPERABLE such that, for the DBAs involving release of fission product radioactivity, release to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of ~~[0.1]~~0.25% of containment air weight per day (Ref. 3). This leakage rate, used in the evaluation of offsite doses resulting from accidents, is defined in 10 CFR 50, Appendix J, Option ~~[A]~~[B~~]~~ (Ref. 1), as L_a: the maximum allowable containment leakage rate at the calculated peak containment internal pressure (P_a) resulting from the limiting design basis LOCA. The allowable leakage rate represented by L_a forms the basis for the acceptance criteria imposed on all containment leakage rate testing. L_a is assumed to be ~~[0.1]~~0.25% per day in the safety analysis at P_a ~~= [14.4] psig~~ (Ref. 3).

Satisfactory leakage rate test results are a requirement for the establishment of containment OPERABILITY.

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

3 **INSERT 1**

The sealing mechanism associated with each containment penetration (e.g., welds, bellows, or O-rings) is OPERABLE (i.e., OPERABLE such that the containment leakage limits are met).

1

BASES

LCO

Containment OPERABILITY is maintained by limiting leakage to ≤ 1.0 L_a, except prior to the first startup after performing a required Containment Leakage Rate Testing Program leakage test. At this time the applicable leakage limits must be met.

Compliance with this LCO will ensure a containment configuration, including equipment hatches, that is structurally sound and that will limit leakage to those leakage rates assumed in the safety analysis.

Individual leakage rates specified for the containment air lock (LCO 3.6.2) ~~[~~, purge valves with resilient seals, and secondary bypass leakage (LCO 3.6.3)~~]~~ are not specifically part of the acceptance criteria of 10 CFR 50, Appendix J. Therefore, leakage rates exceeding these individual limits only result in the containment being inoperable when the leakage results in exceeding the overall acceptance criteria of ~~1.0 L_a~~.

3

7

the Containment Leakage Rate Testing Program

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material into containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, containment is not required to be OPERABLE in MODE 5 to prevent leakage of radioactive material from containment. The requirements for containment during MODE 6 are addressed in LCO 3.9.4, "Containment Penetrations."

ACTIONS

A.1

In the event containment is inoperable, containment must be restored to OPERABLE status within 1 hour. The 1 hour Completion Time provides a period of time to correct the problem commensurate with the importance of maintaining containment OPERABLE during MODES 1, 2, 3, and 4. This time period also ensures that the probability of an accident (requiring containment OPERABILITY) occurring during periods when containment is inoperable is minimal.

B.1 and B.2

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

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2 1

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.1

Maintaining the containment OPERABLE requires compliance with the visual examinations and leakage rate test requirements of the Containment Leakage Rate Testing Program. The containment concrete visual examinations may be performed during either power operation~~, e.g., performed concurrently with other containment inspection-related activities such as tendon testing,~~ or during a maintenance or refueling outage. The visual examinations of the steel liner plate inside containment are performed during maintenance or refueling outages since this is the only time the liner plate is fully accessible.

Failure to meet air lock [~~, secondary containment~~ bypass leakage path, and purge valve with resilient seal~~]~~ leakage limits specified in LCO 3.6.2 [~~and LCO 3.6.3~~] does not invalidate the acceptability of these overall leakage determinations unless their contribution to overall Type A, B, and C leakage causes that to exceed limits. As left leakage prior to the first startup after performing a required Containment Leakage Rate Testing Program leakage test is required to be ~~<~~ 0.6 L_a for combined Type B and C leakage, and [~~< 0.75 L_a for Option A~~] [≤ 0.75 L_a ~~for Option B~~] for overall Type A leakage. At all other times between required leakage rate tests, the acceptance criteria is based on an overall Type A leakage limit of ≤ 1.0 L_a. At ≤ 1.0 L_a the offsite dose consequences are bounded by the assumptions of the safety analysis.

SR Frequencies are as required by the Containment Leakage Rate Testing Program. These periodic testing requirements verify that the containment leakage rate does not exceed the leakage rate assumed in the safety analysis.

~~----------REVIEWER'S NOTE----------~~
~~Regulatory Guide 1.163 and NEI 94-01 include acceptance criteria for as-left and as-found Type A leakage rates and combined Type B and C leakage rates, which may be reflected in the Bases.~~
~~----------~~

~~[SR 3.6.1.2~~

~~For ungrouted, post tensioned tendons, this SR ensures that the structural integrity of the containment will be maintained in accordance with the provisions of the Containment Tendon Surveillance Program. Testing and Frequency are in accordance with the ASME Code, Section XI, Subsection IWL (Ref. 4), and applicable addenda as required by 10CFR 50.55a.]~~

BASES

REFERENCES

1. 10 CFR 50, Appendix J, Option ~~[A]~~[B].
2. FSAR, Chapter ~~[~~15~~]~~.
3. FSAR, Section ~~[~~6.2~~]~~.

~~4. ASME Code, Section XI, Subsection IWL.~~

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1~~C~~ Containment ~~(Ice Condenser)~~ 1

BASES

BACKGROUND

The containment is a free standing steel pressure vessel surrounded by a reinforced concrete shield building. The containment vessel, including all its penetrations, is a low leakage steel shell designed to contain the radioactive material that may be released from the reactor core following a design basis loss of coolant accident (LOCA). Additionally, the containment and shield building provide shielding from the fission products that may be present in the containment atmosphere following accident conditions.

The containment vessel is a vertical cylindrical steel pressure vessel with hemispherical dome and a concrete base mat with steel membrane. It is completely enclosed by a reinforced concrete shield building. An annular space exists between the walls and domes of the steel containment vessel and the concrete shield building to provide for the collection, mixing, holdup, and controlled release of containment out leakage. Ice condenser containments utilize an outer concrete building for shielding and an inner steel containment for leak tightness.

Containment piping penetration assemblies provide for the passage of process, service, sampling, and instrumentation pipelines into the containment vessel while maintaining containment integrity. The shield building provides shielding and allows controlled release of the annulus atmosphere under accident conditions, as well as environmental missile protection for the containment vessel and Nuclear Steam Supply System.

The inner steel containment and its penetrations establish the leakage limiting boundary of the containment. Maintaining the containment OPERABLE limits the leakage of fission product radioactivity from the containment to the environment. SR 3.6.1.1 leakage rate requirements comply with 10 CFR 50, Appendix J, Option ~~[A][~~B~~]~~ (Ref. 1), as modified by approved exemptions. 3

The isolation devices for the penetrations in the containment boundary are a part of the containment leak tight barrier. To maintain this leak tight barrier:

BASES

BACKGROUND (continued)

a. All penetrations required to be closed during accident conditions are either:

1. Capable of being closed by an OPERABLE automatic containment isolation system or

2. Closed by manual valves, blind flanges, or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.3, "Containment Isolation Valves,"

b. Each air lock is OPERABLE, except as provided in LCO 3.6.2, "Containment Air Locks,"

c. All equipment hatches are closed, and

INSERT 1

~~[~~d. ~~The pressurized sealing mechanism associated with a penetration is operable, except as provided in LCO 3.6.[ ].]~~

APPLICABLE SAFETY ANALYSES

The safety design basis for the containment is that the containment must withstand the pressures and temperatures of the limiting Design Basis Accident (DBA) without exceeding the design leakage rates.

The DBAs that result in a challenge to containment OPERABILITY from high pressures and temperatures are a LOCA, a steam line break, and a rod ejection accident (REA) (Ref. 2). In addition, release of significant fission product radioactivity within containment can occur from a LOCA or REA. In the DBA analyses, it is assumed that the containment is OPERABLE such that, for the DBAs involving release of fission product radioactivity, release to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of ~~[0.1]~~0.25% of containment air weight per day (Ref. 3). This leakage rate, used in the evaluation of offsite doses resulting from accidents, is defined in 10 CFR 50, Appendix J, Option ~~[A]~~[B~~]~~ (Ref. 1), as L_a: the maximum allowable containment leakage rate at the calculated peak containment internal pressure (P_a) resulting from the limiting design basis LOCA. The allowable leakage rate represented by L_a forms the basis for the acceptance criteria imposed on all containment leakage rate testing. L_a is assumed to be ~~[0.1]~~0.25% per day in the safety analysis at P_a ~~= [14.4] psig~~ (Ref. 3).

Satisfactory leakage rate test results are a requirement for the establishment of containment OPERABILITY.

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

3 **INSERT 1**

The sealing mechanism associated with each containment penetration (e.g., welds, bellows, or O-rings) is OPERABLE (i.e., OPERABLE such that the containment leakage limits are met).

1

BASES

LCO

Containment OPERABILITY is maintained by limiting leakage to ≤ 1.0 L_a, except prior to the first startup after performing a required Containment Leakage Rate Testing Program leakage test. At this time the applicable leakage limits must be met.

Compliance with this LCO will ensure a containment configuration, including equipment hatches, that is structurally sound and that will limit leakage to those leakage rates assumed in the safety analysis.

Individual leakage rates specified for the containment air lock (LCO 3.6.2) ~~[~~, purge valves with resilient seals, and secondary bypass leakage (LCO 3.6.3)~~]~~ are not specifically part of the acceptance criteria of 10 CFR 50, Appendix J. Therefore, leakage rates exceeding these individual limits only result in the containment being inoperable when the leakage results in exceeding the overall acceptance criteria of ~~1.0 L_a~~.

3

7

the Containment Leakage Rate Testing Program

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material into containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, containment is not required to be OPERABLE in MODE 5 to prevent leakage of radioactive material from containment. The requirements for containment during MODE 6 are addressed in LCO 3.9.4, "Containment Penetrations."

ACTIONS

A.1

In the event containment is inoperable, containment must be restored to OPERABLE status within 1 hour. The 1 hour Completion Time provides a period of time to correct the problem commensurate with the importance of maintaining containment OPERABLE during MODES 1, 2, 3, and 4. This time period also ensures that the probability of an accident (requiring containment OPERABILITY) occurring during periods when containment is inoperable is minimal.

B.1 and B.2

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

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2 1

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.1.1

Maintaining the containment OPERABLE requires compliance with the visual examinations and leakage rate test requirements of the Containment Leakage Rate Testing Program. The containment concrete visual examinations may be performed during either power operation~~, e.g., performed concurrently with other containment inspection-related activities such as tendon testing,~~ or during a maintenance or refueling outage. The visual examinations of the steel liner plate inside containment are performed during maintenance or refueling outages since this is the only time the liner plate is fully accessible.

Failure to meet air lock [~~, secondary containment~~ bypass leakage path, and purge valve with resilient seal~~]~~ leakage limits specified in LCO 3.6.2 [~~and LCO 3.6.3~~] does not invalidate the acceptability of these overall leakage determinations unless their contribution to overall Type A, B, and C leakage causes that to exceed limits. As left leakage prior to the first startup after performing a required Containment Leakage Rate Testing Program leakage test is required to be ~~<~~ ≤ 0.6 L_a for combined Type B and C leakage, and [~~< 0.75 L_a for Option A~~] [~~]~~≤ 0.75 L_a ~~for Option B]~~ for overall Type A leakage. At all other times between required leakage rate tests, the acceptance criteria is based on an overall Type A leakage limit of ≤ 1.0 L_a. At ≤ 1.0 L_a the offsite dose consequences are bounded by the assumptions of the safety analysis.

SR Frequencies are as required by the Containment Leakage Rate Testing Program. These periodic testing requirements verify that the containment leakage rate does not exceed the leakage rate assumed in the safety analysis.

~~----------REVIEWER'S NOTE----------~~
~~Regulatory Guide 1.163 and NEI 94-01 include acceptance criteria for as-left and as-found Type A leakage rates and combined Type B and C leakage rates, which may be reflected in the Bases.~~
~~----------~~

~~[SR 3.6.1.2~~

~~For ungrouted, post tensioned tendons, this SR ensures that the structural integrity of the containment will be maintained in accordance with the provisions of the Containment Tendon Surveillance Program. Testing and Frequency are in accordance with the ASME Code, Section XI, Subsection IWL (Ref. 4), and applicable addenda as required by 10CFR 50.55a.]~~

BASES

REFERENCES

1. 10 CFR 50, Appendix J, Option ~~[A]~~[B].
2. FSAR, Chapter ~~[~~15~~]~~.
3. FSAR, Section ~~[~~6.2~~]~~.

~~4. ASME Code, Section XI, Subsection IWL.~~

JUSTIFICATION FOR DEVIATIONS
ITS 3.6.1 Bases, CONTAINMENT

1. The heading for ISTS 3.6.1 includes the parenthetical expression (Atmospheric, Subatmospheric, Ice Condenser, and Dual). This identifying information is not included in the Sequoyah Nuclear (SQN) Plant ITS. This information is provided in the NUREG to assist in identifying the appropriate Specification to be used as a model for a plant specific ITS conversion, but serves no purpose in a plant specific implementation.

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

3. The 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 changed to reflect the current licensing basis.

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.

The ISTS

5. ~~This~~ bracketed requirement regarding Containment Tendon Surveillance Program is deleted because it is not applicable to SQN Unit 1 and Unit 2. The SQN containments do not utilize containment tendons.

CSS-010

6. The SQN Safety Analysis Report (SAR) is titled, "Sequoyah Nuclear Plant Updated Final Safety Analysis Report." Therefore, the proper acronym is UFSAR and is changed to reflect the SQN title.

Reference 4, ASME Code, Section XI, Subsection IWL, is associated with the Containment Tendon Surveillance Program. Therefore, it is not applicable to SQN, and the reference is deleted.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.6.1, CONTAINMENT

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

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ATTACHMENT 2

ITS 3.6.2, CONTAINMENT AIR LOCKS

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

ITS

A01

ITS 3.6.2

CONTAINMENT SYSTEMS

CONTAINMENT AIR LOCKS

LIMITING CONDITION FOR OPERATION

LCO 3.6.2

3.6.1.3 ~~Each~~ Two containment air lock shall be OPERABLE* ~~with both doors closed except when the air lock is being used for normal transit entry and exit through the containment, then at least one air lock door shall be closed.~~

A02

LA01

Applicability

APPLICABILITY: MODES 1, 2, 3 and 4.

Add proposed ACTION Note 1

L01

Add proposed ACTION Note 2

A03

ACTION:

Add proposed ACTION A Required Action Note 1

Add proposed ACTION A Required Action Note 2

L02

Add proposed Required Action A.1 Completion Time

M01

a. With one containment air lock door inoperable:

ACTION A

1. Maintain at least the OPERABLE air lock door closed and ~~either restore the inoperable air lock door to OPERABLE status~~ within 24 hours or lock the OPERABLE air lock door closed.

A04

Add proposed Required Action A.3 Note

L02

2. Operation may then continue until performance of the next required overall air lock leakage test provided that the OPERABLE air lock door is verified to be locked closed at least once per 31 days.

Add proposed ACTION B

L01

ACTION D

3. Otherwise, be in at least HOT STANDBY within the next six hours and in COLD SHUTDOWN within the following 30 hours.

Add proposed Required Action C.1

M02

b. With the containment air lock inoperable, except as the result of an inoperable air lock door,

ACTION C

maintain at least one air lock door closed; restore the inoperable air lock to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next six hours and in

ACTION D

COLD SHUTDOWN within the following 30 hours.

Add proposed Required Action C.2 Completion Time

M01

SR 3.6.2.1 Note 1

*1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test.

ACTIONS Note 3

2. Enter the ACTION of LCO 3.6.1.1, "Primary Containment" when air lock leakage results in exceeding the overall containment leakage rate acceptance criteria.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

Add proposed SR 3.6.2.1 Note 2 — A05

SR 3.6.2.1 a. By verifying leakage rates in accordance with the Containment Leakage Rate Test Program.

In accordance with the Surveillance Frequency Control Program — LA02

SR 3.6.2.2 b. ~~At least once per 6 months~} by verifying that only one door in each air lock can be opened at a time.

ITS

A01

ITS 3.6.2

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

See ITS 3.6.1

SURVEILLANCE REQUIREMENTS

4.6.1.1 Primary CONTAINMENT INTEGRITY shall be demonstrated:

a. Delete.

See ITS 3.6.1

SR 3.6.2.1

b. By verifying that each containment air lock is in compliance with the requirements of Specification 3.6.1.3.

c. Perform required visual examinations and leakage rate testing in accordance with the Containment Leakage Rate Testing Program.

See ITS 3.6.1

CONTAINMENT SYSTEMS

CONTAINMENT AIR LOCKS

LIMITING CONDITION FOR OPERATION

LCO 3.6.2

3.6.1.3 Two ~~Each~~ containment air lock shall be OPERABLE* ~~with both doors closed except when the air lock is being used for normal transit entry and exit through the containment, then at least one air lock door shall be closed~~. A02 LA01

Applicability

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With one containment air lock door inoperable:

Add proposed ACTION Note 1 L01

Add proposed ACTION Note 2 A03

Add proposed ACTION A Required Action Note 1 L02

Add proposed ACTION A Required Action Note 2 L02

Add proposed Required Action A.1 Completion Time M01

ACTION A

1. Maintain at least the OPERABLE air lock door closed and ~~either restore the inoperable air lock door to OPERABLE status~~ within 24 hours or lock the OPERABLE air lock door closed. A04

Add proposed Required Action A.3 Note L02

2. Operation may then continue until performance of the next required overall air lock leakage test provided that the OPERABLE air lock door is verified to be locked closed at least once per 31 days.

Add proposed ACTION B L01

ACTION D

3. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

Add proposed Required Action C.1 M02

b. With the containment air lock inoperable, except as the result of a inoperable air lock door,

ACTION C

maintain at least one air lock door closed; restore the inoperable air lock to OPERABLE status within 24 hours

ACTION D

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

Add proposed Required Action C.2 Completion Time M01

SR 3.6.2.1 Note 1

*1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test.

ACTIONS Note 3

2. Enter the ACTION of LCO 3.6.1.1, "Primary Containment" when air lock leakage results in exceeding the overall containment leakage rate acceptance criteria.

ITS A01 ITS 3.6.2

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

SR 3.6.2.1 a. By verifying leakage rates in accordance with the Containment Leakage Rate Test Program.

Add proposed SR 3.6.2.1 Note 2 — A05

SR 3.6.2.2 b. ~~At least once per 6 months~~ by verifying that only one door in each air lock can be opened at a time.

In accordance with the Surveillance Frequency Control Program — LA02

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

See ITS 3.6.1

SURVEILLANCE REQUIREMENTS

4.6.1.1 Primary CONTAINMENT INTEGRITY shall be demonstrated:

a. Deleted.

See ITS 3.6.1

SR 3.6.2.1

b. By verifying that each containment air lock is in compliance with the requirements of Specification 3.6.1.3.

c. Perform required visual examinations and leakage rate testing in accordance with the Containment Leakage Rate Testing Program.

See ITS 3.6.1

DISCUSSION OF CHANGES
ITS 3.6.2, CONTAINMENT AIR LOCKS

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 3.6.1.3 states, in part, "Each containment air lock shall be OPERABLE. ITS LCO 3.6.2 states, "Two containment air locks shall be OPERABLE. This changes the CTS by identifying the total number of airlocks that are required to be OPERABLE.

This change is acceptable because SQN has two containment air locks. Therefore, requiring two containment air locks to be OPERABLE in ITS 3.6.2 is the same as requiring each containment air lock to be OPERABLE in CTS 3.6.1.3. This change is designated as administrative because it does not result in technical changes to the CTS.

A03 CTS 3.6.1.3 states, in part, "Each containment air lock shall be OPERABLE." CTS 3.6.1.3 ACTION a states, in part, "With one containment air lock door inoperable" and specifies ACTIONS to be taken. CTS 3.6.1.3 ACTION b states, in part, "With the containment air lock inoperable, except as the result of an inoperable air lock door" and specifies ACTIONS to be taken. ITS 3.6.2 ACTIONS Note 2 states "Separate Condition entry is allowed for each airlock." ITS 3.6.2 ACTION A states "One or more containment air locks with one containment air lock door inoperable." ITS 3.6.2 ACTION C states "One or more containment air locks inoperable for reasons other than Condition A or B." This changes the CTS by clarifying the current intent of applying the CTS Actions to each air lock separately.

The purpose of the CTS 3.6.1.3 is to ensure containment air locks meet their requirements for CONTAINMENT INTEGRITY (changed to containment OPERABILITY in the ITS). One OPERABLE air lock door in each containment air lock provides a pressure boundary, and applying the CTS Actions for an inoperable air lock to each of the air locks separately is appropriate. ITS 3.6.2 ACTIONS Note 2 clearly states this. The Required Actions for each Condition provides appropriate compensatory action for each air lock. This change is acceptable because it clarifies existing requirements and better describes how the requirements are currently used. This change is designated as administrative because it does not result in technical changes to the CTS.

A04 CTS 3.6.1.3 ACTION a.1 states in part, to either restore the inoperable air lock door to OPERABLE status within 24 hours or lock the OPERABLE air lock door closed. ITS 3.6.2 ACTION A does not contain the statement to restore the inoperable air lock door to OPERABLE status. This changes CTS by not

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including the statement to restore the inoperable air lock door to OPERABLE status.

This change is acceptable because the technical requirements have not changed. Restoration to compliance with the LCO is always an available Required Action and it is the convention in the ITS to not state such "restore" options explicitly unless it is the only action or is required for clarity. This change is designated as administrative because it does not result in technical changes to the CTS.

A05 CTS 4.6.1.3.a requires demonstrating each containment air lock is OPERABLE by verifying leakage rates are in accordance with the Containment Leakage Rate Testing Program. ITS 3.6.2.1 requires the same test, but adds a Note (SR 3.6.2.1 Note 2) requiring that the results be evaluated against acceptance criteria of ITS SR 3.6.1.1. This changes the CTS by specifically requiring verification of the air lock leakage rates against the Containment leakage rates.

The purpose of leak rate testing requirements for air lock leakage (Type B leakage test) is to verify that the air lock leakage does not exceed the allowed fraction of the overall containment leakage rate. Evaluating the containment air lock leakage with the containment leakage rates ensures that the air lock leakage is accounted for in determining the combined Type B and C containment leakage rate. In the CTS, this evaluation is performed as part of the Containment Leakage Rate Testing Program, but is not specifically addressed in CTS 4.6.1.3.a. This change is designated as administrative because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS 3.6.1.3 ACTION a requires, in part, maintaining at least the OPERABLE air lock door closed when one containment air lock door is inoperable. CTS 3.6.1.3 ACTION b requires, in part, maintaining at least one air lock door closed when the containment air lock is inoperable. ITS 3.6.2 ACTIONS A and C require similar actions (Required Action A.1 and C.2, respectively), and require verifying the door is closed in the affected air lock within 1 hour. This changes the CTS by adding a new Completion Time.

The purpose of ITS 3.6.2 Required Actions A.1 and C.2 is to verify that the overall leakage rate aspect of containment OPERABILITY is met in the event an airlock is inoperable for a reason other than an interlock mechanism being inoperable. An additional purpose of ITS 3.6.2 Required Actions A.1 and C.2 is to minimize, to the extent possible, the leakage through the inoperable air lock. This change is acceptable because if the inoperability is something that could cause the overall containment leakage rate limits to be exceeded, this should be evaluated immediately, commensurate with the importance of the limits. Furthermore, the one hour Completion Time is commensurate with the Completion Time in ITS 3.6.1 (CTS 3.6.1.1) for restoring containment to OPERABLE status when the containment is inoperable. This change is considered more restrictive because it provides a new Completion Time.

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DISCUSSION OF CHANGES
ITS 3.6.2, CONTAINMENT AIR LOCKS

M02 CTS 3.6.1.3 ACTION b requires maintaining at least one air lock door closed and restoration of an inoperable air lock within 24 hours. ITS 3.6.2 ACTION C requires one additional Required Action. When one or more containment air locks are inoperable for reasons other than Condition A or B, ITS 3.6.2 Required Action C.1 requires initiation of action to evaluate overall containment leakage rate per LCO 3.6.1, immediately. This changes the CTS by adding a new Required Action.

The purpose of ITS 3.6.2 Required Action C.1 is to verify that the overall leakage rate aspect of containment OPERABILITY is met in the event an airlock is inoperable for a reason other than one door or an interlock mechanism being inoperable. An additional purpose of ITS 3.6.2 Required Action C.2 is to minimize, to the extent possible, the leakage through the inoperable air lock. This change is acceptable because if the inoperability is something that could cause the overall containment leakage rate limits to be exceeded, this should be evaluated immediately, commensurate with the importance of the limits. This change is considered more restrictive because it provides a new Required Action.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.6.1.3 states each containment air lock shall be OPERABLE with both doors closed except when the air lock is being used for normal transit entry and exit through the containment, then at least one air lock door shall be closed. ITS 3.6.2 does not contain this level of detail. This changes the CTS by moving details concerning what constitutes an OPERABLE containment air lock 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 information and 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 4.6.1.3.b requires verification that only one door in each air lock can be opened at time, at least once per 6 months. ITS SR 3.6.2.2 requires a similar Surveillance and specifies the periodic Frequency as, "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving

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the specified Frequencies 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 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 4 – Relaxation of Required Action)* CTS 3.6.1.3 ACTION b states "With the containment air lock inoperable, except as the result of an inoperable air lock door, maintain at least one air lock door closed; restore the inoperable air lock to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next six hours and in COLD SHUTDOWN within the following 30 hours." ITS 3.6.2 ACTION B provides a separate ACTION for inoperability of the air lock with an air lock interlock mechanism inoperable, ITS 3.6.2 ACTION B allows unlimited operation provided an OPERABLE door in the air lock is closed in 1 hour, locked closed in 24 hours, and verification is performed every 31 days that an OPERABLE air lock door in the air lock remains closed. For air lock doors in high radiation areas, this 31 day verification can be performed by administrative means. In addition, containment entry and exit through the air lock is permissible (i.e., the closed and locked door can be opened) under administrative control. Additionally, a new Note which applies to ITS 3.6.2 ACTIONS A, B, and C has been added. This Note, ITS 3.6.2 ACTIONS Note 1, stated entry and exit (i.e., the closed and locked OPERABLE air locks can be opened) is permissible to perform repairs on the affected air lock components. This changes the CTS by allowing unlimited operation, with certain restrictions, for air locks that are inoperable due to an inoperable lock mechanism and allows entry and exit to repair an inoperable door.

The purpose of CTS air lock ACTION b is to ensure the containment is not allowed to operate indefinitely in a condition such that it cannot perform its safety function. The changes are acceptable because the proposed ACTION will still ensure the containment safety function is met. Since there are two redundant doors in each air lock, only one OPERABLE air lock door is needed to be maintained closed to ensure the leak tightness requirements are met. The leak tightness of each door is verified, as required by ITS SR 3.6.2.1, in accordance

with the Containment Leakage Rate Testing Program. In addition, the interlock mechanism only ensures that both doors in the air lock are not inadvertently opened at the same time. With either an OPERABLE air lock door locked closed, or a dedicated individual ensuring that only one door at a time is opened, the function of the interlock mechanism is being met. The allowances to open the air lock doors to perform repairs or other reasons is acceptable since the time the door is opened is short and the opening is under administrative controls. Also, for the case where the air lock door is opened for reasons other than to effect repairs, the time period (7 days) is short. These changes are designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L02 *(Category 4 – Relaxation of Required Action)* CTS 3.6.1.3 ACTION a states "With one containment air lock inoperable, maintain at least the OPERABLE air lock door closed and either restore the inoperable air lock door to OPERABLE status within 24 hours or lock the OPERABLE air lock door closed and operation may then continue until performance of the next required overall air lock leakage test provided that the OPERABLE air lock door is verified to be locked closed at least once per 31 days." ITS 3.6.2 ACTION A contains similar requirements, but contains two Required Action Notes stating "Required Actions A.1, A.2, and A.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered" and "Entry and exit is permissible for 7 days under administrative controls if both air locks are inoperable." Additionally ITS 3.6.2 Required Action A.3 contains a Note stating "Air lock doors in high radiation areas may be verified locked closed by administrative means." This changes the CTS by ensuring that only the Required Actions and associated Completion Times of Condition C are required if both doors in the same air lock are inoperable, allowing use of the air lock for entry and exit for 7 days under administrative controls if both air locks have an inoperable door, and allowing air lock doors in high radiation areas to be verified locked close by administrative means.

The addition of ITS 3.6.2 Condition A, Required Action Note 1 is acceptable since it ensures that only the Required Actions and associated Completion Times of Condition C are performed if both doors in the same air lock are inoperable. This is acceptable since Condition C contains the appropriate remedial actions to take when both doors are inoperable. The addition of ITS 3.6.2 Condition A, Required Action Note 2 is acceptable since it allows entry and exit to perform Technical Specification Surveillance and Required Action as well as other activities on equipment inside containment that are required by Technical Specifications or activities on equipment that support Technical Specification required equipment. This change is acceptable since the time duration is short and the doors are opened under administrative controls. The addition of ITS 3.6.2 Required Action A.3 Note is acceptable since it allows verifying that air lock doors in high radiation areas by administrative means. Additionally, this change is acceptable since accesses to these areas are typically restricted and the probability of a misalignment of the doors is small. These changes are 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)

3.6 CONTAINMENT SYSTEMS

3.6.2 Containment Air Locks ~~(Atmospheric, Subatmospheric, Ice Condenser, and Dual)~~ 1

3.6.1.3 LCO 3.6.2 ~~[~~Two~~]~~ containment air lock~~[s]~~ shall be OPERABLE. 3

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

ACTIONS

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

DOC L01 1. Entry and exit is permissible to perform repairs on the affected air lock components.

DOC A03 2. Separate Condition entry is allowed for each air lock.

footnote 2 3. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when air lock leakage results in exceeding the overall containment leakage rate.

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a DOC L02 A. One or more containment air locks with one containment air lock door inoperable.	----------NOTES---------- 1. Required Actions A.1, A.2, and A.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered. 2. Entry and exit is permissible for 7 days under administrative controls ~~[~~if both air locks are inoperable~~]~~. 3 ---------- A.1 Verify the OPERABLE door is closed in the affected air lock. AND	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a	A.2 Lock the OPERABLE door closed in the affected air lock. AND A.3 ----------NOTE---------- Air lock doors in high radiation areas may be verified locked closed by administrative means. ---------- Verify the OPERABLE door is locked closed in the affected air lock.	24 hours Once per 31 days
DOC L01, DOC L02 B. One or more containment air locks with containment air lock interlock mechanism inoperable.	----------NOTES---------- 1. Required Actions B.1, B.2, and B.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered. 2. Entry and exit of containment is permissible under the control of a dedicated individual. ---------- DOC L01 B.1 Verify an OPERABLE door is closed in the affected air lock. AND	 1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	B.2	Lock an OPERABLE door closed in the affected air lock.	24 hours
	AND		
	B.3	----------NOTE---------- Air lock doors in high radiation areas may be verified locked closed by administrative means. ----------	
		Verify an OPERABLE door is locked closed in the affected air lock.	Once per 31 days
C. One or more containment air locks inoperable for reasons other than Condition A or B.	C.1	Initiate action to evaluate overall containment leakage rate per LCO 3.6.1.	Immediately
	AND		
	C.2	Verify a door is closed in the affected air lock.	1 hour
	AND		
	C.3	Restore air lock to OPERABLE status.	24 hours
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.2.1	----------NOTES---------- 1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. 2. Results shall be evaluated against acceptance criteria applicable to SR 3.6.1.1. ----------	
	Perform required air lock leakage rate testing in accordance with the Containment Leakage Rate Testing Program.	In accordance with the Containment Leakage Rate Testing Program
SR 3.6.2.2	~~[~~ Verify only one door in the air lock can be opened at a time.	~~[24 months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~]

footnote 1

DOC A05

4.6.1.3.a, 4.6.1.1.b

4.6.1.3.b

3 4

4 3

3.6 CONTAINMENT SYSTEMS

3.6.2 Containment Air Locks ~~(Atmospheric, Subatmospheric, Ice Condenser, and Dual)~~ 1

3.6.1.3 LCO 3.6.2 ~~[~~Two~~]~~ containment air lock~~[s]~~ shall be OPERABLE. 3

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

ACTIONS

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

DOC L01 1. Entry and exit is permissible to perform repairs on the affected air lock components.

DOC A03 2. Separate Condition entry is allowed for each air lock.

footnote 2 3. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when air lock leakage results in exceeding the overall containment leakage rate.

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a DOC L02 A. One or more containment air locks with one containment air lock door inoperable.	----------NOTES---------- 1. Required Actions A.1, A.2, and A.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered. 2. Entry and exit is permissible for 7 days under administrative controls ~~[~~if both air locks are inoperable~~]~~. 3 ---------- A.1 Verify the OPERABLE door is closed in the affected air lock. AND	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a	A.2 Lock the OPERABLE door closed in the affected air lock. AND A.3 ----------NOTE---------- Air lock doors in high radiation areas may be verified locked closed by administrative means. ---------- Verify the OPERABLE door is locked closed in the affected air lock.	24 hours Once per 31 days
DOC L01, DOC L02 B. One or more containment air locks with containment air lock interlock mechanism inoperable.	----------NOTES---------- 1. Required Actions B.1, B.2, and B.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered. 2. Entry and exit of containment is permissible under the control of a dedicated individual. ---------- DOC L01 B.1 Verify an OPERABLE door is closed in the affected air lock. AND	 1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	B.2	Lock an OPERABLE door closed in the affected air lock.	24 hours
	AND		
	B.3	----------NOTE---------- Air lock doors in high radiation areas may be verified locked closed by administrative means. ----------	
		Verify an OPERABLE door is locked closed in the affected air lock.	Once per 31 days
C. One or more containment air locks inoperable for reasons other than Condition A or B.	C.1	Initiate action to evaluate overall containment leakage rate per LCO 3.6.1.	Immediately
	AND		
	C.2	Verify a door is closed in the affected air lock.	1 hour
	AND		
	C.3	Restore air lock to OPERABLE status.	24 hours
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.2.1	----------NOTES---------- 1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. 2. Results shall be evaluated against acceptance criteria applicable to SR 3.6.1.1. ----------	
4.6.1.3.a, 4.6.1.1.b	Perform required air lock leakage rate testing in accordance with the Containment Leakage Rate Testing Program.	In accordance with the Containment Leakage Rate Testing Program
4.6.1.3.b	SR 3.6.2.2 ~~[~~ Verify only one door in the air lock can be opened at a time.	~~[24 months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~]

JUSTIFICATION FOR DEVIATIONS
ITS 3.6.2, CONTAINMENT AIR LOCKS

1. The type of Containment (Atmospheric, Subatmospheric, Ice Condenser, and Dual) is deleted since it is unnecessary. This information is provided in NUREG-1431, Rev. 4.0, to assist in identifying the appropriate Specification to be used as a model for the plant specific ITS conversion, but serves no purpose in a plant specific implementation.

2. 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.

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 3.6.2.2 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 3.6.2.2 is "In accordance with the Surveillance Frequency Control Program."

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

B 3.6 CONTAINMENT SYSTEMS

B 3.6.2 Containment Air Locks ~~(Atmospheric, Subatmospheric, Ice Condenser, and Dual)~~ 1

BASES

BACKGROUND

Containment air locks form part of the containment pressure boundary and provide a means for personnel access during all MODES of operation.

Each air lock is nominally a right circular cylinder, ~~10 ft~~ approximately 8 feet 7 inches in diameter, with a door at each end. The doors are interlocked to prevent simultaneous opening. During periods when containment is not required to be OPERABLE, the door interlock mechanism may be disabled, allowing both doors of an air lock to remain open for extended periods when frequent containment entry is necessary. Each air lock door has been designed and tested to certify its ability to withstand a pressure in excess of the maximum expected pressure following a Design Basis Accident (DBA) in containment. As such, closure of a single door supports containment OPERABILITY. Each of the doors contains double gasketed seals and local leakage rate testing capability to ensure pressure integrity. ~~To effect a leak tight seal, the air lock design uses pressure seated doors (i.e., an increase in containment internal pressure results in increased sealing force on each door).~~ 2 2

Each personnel air lock is provided with limit switches on both doors that provide control room indication of door position. Additionally, control room indication is provided to alert the operator whenever an air lock door interlock mechanism is defeated.

The containment air locks form part of the containment pressure boundary. As such, air lock integrity and leak tightness is essential for maintaining the containment leakage rate within limit in the event of a DBA. Not maintaining air lock integrity or leak tightness may result in a leakage rate in excess of that assumed in the unit safety analyses.

APPLICABLE SAFETY ANALYSES

The DBAs that result in a release of radioactive material within containment are a loss of coolant accident (LOCA) and a rod ejection accident (Ref. 2). In the analysis of each of these accidents, it is assumed that containment is OPERABLE such that release of fission products to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of ~~[0.1]~~ 0.25% of containment air weight per day (Ref. ~~2~~ 3). This leakage rate is defined in 10 CFR 50, Appendix J, Option ~~A~~ B (Ref. 1), as L_a = ~~[0.1]~~ 0.25% of containment air weight per day, the maximum allowable containment leakage rate at the calculated peak containment internal pressure P_a ~~= [14.4] psig~~ 3 4 2 2 4 4

BASES

APPLICABLE SAFETY ANALYSES (continued)

following a design basis LOCA. This allowable leakage rate forms the basis for the acceptance criteria imposed on the SRs associated with the air locks.

The containment air locks satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Each containment air lock forms part of the containment pressure boundary. As part of the containment pressure boundary, the air lock safety function is related to control of the containment leakage rate resulting from a DBA. Thus, each air lock's structural integrity and leak tightness are essential to the successful mitigation of such an event.

Each air lock is required to be OPERABLE. For the air lock to be considered OPERABLE, the air lock interlock mechanism must be OPERABLE, the air lock must be in compliance with the Type B air lock leakage test, and both air lock doors must be OPERABLE. The interlock allows only one air lock door of an air lock to be opened at one time. This provision ensures that a gross breach of containment does not exist when containment is required to be OPERABLE. Closure of a single door in each air lock is sufficient to provide a leak tight barrier following postulated events. Nevertheless, both doors are kept closed when the air lock is not being used for normal entry into or exit from containment.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the containment air locks are not required in MODE 5 to prevent leakage of radioactive material from containment. The requirements for the containment air locks during MODE 6 are addressed in LCO 3.9.~~3~~ 4, "Containment Penetrations." 5

ACTIONS

The ACTIONS are modified by a Note that allows entry and exit to perform repairs on the affected air lock component. If the outer door is inoperable, then it may be easily accessed for most repairs. It is preferred that the air lock be accessed from inside primary containment by entering through the other OPERABLE air lock. However, if this is not practicable, or if repairs on either door must be performed from the barrel side of the door then it is permissible to enter the air lock through the OPERABLE door, which means there is a short time during which the containment boundary is not intact (during access through the OPERABLE door). The ability to open the OPERABLE door, even if it means the containment boundary is temporarily not intact, is acceptable due to the low probability of an event that could pressurize the containment during the short time in which the OPERABLE door is

BASES

ACTIONS (continued)

expected to be open. After each entry and exit, the OPERABLE door must be immediately closed. If ALARA conditions permit, entry and exit should be via an OPERABLE air lock.

A second Note has been added to provide clarification that, for this LCO, separate Condition entry is allowed for each air lock. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable air lock. Complying with the Required Actions may allow for continued operation, and a subsequent inoperable air lock is governed by subsequent Condition entry and application of associated Required Actions.

In the event the air lock leakage results in exceeding the overall containment leakage rate, Note 3 directs entry into the applicable Conditions and Required Actions of LCO 3.6.1, "Containment."

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

With one air lock door in one or more containment air locks inoperable, the OPERABLE door must be verified closed (Required Action A.1) in each affected containment air lock. This ensures that a leak tight containment barrier is maintained by the use of an OPERABLE air lock door. This action must be completed within 1 hour. This specified time period is consistent with the ACTIONS of LCO 3.6.1, which requires containment be restored to OPERABLE status within 1 hour.

In addition, the affected air lock penetration must be isolated by locking closed the OPERABLE air lock door within the 24 hour Completion Time. The 24 hour Completion Time is reasonable for locking the OPERABLE air lock door, considering the OPERABLE door of the affected air lock is being maintained closed.

Required Action A.3 verifies that an air lock with an inoperable door has been isolated by the use of a locked and closed OPERABLE air lock door. This ensures that an acceptable containment leakage boundary is maintained. The Completion Time of once per 31 days is based on engineering judgment and is considered adequate in view of the low likelihood of a locked door being mispositioned and other administrative controls. Required Action A.3 is modified by a Note that applies to air lock doors located in high radiation areas and allows these doors to be verified locked closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of the door, once it has been verified to be in the proper position, is small.

BASES

ACTIONS (continued)

The Required Actions have been modified by two Notes. Note 1 ensures that only the Required Actions and associated Completion Times of Condition C are required if both doors in the same air lock are inoperable. With both doors in the same air lock inoperable, an OPERABLE door is not available to be closed. Required Actions C.1 and C.2 are the appropriate remedial actions. The exception of Note 1 does not affect tracking the Completion Time from the initial entry into Condition A; only the requirement to comply with the Required Actions. Note 2 allows use of the air lock for entry and exit for 7 days under administrative controls if both air locks have an inoperable door. This 7 day restriction begins when the second air lock is discovered inoperable. Containment entry may be required on a periodic basis to perform Technical Specifications (TS) Surveillances and Required Actions, as well as other activities on equipment inside containment that are required by TS or activities on equipment that support TS-required equipment. This Note is not intended to preclude performing other activities (i.e., non-TS required activities) if the containment is entered, using the inoperable air lock, to perform an allowed activity listed above. This allowance is acceptable due to the low probability of an event that could pressurize the containment during the short time that the OPERABLE door is expected to be open.

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

With an air lock interlock mechanism inoperable in one or more air locks, the Required Actions and associated Completion Times are consistent with those specified in Condition A.

The Required Actions have been modified by two Notes. Note 1 ensures that only the Required Actions and associated Completion Times of Condition C are required if both doors in the same air lock are inoperable. With both doors in the same air lock inoperable, an OPERABLE door is not available to be closed. Required Actions C.1 and C.2 are the appropriate remedial actions. Note 2 allows entry into and exit from containment under the control of a dedicated individual stationed at the air lock to ensure that only one door is opened at a time (i.e., the individual performs the function of the interlock).

Required Action B.3 is modified by a Note that applies to air lock doors located in high radiation areas and allows these doors to be verified locked closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of the door, once it has been verified to be in the proper position, is small.

BASES

ACTIONS (continued)

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

With one or more air locks inoperable for reasons other than those described in Condition A or B, Required Action C.1 requires action to be initiated immediately to evaluate previous combined leakage rates using current air lock test results. An evaluation is acceptable, since it is overly conservative to immediately declare the containment inoperable if both doors in an air lock have failed a seal test or if the overall air lock leakage is not within limits. In many instances (e.g., only one seal per door has failed), containment remains OPERABLE, yet only 1 hour (per LCO 3.6.1) would be provided to restore the air lock door to OPERABLE status prior to requiring a plant shutdown. In addition, even with both doors failing the seal test, the overall containment leakage rate can still be within limits.

Required Action C.2 requires that one door in the affected containment air lock must be verified to be closed within the 1 hour Completion Time. This specified time period is consistent with the ACTIONS of LCO 3.6.1, which requires that containment be restored to OPERABLE status within 1 hour.

Additionally, the affected air lock(s) must be restored to OPERABLE status within the 24 hour Completion Time. The specified time period is considered reasonable for restoring an inoperable air lock to OPERABLE status, assuming that at least one door is maintained closed in each affected air lock.

D.1 and D.2

If the inoperable containment air lock cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.2.1

Maintaining containment air locks OPERABLE requires compliance with the leakage rate test requirements of the Containment Leakage Rate Testing Program. This SR reflects the leakage rate testing requirements with regard to air lock leakage (Type B leakage tests). The acceptance criteria were established during initial air lock and containment OPERABILITY testing. The periodic testing requirements verify that the

BASES

SURVEILLANCE REQUIREMENTS (continued)

air lock leakage does not exceed the allowed fraction of the overall containment leakage rate. The Frequency is required by the Containment Leakage Rate Testing Program.

The SR has been modified by two Notes. Note 1 states that an inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. This is considered reasonable since either air lock door is capable of providing a fission product barrier in the event of a DBA. Note 2 has been added to this SR requiring the results to be evaluated against the acceptance criteria which is applicable to SR 3.6.1.1. This ensures that air lock leakage is properly accounted for in determining the combined Type B and C containment leakage rate.

~~[~~ SR 3.6.2.2 6

The air lock interlock is designed to prevent simultaneous opening of both doors in a single air lock. Since both the inner and outer doors of an air lock are designed to withstand the maximum expected post accident containment pressure, closure of either door will support containment OPERABILITY. Thus, the door interlock feature supports containment OPERABILITY while the air lock is being used for personnel transit in and out of the containment. Periodic testing of this interlock demonstrates that the interlock will function as designed and that simultaneous opening of the inner and outer doors will not inadvertently occur. ~~[Due to the purely mechanical nature of this interlock, and given that the interlock mechanism is not normally challenged when the containment air lock door is used for entry and exit (procedures require strict adherence to single door opening), this test is only required to be performed every 24 months. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage, and the potential for loss of containment OPERABILITY if the Surveillance were performed with the reactor at power. The 24 month Frequency for the interlock is justified based on generic operating experience. The 24 month Frequency is based on engineering judgment and is considered adequate given that the interlock is not challenged during the use of the airlock.~~ 6

~~OR~~

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

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~[REVIEWER'S NOTE~~

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

~~]~~ 7

REFERENCES

1. 10 CFR 50, Appendix J, Option ~~[A]~~[B~~]~~. 4

2. FSAR, Section ~~[6.2]~~. (U, 15.4) 2 4 2

3. UFSAR, Section 6.2.4.1.

B 3.6 CONTAINMENT SYSTEMS

B 3.6.2 Containment Air Locks ~~(Atmospheric, Subatmospheric, Ice Condenser, and Dual)~~ 1

BASES

BACKGROUND

Containment air locks form part of the containment pressure boundary and provide a means for personnel access during all MODES of operation.

Each air lock is nominally a right circular cylinder, ~~10 ft~~ approximately 8 feet 7 inches in diameter, with a door at each end. The doors are interlocked to prevent simultaneous opening. During periods when containment is not required to be OPERABLE, the door interlock mechanism may be disabled, allowing both doors of an air lock to remain open for extended periods when frequent containment entry is necessary. Each air lock door has been designed and tested to certify its ability to withstand a pressure in excess of the maximum expected pressure following a Design Basis Accident (DBA) in containment. As such, closure of a single door supports containment OPERABILITY. Each of the doors contains double gasketed seals and local leakage rate testing capability to ensure pressure integrity. ~~To effect a leak tight seal, the air lock design uses pressure seated doors (i.e., an increase in containment internal pressure results in increased sealing force on each door).~~ 2 2

Each personnel air lock is provided with limit switches on both doors that provide control room indication of door position. Additionally, control room indication is provided to alert the operator whenever an air lock door interlock mechanism is defeated.

The containment air locks form part of the containment pressure boundary. As such, air lock integrity and leak tightness is essential for maintaining the containment leakage rate within limit in the event of a DBA. Not maintaining air lock integrity or leak tightness may result in a leakage rate in excess of that assumed in the unit safety analyses.

APPLICABLE SAFETY ANALYSES

The DBAs that result in a release of radioactive material within containment are a loss of coolant accident (LOCA) and a rod ejection accident (Ref. 2). In the analysis of each of these accidents, it is assumed that containment is OPERABLE such that release of fission products to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of ~~[0.1]~~ 0.25% of containment air weight per day (Ref. ~~2~~ 3). This leakage rate is defined in 10 CFR 50, Appendix J, Option ~~A~~ B (Ref. 1), as L_a = ~~[0.1]~~ 0.25% of containment air weight per day, the maximum allowable containment leakage rate at the calculated peak containment internal pressure P_a ~~= [14.4] psig~~ 3 2 2 4 4 4

BASES

APPLICABLE SAFETY ANALYSES (continued)

following a design basis LOCA. This allowable leakage rate forms the basis for the acceptance criteria imposed on the SRs associated with the air locks.

The containment air locks satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Each containment air lock forms part of the containment pressure boundary. As part of the containment pressure boundary, the air lock safety function is related to control of the containment leakage rate resulting from a DBA. Thus, each air lock's structural integrity and leak tightness are essential to the successful mitigation of such an event.

Each air lock is required to be OPERABLE. For the air lock to be considered OPERABLE, the air lock interlock mechanism must be OPERABLE, the air lock must be in compliance with the Type B air lock leakage test, and both air lock doors must be OPERABLE. The interlock allows only one air lock door of an air lock to be opened at one time. This provision ensures that a gross breach of containment does not exist when containment is required to be OPERABLE. Closure of a single door in each air lock is sufficient to provide a leak tight barrier following postulated events. Nevertheless, both doors are kept closed when the air lock is not being used for normal entry into or exit from containment.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the containment air locks are not required in MODE 5 to prevent leakage of radioactive material from containment. The requirements for the containment air locks during MODE 6 are addressed in LCO 3.9.~~3~~ 4, "Containment Penetrations." 5

ACTIONS

The ACTIONS are modified by a Note that allows entry and exit to perform repairs on the affected air lock component. If the outer door is inoperable, then it may be easily accessed for most repairs. It is preferred that the air lock be accessed from inside primary containment by entering through the other OPERABLE air lock. However, if this is not practicable, or if repairs on either door must be performed from the barrel side of the door then it is permissible to enter the air lock through the OPERABLE door, which means there is a short time during which the containment boundary is not intact (during access through the OPERABLE door). The ability to open the OPERABLE door, even if it means the containment boundary is temporarily not intact, is acceptable due to the low probability of an event that could pressurize the containment during the short time in which the OPERABLE door is

ACTIONS (continued)

expected to be open. After each entry and exit, the OPERABLE door must be immediately closed. If ALARA conditions permit, entry and exit should be via an OPERABLE air lock.

A second Note has been added to provide clarification that, for this LCO, separate Condition entry is allowed for each air lock. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable air lock. Complying with the Required Actions may allow for continued operation, and a subsequent inoperable air lock is governed by subsequent Condition entry and application of associated Required Actions.

In the event the air lock leakage results in exceeding the overall containment leakage rate, Note 3 directs entry into the applicable Conditions and Required Actions of LCO 3.6.1, "Containment."

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

With one air lock door in one or more containment air locks inoperable, the OPERABLE door must be verified closed (Required Action A.1) in each affected containment air lock. This ensures that a leak tight containment barrier is maintained by the use of an OPERABLE air lock door. This action must be completed within 1 hour. This specified time period is consistent with the ACTIONS of LCO 3.6.1, which requires containment be restored to OPERABLE status within 1 hour.

In addition, the affected air lock penetration must be isolated by locking closed the OPERABLE air lock door within the 24 hour Completion Time. The 24 hour Completion Time is reasonable for locking the OPERABLE air lock door, considering the OPERABLE door of the affected air lock is being maintained closed.

Required Action A.3 verifies that an air lock with an inoperable door has been isolated by the use of a locked and closed OPERABLE air lock door. This ensures that an acceptable containment leakage boundary is maintained. The Completion Time of once per 31 days is based on engineering judgment and is considered adequate in view of the low likelihood of a locked door being mispositioned and other administrative controls. Required Action A.3 is modified by a Note that applies to air lock doors located in high radiation areas and allows these doors to be verified locked closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of the door, once it has been verified to be in the proper position, is small.

BASES

ACTIONS (continued)

The Required Actions have been modified by two Notes. Note 1 ensures that only the Required Actions and associated Completion Times of Condition C are required if both doors in the same air lock are inoperable. With both doors in the same air lock inoperable, an OPERABLE door is not available to be closed. Required Actions C.1 and C.2 are the appropriate remedial actions. The exception of Note 1 does not affect tracking the Completion Time from the initial entry into Condition A; only the requirement to comply with the Required Actions. Note 2 allows use of the air lock for entry and exit for 7 days under administrative controls if both air locks have an inoperable door. This 7 day restriction begins when the second air lock is discovered inoperable. Containment entry may be required on a periodic basis to perform Technical Specifications (TS) Surveillances and Required Actions, as well as other activities on equipment inside containment that are required by TS or activities on equipment that support TS-required equipment. This Note is not intended to preclude performing other activities (i.e., non-TS required activities) if the containment is entered, using the inoperable air lock, to perform an allowed activity listed above. This allowance is acceptable due to the low probability of an event that could pressurize the containment during the short time that the OPERABLE door is expected to be open.

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

With an air lock interlock mechanism inoperable in one or more air locks, the Required Actions and associated Completion Times are consistent with those specified in Condition A.

The Required Actions have been modified by two Notes. Note 1 ensures that only the Required Actions and associated Completion Times of Condition C are required if both doors in the same air lock are inoperable. With both doors in the same air lock inoperable, an OPERABLE door is not available to be closed. Required Actions C.1 and C.2 are the appropriate remedial actions. Note 2 allows entry into and exit from containment under the control of a dedicated individual stationed at the air lock to ensure that only one door is opened at a time (i.e., the individual performs the function of the interlock).

Required Action B.3 is modified by a Note that applies to air lock doors located in high radiation areas and allows these doors to be verified locked closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of the door, once it has been verified to be in the proper position, is small.

BASES

ACTIONS (continued)

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

With one or more air locks inoperable for reasons other than those described in Condition A or B, Required Action C.1 requires action to be initiated immediately to evaluate previous combined leakage rates using current air lock test results. An evaluation is acceptable, since it is overly conservative to immediately declare the containment inoperable if both doors in an air lock have failed a seal test or if the overall air lock leakage is not within limits. In many instances (e.g., only one seal per door has failed), containment remains OPERABLE, yet only 1 hour (per LCO 3.6.1) would be provided to restore the air lock door to OPERABLE status prior to requiring a plant shutdown. In addition, even with both doors failing the seal test, the overall containment leakage rate can still be within limits.

Required Action C.2 requires that one door in the affected containment air lock must be verified to be closed within the 1 hour Completion Time. This specified time period is consistent with the ACTIONS of LCO 3.6.1, which requires that containment be restored to OPERABLE status within 1 hour.

Additionally, the affected air lock(s) must be restored to OPERABLE status within the 24 hour Completion Time. The specified time period is considered reasonable for restoring an inoperable air lock to OPERABLE status, assuming that at least one door is maintained closed in each affected air lock.

D.1 and D.2

If the inoperable containment air lock cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.2.1

Maintaining containment air locks OPERABLE requires compliance with the leakage rate test requirements of the Containment Leakage Rate Testing Program. This SR reflects the leakage rate testing requirements with regard to air lock leakage (Type B leakage tests). The acceptance criteria were established during initial air lock and containment OPERABILITY testing. The periodic testing requirements verify that the

BASES

SURVEILLANCE REQUIREMENTS (continued)

air lock leakage does not exceed the allowed fraction of the overall containment leakage rate. The Frequency is required by the Containment Leakage Rate Testing Program.

The SR has been modified by two Notes. Note 1 states that an inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. This is considered reasonable since either air lock door is capable of providing a fission product barrier in the event of a DBA. Note 2 has been added to this SR requiring the results to be evaluated against the acceptance criteria which is applicable to SR 3.6.1.1. This ensures that air lock leakage is properly accounted for in determining the combined Type B and C containment leakage rate.

~~[~~ SR 3.6.2.2 6

The air lock interlock is designed to prevent simultaneous opening of both doors in a single air lock. Since both the inner and outer doors of an air lock are designed to withstand the maximum expected post accident containment pressure, closure of either door will support containment OPERABILITY. Thus, the door interlock feature supports containment OPERABILITY while the air lock is being used for personnel transit in and out of the containment. Periodic testing of this interlock demonstrates that the interlock will function as designed and that simultaneous opening of the inner and outer doors will not inadvertently occur. ~~[Due to the purely mechanical nature of this interlock, and given that the interlock mechanism is not normally challenged when the containment air lock door is used for entry and exit (procedures require strict adherence to single door opening), this test is only required to be performed every 24 months. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage, and the potential for loss of containment OPERABILITY if the Surveillance were performed with the reactor at power. The 24 month Frequency for the interlock is justified based on generic operating experience. The 24 month Frequency is based on engineering judgment and is considered adequate given that the interlock is not challenged during the use of the airlock.~~ 6

~~OR~~

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

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~REVIEWER'S NOTE~~

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

~~]~~ 7

REFERENCES

1. 10 CFR 50, Appendix J, Option ~~[A]~~[B~~]~~. 4
2. FSAR, Section ~~[6.2]~~. (U, 15.4) 2 4 2
3. UFSAR, Section 6.2.4.1.

JUSTIFICATION FOR DEVIATIONS
ITS 3.6.2 BASES, CONTAINMENT AIR LOCKS

1. The type of Containment (Atmospheric, Subatmospheric, Ice Condenser, and Dual) is deleted since it is unnecessary. This information is provided in NUREG-1431, Rev. 4.0, to assist in identifying the appropriate Specification to be used as a model for the plant specific ITS conversion, but serves no purpose in a plant specific implementation.

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

3. Editorial changes have been made to be consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01, Section 4.1.7.g.

4. The ISTS Bases 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.

5. Changes have been made to reflect the actual Specification number.

6. ISTS SR 3.6.2.2 Bases 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.

7. 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 3.6.2, CONTAINMENT AIR LOCKS

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

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ATTACHMENT 3

ITS 3.6.3, CONTAINMENT ISOLATION VALVES

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

ITS A01 ITS 3.6.3

CONTAINMENT SYSTEMS

3/4.6.3 CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

LCO 3.6.3 3.6.3 Each containment isolation valve shall be OPERABLE.*

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

ACTIONS Note 1 *1. Penetration flow path(s) may be unisolated intermittently under administrative controls.

ACTIONS Note 4 *2. Enter the ACTION of LCO 3.6.1.1, "Primary Containment" when containment isolation valve leakage results in exceeding the overall containment leakage rate acceptance criteria.

ACTIONS Note 5 *3. No more than one pair of Containment purge lines (one set of supply valves and one set of exhaust valves) may be opened.

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

ACTION:

Add proposed ACTION Note 2 — A02

Add proposed ACTION Note 3 — A03

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

Required Actions A.2 and G.2 Note 1 #1. Isolation devices in high radiation areas may be verified by use of administrative means.

Required Actions A.2 and G.2 Note 2 #2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.

~~##3. A check valve with flow through the valve secured is only applicable to penetration flow paths with two containment isolation valves.~~ — L04

---

a. With one or more penetration flow paths with one containment isolation valve inoperable for reasons other than:
   1. leakage rate limits of containment purge isolation valve(s),
   2. leakage rate limit of BYPASS LEAKAGE PATHS ~~TO THE AUXILIARY BUILDING~~, or (shield building) — A05
   3. inoperable containment vacuum relief isolation valve(s),

ACTION A ACTION C isolate the affected penetration ~~within 4 hours~~ by use of at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve## with flow through the valve secured; and, — Add proposed Categories and Completion Times — L03, L04

verify# the affected penetration flow path is isolated once per 31 days for isolation devices outside containment, and prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment.

ITS A01 ITS 3.6.3

CONTAINMENT SYSTEMS

ACTIONS (continued)

ACTION D	b. With more than one pair of containment purge lines open or	
Condition B Note	with one or more penetration flow paths with two containment isolation valves inoperable for reasons other than:	
ACTION B	1. leakage rate limits of containment purge isolation valve(s), 2. leakage rate limit of shield building BYPASS LEAKAGE PATHS ~~TO THE AUXILIARY BUILDING~~, or 3. inoperable containment vacuum relief isolation valve(s),	A05
ACTION B, ACTION D	isolate the affected penetration within 1 hour by use of at least one closed and deactivated automatic valve, closed manual valve, or blind flange and verify# the affected penetration flow path is isolated	A04
ACTION A	once per 31 days.	L02
ACTION E	c. With one or more containment vacuum relief isolation valve(s) inoperable, the valve(s) must be returned to OPERABLE status within 72 hours.	
ACTION F	d. With one or more shield building BYPASS LEAKAGE PATHS ~~TO THE AUXILIARY BUILDING~~ not within limit, restore within limit within 4 hours.	A05
	resilient seal purge	A07
ACTION G	e. With one or more penetration flow paths with one or more containment purge supply and/or exhaust isolation valves not within leakage limits, isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange within 24 hours. Verify# the affected penetration flow path is isolated once per 31 days for isolation devices outside containment and prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment. Perform SR 4.6.3.6 once per 92 days for the valve used to isolate the affected penetration flow path.	CSS-012
		A08
ACTION A ACTION C	f. With one or more penetration flow paths of a closed system design with one containment isolation valve inoperable, isolate the affected penetration flow path within ~~72 hours~~ by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange, and verify# the affected penetration is isolated once per 31 days.	M01
	Add proposed Categories and Completion Times	L03
	check valve,	
ACTION H	g. With any of the above ACTIONS not met, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.	L04

SURVEILLANCE REQUIREMENTS

---------- NOTE ----------

SR 3.6.3.2, SR 3.6.3.3 * Valves and blind flanges in high radiation areas may be verified by use of administrative means.

SR 3.6.3.1 4.6.3.1 Verify each purge supply and/or exhaust isolation valve is closed, except when containment purge valves (only one set of supply and one set of exhaust valves) are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open, ~~at least once per 31 days~~.

In accordance with the Surveillance Frequency Control Program LA01

ITS A01 ITS 3.6.3

CONTAINMENT SYSTEMS

3/4.6.3 CONTAINMENT ISOLATION VALVES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.3.6 4.6.3.2 Verify each automatic containment isolation valve that is not locked, sealed or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal, ~~at least once per 18 months~~.

In accordance with the Surveillance Frequency Control Program — LA01

SR 3.6.3.4 4.6.3.3 The isolation time of each power operated ~~or~~ automatic containment isolation valve shall be determined to be within its limit when tested ~~pursuant to Specification 4.0.5~~.

L01

in accordance with the Inservice Testing Program — A06

SR 3.6.3.3 4.6.3.4 Verify each containment isolation manual valve and blind flange that is located inside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls prior to entering Mode 4 from Mode 5 if not performed within the previous 92 days.*

SR 3.6.3.2 4.6.3.5 Verify each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls, ~~at least once per 31 days~~.*

In accordance with the Surveillance Frequency Control Program — LA01

with a resilient seal — A07

SR 3.6.3.5 4.6.3.6 Perform leakage rate testing for each containment purge supply and exhaust isolation valve ~~at least once per 3 months~~.

In accordance with the Surveillance Frequency Control Program — LA01

SR 3.6.3.7 4.6.3.7 Verify each containment purge valve is blocked to restrict the valve from opening greater than or equal to 50 degrees, ~~at least once per 18 months~~.

In accordance with the Surveillance Frequency Control Program — LA01

shield building — A05

SR 3.6.3.8 4.6.3.8 Verify the combined leakage rate for all BYPASS LEAKAGE PATHS ~~TO THE AUXILIARY BUILDING~~ is less than or equal to 0.25 L_a when pressurized to greater than or equal to P_a in accordance with the Containment Leakage Rate Test Program.

Pages 3/4 6-19 through 3/4 6-23 intentionally deleted

CONTAINMENT SYSTEMS

3/4.6.4 COMBUSTIBLE GAS CONTROL

HYDROGEN MONITORS

LIMITING CONDITION FOR OPERATION

3.6.4.1 This Specification is Deleted.

CONTAINMENT SYSTEMS

ELECTRIC HYDROGEN RECOMBINERS - W

LIMITING CONDITION FOR OPERATION

3.6.4.2 This Specification is Deleted.

A01

ITS

ITS 3.6.3

1.0 DEFINITIONS

DEFINED TERMS

The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications.

ACTION

1.1 ACTION shall be that part of a Specification which prescribes remedial measures required under designated conditions.

See ITS 1.0

AXIAL FLUX DIFFERENCE

1.2 AXIAL FLUX DIFFERENCE shall be the difference in normalized flux signals between the top and bottom halves of a two section excore neutron detector.

~~BYPASS LEAKAGE PATH~~

~~1.3 A BYPASS LEAKAGE PATH is a potential path for leakage to escape from both the primary containment and annulus pressure boundary. Only one type of BYPASS LEAKAGE PATH is recognized:~~

~~a. BYPASS LEAKAGE PATHS TO THE AUXILIARY BUILDING are those paths that would potentially allow leakage from the primary containment to circumvent the annulus secondary containment enclosure and escape directly to the Auxiliary Building secondary containment enclosure.~~

LA02

CHANNEL CALIBRATION

1.4 A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping or total channel steps such that the entire channel is calibrated.

See ITS 1.0

CHANNEL CHECK

1.5 A CHANNEL CHECK shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrument channels measuring the same parameter.

ITS A01 ITS 3.6.3

DEFINITIONS

CHANNEL FUNCTIONAL TEST

1.6 A CHANNEL FUNCTIONAL TEST shall be:

a. Analog channels - the injection of a simulated signal into the channel as close to the sensor as practicable to verify OPERABILITY including alarm and/or trip functions.

b. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.

See ITS Chapter 1.0

c. Digital channels - the injection of a simulated signal into the channel as close to the sensor input to the process racks as practicable to verify OPERABILITY including alarm and/or trip functions.

CONTAINMENT INTEGRITY

1.7 CONTAINMENT INTEGRITY shall exist when:

a. All penetrations required to be closed during accident conditions are either:

1) Capable of being closed by an OPERABLE containment automatic isolation valve system, or

2) Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.

See ITS 3.6.1

b. All equipment hatches are closed and sealed.

c. Each air lock is in compliance with the requirements of Specification 3.6.1.3,

d. The containment leakage rates are within the limits of Specification 4.6.1.1.c,

e. The sealing mechanism associated with each penetration (e.g., welds, bellows, or O-rings) is OPERABLE, and

SR 3.6.3.8 f. Secondary containment bypass leakage is within the limits of Specification 3.6.3.

CONTROLLED LEAKAGE

1.8 This definition has been deleted.

CORE ALTERATION

1.9 CORE ALTERATION shall be the movement of any fuel, sources, reactivity control components, or other components affecting reactivity within the reactor vessel with the head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

See ITS Chapter 1.0

CORE OPERATING LIMIT REPORT

1.10 The CORE OPERATING LIMITS REPORT (COLR) is the unit-specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specification 6.9.1.14. Unit operation within these operating limits is addressed in individual specifications.

ITS A01 ITS 3.6.3

CONTAINMENT SYSTEMS

3/4.6.3 CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

LCO 3.6.3 3.6.3 Each containment isolation valve shall be OPERABLE.*

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

ACTIONS Note 1 *1. Penetration flow path(s) may be unisolated intermittently under administrative controls.

ACTIONS Note 4 *2. Enter the ACTION of LCO 3.6.1.1, "Primary Containment" when containment isolation valve leakage results in exceeding the overall containment leakage rate acceptance criteria.

ACTIONS Note 5 *3. No more than one pair of Containment purge lines (one set of supply valves and one set of exhaust valves) may be opened.

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

ACTION:

Add proposed ACTION Note 2 — A02

Add proposed ACTION Note 3 — A03

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

Required Action A.2 and G.2 Note 1 #1. Isolation devices in high radiation areas may be verified by use of administrative means.

Required Action A.2 and G.2 Note 2 #2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means.

Condition A Note ~~##3. A check valve with flow through the valve secured is only applicable to penetration flow paths with two containment isolation valves.~~ — L04

---

a. With one or more penetration flow paths with one containment isolation valve inoperable for reasons other than:
   1. leakage rate limits of containment purge isolation valve(s), shield building
   2. leakage rate limit of BYPASS LEAKAGE PATHS ~~TO THE AUXILIARY BUILDING~~, or
   3. inoperable containment vacuum relief isolation valve(s),

— A05

Add proposed Categories and Completion Times — L03

ACTION A ACTION C isolate the affected penetration ~~within 4 hours~~ by use of at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve## with flow through the valve secured; and, — L04

verify# the affected penetration flow path is isolated once per 31 days for isolation devices outside containment, and prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment.

ITS A01 ITS 3.6.3

CONTAINMENT SYSTEMS

ACTIONS (continued)

b. With more than one pair of containment purge lines open

ACTION D

or

Condition B Note

with one or more penetration flow paths with two containment isolation valves inoperable for reasons other than:

ACTION B

1. leakage rate limits of containment purge isolation valve(s),
2. leakage rate limit of BYPASS LEAKAGE PATHS ~~TO THE AUXILIARY BUILDING~~, or
3. inoperable containment vacuum relief isolation valve(s),

shield building

A05

ACTION B, ACTION D, ACTION A

isolate the affected penetration within 1 hour by use of at least one closed and deactivated automatic valve, closed manual valve, or blind flange and verify# the affected penetration flow path is isolated once per 31 days.

A04

L02

ACTION E

c. With one or more containment vacuum relief isolation valve(s) inoperable, the valve(s) must be returned to OPERABLE status within 72 hours.

shield building

ACTION F

d. With one or more BYPASS LEAKAGE PATHS ~~TO THE AUXILIARY BUILDING~~ not within limit, restore within limit within 4 hours.

A05

resilient seal purge

A07

ACTION G

e. With one or more penetration flow paths with one or more containment purge supply and/or exhaust isolation valves not within leakage limits, isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange within 24 hours. Verify# the affected penetration flow path is isolated once per 31 days for isolation devices outside containment and prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment. Perform SR 4.6.3.6 once per 92 days for the valve used to isolate the affected penetration flow path.

CSS-012

A08

ACTION A, ACTION C

f. With one or more penetration flow paths of a closed system design with one containment isolation valve inoperable, isolate the affected penetration flow path within ~~72 hours~~ by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange, and verify# the affected penetration is isolated once per 31 days.

M01

Add proposed Categories and Completion Times

L03

check valve,

ACTION H

g. With any of the above ACTIONS not met, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

L04

SURVEILLANCE REQUIREMENTS

SR 3.6.3.2, SR 3.6.3.3

---------- NOTE ----------

* Valves and blind flanges in high radiation areas may be verified by use of administrative means.

SR 3.6.3.1

4.6.3.1 Verify each purge supply and/or exhaust isolation valve is closed, except when containment purge valves (only one set of supply valves and one set of exhaust valves) are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open, ~~at least once per 31 days~~.

In accordance with the Surveillance Frequency Control Program

LA01

A01

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.3.6 4.6.3.2 Verify each automatic containment isolation valve that is not locked, sealed or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal, ~~at least once per 18 months~~.

In accordance with the Surveillance Frequency Control Program — LA01

SR 3.6.3.4 4.6.3.3 The isolation time of each power operated ~~or~~ automatic containment isolation valve shall be determined to be within its limit when tested ~~pursuant to Specification 4.0.5~~.

L01

in accordance with the Inservice Testing Program — A06

SR 3.6.3.3 4.6.3.4 Verify each containment isolation manual valve and blind flange that is located inside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls prior to entering Mode 4 from Mode 5 if not performed within the previous 92 days.*

SR 3.6.3.2 4.6.3.5 Verify each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls, ~~at least once per 31 days~~.*

In accordance with the Surveillance Frequency Control Program — LA01

with a resilient seal — A07

SR 3.6.3.5 4.6.3.6 Perform leakage rate testing for each containment purge supply and exhaust isolation valve ~~at least once per 3 months~~.

In accordance with the Surveillance Frequency Control Program — LA01

SR 3.6.3.7 4.6.3.7 Verify each containment purge valve is blocked to restrict the valve from opening greater than or equal to 50 degrees, ~~at least once per 18 months~~.

In accordance with the Surveillance Frequency Control Program — LA01

shield building — A05

SR 3.6.3.8 4.6.3.8 Verify the combined leakage rate for all BYPASS LEAKAGE PATHS ~~TO THE AUXILIARY BUILDING~~ is less than or equal to 0.25 L_a when pressurized to greater than or equal to P_a in accordance with the Containment Leakage Rate Test Program.

Pages 3/4 6-19 through 6-23 intentionally deleted

CONTAINMENT SYSTEMS

3/4.6.4 COMBUSTIBLE GAS CONTROL

HYDROGEN MONITORS

LIMITING CONDITION FOR OPERATION

3.6.4.1 This Specification is Deleted.

CONTAINMENT SYSTEMS

ELECTRIC HYDROGEN RECOMBINERS - W

LIMITING CONDITION FOR OPERATION

3.6.4.2 This Specification is Deleted.

ITS A01 ITS 3.6.3

1.0 DEFINITIONS

DEFINED TERMS

The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications.

ACTION

1.1 ACTION shall be that part of a Specification which prescribes remedial measures required under designated conditions.

AXIAL FLUX DIFFERENCE

1.2 AXIAL FLUX DIFFERENCE shall be the difference in normalized flux signals between the top and bottom halves of a two section excore neutron detectors.

See ITS 1.0

~~BYPASS LEAKAGE PATH~~

~~1.3 A BYPASS LEAKAGE PATH is a potential path for leakage to escape from both the primary containment and annulus pressure boundary. Only one type of BYPASS LEAKAGE PATH is recognized:~~

~~a. BYPASS LEAKAGE PATHS TO THE AUXILIARY BUILDING are those paths that would potentially allow leakage from the primary containment to circumvent the annulus secondary containment enclosure and escape directly to the auxiliary building secondary containment enclosure.~~

LA02

CHANNEL CALIBRATION

1.4 A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping or total channel steps such that the entire channel is calibrated.

CHANNEL CHECK

1.5 A CHANNEL CHECK shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrument channels measuring the same parameter.

See ITS 1.0

ITS

A01

ITS 3.6.3

DEFINITIONS

CHANNEL FUNCTIONAL TEST

1.6 A CHANNEL FUNCTIONAL TEST shall be:

a. Analog channels - the injection of a simulated signal into the channel as close to the sensor as practicable to verify OPERABILITY including alarm and/or trip functions.

b. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.

See ITS Chapter 1.0

c. Digital channels - the injection of a simulated signal into the channel as close to the sensor input to the process racks as practicable to verify OPERABILITY including alarm and/or trip functions.

CONTAINMENT INTEGRITY

1.7 CONTAINMENT INTEGRITY shall exist when:

a. All penetrations required to be closed during accident conditions are either:

1) Capable of being closed by an OPERABLE containment automatic isolation valve system, or
2) Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.

See ITS 3.6.1

b. All equipment hatches are closed and sealed.
c. Each air lock is in compliance with the requirements of Specification 3.6.1.3,
d. The containment leakage rates are within the limits of Specification 4.6.1.1.c,
e. The sealing mechanism associated with each penetration (e.g., welds, bellows, or O-rings) is OPERABLE, and

SR 3.6.3.8

f. Secondary containment bypass leakage is within the limits of Specification 3.6.3.

CONTROLLED LEAKAGE

1.8 This definition has been deleted.

CORE ALTERATION

1.9 CORE ALTERATION shall be the movement of any fuel, sources, reactivity control components, or other components affecting reactivity within the reactor vessel with the head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

See ITS Chapter 1.0

CORE OPERATING LIMITS REPORT

1.10 The CORE OPERATING LIMITS REPORT (COLR) is the unit-specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specification 6.9.1.14. Unit operation within these operating limits is addressed in individual specifications.

DISCUSSION OF CHANGES
ITS 3.6.3, CONTAINMENT ISOLATION VALVES

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 3.6.3 ACTIONS provide requirements to be taken for each inoperable containment isolation valve. ITS 3.6.3 includes an explicit Note (ACTION Note 2) that states, "Separate Condition entry is allowed for each penetration flow path." This Note provides instructions for the proper application of the ACTIONS for ITS compliance. This changes the CTS by providing explicit direction for using the ACTIONS when a containment isolation valve is inoperable.

This change is acceptable because the addition of the Note reflects the CTS allowance to take appropriate Actions. This change is designated as administrative since it does not result in a technical change to the CTS.

A03 CTS 3.6.3 does not specifically require Conditions to be entered for systems supported by inoperable containment isolation valves. OPERABILITY of supported systems is addressed through the definition of OPERABILITY for each system, and appropriate LCO Actions are taken. ITS 3.6.3 ACTIONS Note 3 states "Enter applicable Conditions and Required Actions for systems made inoperable by containment isolation valves." 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 supported system inoperable is retained. This change is designated as administrative because it does not result in any technical changes to the CTS.

A04 CTS 3.6.3 ACTION b states, in part, with one or more penetration flow paths with two containment isolation valves inoperable, isolate the affected penetration within 1 hour by use of at least one closed and deactivated automatic valve, closed manual valve, or blind flange and verify the affected penetration flow path is isolated once per 31 days. ITS 3.6.3 ACTION B states, in part, with one or more penetration flow paths with two containment isolation valves inoperable to isolate the affected penetration within 1 hour by use of at least one closed and

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deactivated automatic valve, closed manual valve, or blind flange. This changes the CTS by not stating in ITS 3.6.3 ACTION B to verify the affected penetration flow path is isolated once per 31 days.

The purpose of the CTS 3.6.3 ACTION b is to isolate the affected penetration and to verify that isolated penetration remains isolated. This is accomplished in the ITS 3.6.3 by use of both ACTION A and ACTION B. This is acceptable because the rules of usage for ITS require that both ITS 3.6.3 ACTION A and ACTION B are entered when one or more penetration flow paths with two containment isolation valves are inoperable. This means that ITS 3.6.3 Required Action A.2 is in effect when one or more penetration flow paths with one containment isolation valve is inoperable and when one or more penetration flow paths with two containment isolation valves are inoperable. Therefore, ITS 3.6.3 Required Action B.1 will isolate the penetration within the 1 hour and ITS 3.6.3 Required Action A.2 will verify the penetration remains isolated every 31 days. This change is considered a change in presentation. It is therefore designated as an administrative change since it does not result in a technical change to the CTS.

A05 CTS 3.6.3 ACTION a provides required actions for one or more penetration flow paths with one containment isolation valve inoperable, and lists three exclusions for entry into the ACTION. CTS 3.6.3 ACTION a.2 provides the exclusion of "leakage rate limit of BYPASS LEAKAGE PATHS TO THE AUXILIARY BUILDING." CTS 3.6.3 ACTION b provides required actions for more than one pair of containment purge lines open or with one or more penetration flow paths with two containment isolation valves inoperable, and lists three exclusions to the second condition for entry into the ACTION. CTS 3.6.3 ACTION b.2 provides the exclusion of "leakage rate limit of BYPASS LEAKAGE PATHS TO THE AUXILIARY BUILDING." CTS 3.6.3 ACTION d states "With one or more BYPASS LEAKAGE PATHS TO THE AUXILIARY BUILDING not within limit, restore within limit within 4 hours." CTS 4.6.3.8 requires verifying the combined leakage rate for all BYPASS LEAKAGE PATHS TO THE AUXILIARY BUILDING is less than or equal to 0.25 L_a when pressurized to greater than or equal to P_a in accordance with the Containment Leakage Rate Test Program. ITS 3.6.3 ACTION F and SR 3.6.3.8 refer to shield building bypass leakage paths instead of BYPASS LEAKAGE PATHS TO THE AUXILIARY BUILDING. ITS 3.6.3 ACTIONS A and B specify Conditions that exclude ITS 3.6.3 Condition F. This changes the CTS by changing the name BYPASS LEAKAGE PATHS TO THE AUXILIARY BUILDING to shield building bypass leakage paths.

This change is acceptable because CTS 1.3 defines a BYPASS LEAKAGE PATH as "a potential path for leakage to escape from both the primary containment and annulus pressure boundary." Furthermore, it states the only recognized type of leakage is BYPASS LEAKAGE PATHS TO THE AUXILIARY BUILDING. BYPASS LEAKAGE PATHS TO THE AUXILIARY BUILDING are those paths that would potentially allow leakage from the primary containment to circumvent the annulus secondary containment enclosure and escape directly to the auxiliary building secondary containment enclosure. The annulus secondary containment enclosure is the shield building. Therefore, "BYPASS LEAKAGE PATHS TO THE AUXILIARY BUILDING" is "shield building bypass leakage."

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DISCUSSION OF CHANGES
ITS 3.6.3, CONTAINMENT ISOLATION VALVES

This change is designated as administrative since it does not result in a technical change to the CTS.

A06 CTS 4.6.3.3 requires the isolation time of each power operated or automatic containment isolation valve to be determined to be within limits when tested pursuant to Specification 4.0.5. ITS SR 3.6.3.4 requires the isolation time of each automatic power operated containment isolation valve to be verified within limits with a Frequency of "In accordance with the Inservice Testing Program." This changes the CTS by stating containment isolation valve testing is performed at a Frequency that is in accordance with the Inservice Testing Program.

The purpose of CTS 4.6.3.3 is to verify the isolation time of each power operated or automatic containment isolation valve is within limit pursuant to Specification 4.0.5, which provides the requirements for the Inservice Testing Program. This change is acceptable, because the Frequency regarding the containment isolation valve testing remains the same. The inservice testing requirements of CTS 4.0.5 have been moved to the Inservice Testing Program contained in Section 5.5 of the ITS. This change is designated as administrative, because it does not result in a technical change to the CTS.

A07 CTS 4.6.3.6 requires a performance of a leakage rate test for each containment purge supply and exhaust isolation valve at least once per 3 months. ITS SR 3.6.3.5 requires performance of a leakage rate test for containment purge valves with resilient seals at a Frequency of "In accordance with the Surveillance Frequency Control Program." This changes the CTS by specifying that the leakage rate test is only required to be performed on isolation valves with resilient seals. Moving the specified Surveillance Frequency to the Surveillance Frequency Control Program is discussed in DOC LA01.

CTS 3.6.3 Action e requires, in part, performance of SR 4.6.3.6 for a valve used to isolate a penetration flow path with one or more containment purge supply and/or exhaust isolation valves not within leakage limits. ITS 3.6.3 Required Action G.3 requires performance of SR 3.6.3.5 for the resilient purge valves closed to isolate one or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.

CTS 3.6.3 Action e and

CSS-012

3.6.3 Required Action G.1 and

The purpose of CTS 4.6.3.6 is to verify the leakage rate of each containment purge supply and exhaust isolation valve is within limits. CTS 4.6.3.6 does not specify that the Surveillance Requirement only applies to containment purge supply and exhaust isolation valves with resilient seals, because each of the purge supply and exhaust isolation valves at SQN has a resilient seal. Specifying within ITS SR 3.6.3.5 that the SR only applies to containment purge valves with resilient seals, aligns the text with the ISTS, and is consistent with the Bases justifying the increased leakage test Frequency for purge valves with resilient seals. This change is designated as administrative, because it does not result in a technical change to the CTS.

CTS 3.6.3 ACTION a, in part, provides a required action to isolate one inoperable containment isolation valve in one or more penetration flow paths with two containment isolation valves. CTS 3.6.3 ACTION f, in part, provides a required action to isolate one inoperable containment isolation valve in one or more penetration flow paths of a closed system design. ITS 3.6.3 ACTION A, in part, provides a required action to isolate one inoperable containment isolation valve in one or more penetration flow paths. This changes the CTS by combining the required actions for one inoperable containment isolation valve in penetration flow paths with either one or two containment isolation valves.

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DISCUSSION OF CHANGES
ITS 3.6.3, CONTAINMENT ISOLATION VALVES

This change is acceptable because ITS 3.6.3 ACTION A retains the required action to isolate an inoperable containment isolation valve, regardless of whether the penetration flow path has one or two containment isolation valves. (Adoption of risk-informed extended Completion Times is discussed in DOC L03.) This change is designated as administrative, because it does not result in a technical change to the CTS.

MORE RESTRICTIVE CHANGES

M01 CTS 3.6.3 ACTION f requires inoperable containment isolation valves (CIVs) associated with one or more penetration flow paths of a closed system design to be isolated within 72 hours. ITS 3.6.3 ACTION C requires all but one penetration flow paths to be isolated within 4 hours when two or more penetration flow paths have an inoperable CIV. (See DOC L03 for the discussion regarding changes to the Completion Times for isolating one penetration flow path with an inoperable CIV.) This changes the CTS by reducing the amount of time allowed to isolate multiple penetration flow paths of a closed system design with an inoperable CIV.

The purpose of CTS 3.6.3 ACTION f is to provide assurance that penetration flow paths with inoperable CIVs are isolated. 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. ITS 3.6.3 ACTION C, which provides 4 hours to isolate all but one penetration flow paths when two or more penetration flow paths have an inoperable CIV, is acceptable, since the risk analysis performed to establish the CIV Categories and Completion Times assumes only one CIV is inoperable at a time. Additional inoperable CIVs are not subject to the risk-informed Completion Times, but rather require the associated penetration flow path to be isolated within 4 hours. This change is designated as more restrictive, because the time to isolate a penetration flow path with an inoperable CIV in the ITS is less than the time provided in the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 5 – Removal of SR Frequency to the Surveillance Frequency Control Program)* CTS 4.6.3.1 requires verifying that each purge valve is closed, with exceptions, at least once per 31 days. CTS 4.6.3.2 requires verifying each automatic containment isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal at least once per 18 months. CTS 4.6.3.5 requires verifying each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, with exceptions, at least once per 31 days. CTS 4.6.3.6 requires performing leakage rate testing for each containment

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purge valve at least once per 3 months. CTS 4.6.3.7 requires verifying each containment purge valve is blocked to restrict the valve from opening greater than or equal to 50 degrees at least once per 18 months. ITS SR 3.6.3.1, SR 3.6.3.2, SR 3.6.3.5, SR 3.6.3.6, and SR 3.6.3.7 require similar Surveillances and 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 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 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 1.3 defines a BYPASS LEAKAGE PATH as a potential path for leakage to escape from both the primary containment and annulus pressure boundary. CTS 1.3.a defines BYPASS LEAKAGE PATH as BYPASS LEAKAGE PATHS TO THE AUXILIARY BUILDING are those paths that would potentially allow leakage from the primary containment to circumvent the annulus secondary containment enclosure and escape directly to the auxiliary building secondary containment enclosure. ITS 1.0 and 3.6.3 do not contain this definition. This changes the CTS by moving this definition to the ITS 3.6.3 Bases.

The purpose of the CTS 1.3 definition is to identify all bypass leakage paths. As stated in the definition, there is only one type of bypass leakage paths. A bypass leakage path is the pathway between the annulus secondary containment and the Auxiliary Building secondary containment. Therefore, it is not necessary to maintain this definition in the ITS. Furthermore, the bypass leakage path described is the Shield Building bypass leakage paths. ITS 3.6.3 contains appropriate ACTIONS to take if the shield building bypass leakage does not meet the requirements of ITS SR 3.6.3.8. Therefore, the BYPASS LEAKAGE PATH described in CTS 1.3 will be verified to be acceptable in ITS 3.6.3. 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 information. Therefore, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the

DISCUSSION OF CHANGES
ITS 3.6.3, CONTAINMENT ISOLATION VALVES

Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L01 *(Category 6 – Relaxation Of Surveillance Requirement Acceptance Criteria)* CTS 4.6.3.3 states that the isolation time of each "power operated or automatic" containment isolation valve shall be determined to be within its limit. ITS SR 3.6.3.4 requires the isolation time of each automatic power operated containment isolation valve to be verified within limits. This changes the CTS by deleting the reference to the power operated containment isolation valves that are not automatic.

The purpose of CTS 4.6.3.3 is to provide assurance that automatic containment isolation valves actuate within the times assumed in the DBA analyses. 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. Remote manual (i.e., non-automatic) power operated valves do not have an isolation time assumed in the DBA analyses, since they require operator action. Deleting reference to power operated, non-automatic isolation valve stroke time testing reduces the potential for misinterpreting the requirements of the Surveillance Requirement, while maintaining the assumptions of the accident analysis. This change is designated as less restrictive, because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

L02 *(Category 4 – Relaxation Of Required Action)* CTS 3.6.3 ACTION b requires, in part, with more than one pair of containment purge lines open, the affected penetration is isolated in 1 hour and verified to be isolated once per 31 days. ITS 3.6.3 ACTION D requires, in part, with two or more pairs of containment purge lines open, all but one penetration is isolated in 1 hour. This changes the CTS by deleting the required action to verify the affected penetration flow path is isolated every 31 days.

The purpose of CTS 3.6.3 is to take action to isolate open containment purge lines in excess of those assumed to be open at the onset of an accident. This change is acceptable, because the action to isolate containment purge lines beyond those allowed to be open, restores compliance with the LCO. Per ITS LCO 3.0.2, "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, the action of isolating excess open containment purge lines removes the Condition whereby the LCO was not met and further action is not required. Additionally, ITS SR 3.6.3.1 will continue to verify containment purge supply and exhaust valves are closed, with the exception of the one set that is allowed to be open for pressure control, ALARA, or air quality considerations for personnel entry, or Surveillances that require the

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valves to be open. This change is designated as less restrictive, because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L03 *(Category 3 – Relaxation of Completion Time)* CTS 3.6.3 ACTION a requires, in part, with one or more penetration flow paths with one containment isolation valve inoperable for reasons other than containment purge isolation valves with leakage in excess of the limits, bypass leakage paths to the auxiliary building in excess of the limits, or an inoperable containment vacuum relief isolation valve, to isolate the penetration flow path within 4 hours. CTS 3.6.3 ACTION f requires, in part, with one or more penetration flow paths of a closed system with one containment isolation valve inoperable, to isolate the penetration flow path within 72 hours. ITS 3.6.3 ACTION A requires, in part, with one or more penetration flow paths with one containment isolation valve inoperable, for reasons other than Condition E (containment vacuum relief isolation valves inoperable), Condition F (shield building bypass leakage not within limit), or Condition G (containment purge valve leakage not within limit), to isolate the affected penetration flow path within a specified risk-informed Completion Time. This changes the CTS by allowing extended Completion Times for inoperable containment isolation valves based on the results of a risk-informed analysis.

The proposed change would modify CTS requirements for Completion Times for CIVs with the adoption of Risk Informed Technical Specifications Task Force Initiative 4a regarding TSTF-446, Revision 3, "Risk Informed Evaluation of Extensions to Containment Isolation Valve Completion Times (WCAP- 15791)." The changes are consistent with the U.S. Nuclear Regulatory Commission (NRC) approved TSTF-446, Revision 3. The Federal Register notice published on July 13, 2010 (75 FR 39991) announced the availability of this TS improvement.

TVA has reviewed the model safety evaluation (SE) dated June 24, 2010. TVA has reviewed the NRC staff SE (ADAMS Accession No. ML080170680) approving Topical Report (TR) WCAP-15791-P-A, Revision 2, and the requirements specified in Nuclear Energy Institute (NEI) 99-04, "Guidelines for Managing NRC Commitment Changes." TVA has concluded that the justifications and Probabilistic Risk Assessment (PRA) assumptions presented in the TR and the SE are applicable to SQN and justifies this amendment for the incorporation of the changes based on the generic analysis to the SQN TS.

TVA is not proposing any variations or deviations from the Standard Technical Specifications (STS) changes described in TSTF-446, Revision 3, and the NRC staff model SE, dated June 24, 2010, for implementation of the Completion Times based on the generic analysis.

TVA has demonstrated the applicability of the generic Completion Times contained in TSTF-446, Revision 3, to SQN by addressing requirements specified in TR WCAP-15791-PA, Revision 2 (Proprietary), in this license amendment request (LAR). This LAR provides the plant-specific information on limitations and conditions specified in Section 4.0 and the additional information specified in Section 5.0 of the SE approving TR WCAP-15791-P-A, Revision 2. In addition, consistent with TSTF-446, TVA must provide information for Items 3.2.1 through 3.2.8 as discussed below in this amendment request.

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DISCUSSION OF CHANGES
ITS 3.6.3, CONTAINMENT ISOLATION VALVES

3.2.1 Demonstration (Penetration and CIV Configuration)

TVA has confirmed that (a) the penetration and CIV configurations for SQN, Unit 1 and Unit 2 either match the configurations in TR WCAP-15791-P-A, Revision 2, or plant specific analysis has been performed as described in WCAP-15791-P-A, Revision 2, and (b) the input parameter values used in the TR are representative or bounding for SQN Unit 1 and Unit 2.

3.2.2 Demonstration (Tier 2 Evaluation)

TVA has confirmed the conclusion in the TR that no Tier 2 requirements are needed other than a requirement to ensure that before maintenance or corrective maintenance (repair) is performed on a CIV, any other CIVs in the penetration flow path have been checked to ensure that they are in their proper position.

3.2.3 Demonstration (Tier 3 Evaluation)

During online operation, in accordance with the requirements of 10 CFR 50.65(a)(4), SQN assesses and manages plant configurations prior to performing planned maintenance. The proposed plant configuration during maintenance is modeled in the computer code EOOS (Equipment Out Of Service) to determine the change in the Core Damage Frequency (CDF) and the Large Early Release Frequency (LERF). The initial risk assessment is performed six to nine weeks prior to implementation to allow for risk-informed sequencing of activities as necessary and for other actions determined based on risk insights gleaned from the initial assessment. The well defined process is governed by SQN procedures NPG-SPP-07.1, "On Line Work Management," NPG-SPP-07.2, "Outage Management," and NPG-SPP-07.3, "Work Activity Risk Management Process." The quantified change in risk is used as one input with respect to configuration risk management (see Enclosure 5, Section 4.7.3). SQN's conformance to the requirements of the maintenance rule 10 CFR 50.65(a)(4) is also demonstrated by SQN procedure NPG-SPP-03.4, "Maintenance Rule Performance Indicator Monitoring, Trending and Reporting – 10 CFR 50.65," which provides requirements and guidance for the initiation, analysis, retrieval, trending, and reporting of data relative to the Plant Level, Specific Level, and Repetitive Preventable Functional Failure indicators of performance required by the Maintenance Rule. The requirements of this Instruction are in compliance with 10 CFR 50.65, Regulatory Guide (RG) 1.160, RG 1.182, NUMARC 93-01, and NPG-SPP-03.4.

During shutdown, a deterministic risk assessment approach is used to assess and manage plant configurations prior to performing planned maintenance per Technical Instruction (TI)-4, "Maintenance Rule Performance Indicator Monitoring, Trending and Reporting – 10 CFR 50.65." TI-4, Attachment 2, "Shutdown Monitoring Requirements," specifies the requirements for shutdown monitoring beyond those in NPG-SPP-03.4 and provides additional guidance for the monitoring (thus allowing for the balancing of unavailability/unreliability) of risk significant functions during shutdown. This attachment also provides a cross reference to other attachments within TI-4 that implement the shutdown monitoring for risk significant functions. The risk significance of the functions

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were determined by the Maintenance Rule Expert Panel using their knowledge, experience, and the ORAM program as insight for determining relative risk.

3.2.4 Demonstration (Plant-Specific PRA Quality)

TVA has demonstrated in Enclosure 5, Section 4.7.3, that the plant-specific PRA quality is acceptable for Tier 3 assessments associated with implementing the CIV completion time changes in this application, in accordance with the guidelines given in RG 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," November 2002, and RG 1.177.

3.2.5 Demonstration (external events risk)

TVA has demonstrated in Enclosure 5, Section 4.6.1, that external events risk is bounded by the assumptions in TR WCAP-15791-P-A, Revision 2, and will not have an adverse impact on the conclusions of the SQN analysis for extending the CIV CTs.

3.2.6 Demonstration (CIV Availability Monitoring)

SQN plant-specific CIV availability is monitored and assessed by SQN TI-4, Attachment 30, "Containment Isolation System – System 80." This provides requirements and guidance beyond that provided in NPG-SPP-03.4 for initiation, analysis, retrieval, trending, and reporting of data relative to "Plant Level", "Function/Train Specific" and “Component Level” indicators of performance required by the Maintenance Rule. The requirements of this Instruction are in compliance with 10 CFR 50.65, RG 1.160, RG 1.182, NUMARC 93-01, and NPG-SPP-03.4.

3.2.7 Demonstration (Cumulative Risk Evaluation)

The SQN PRA has been updated multiple times since the completion of the Individual Plant Evaluation (IPE) and Individual Plant Evaluation for External Events (IPEEE) from the 1990’s. The technical adequacy of the PRA was established by Peer Review in early 2011. The current model of record represents a significantly more mature PRA as compared to the IPE and IPEEE.

TVA procedure NPG-SPP-09.11, "Probabilistic Risk Assessment (PRA) Program," requires plant modifications or design changes that result in new configurations, alignments, and capabilities of plant system to be assessed for inclusion in model updates. Furthermore TVA procedure NEDP-26, "Probabilistic Risk Assessment (PRA)," provides the requirements for assessing the cumulative impact of plant configuration changes, including plant-specific design, procedure and operational changes that require an update to the PRA Model of Record.

The cumulative risk has been evaluated for SQN in accordance with guidance in RG 1.174, with respect to past risk-informed SQN license amendments and additional SQN applications for a risk-informed TS change under the NRC review that have not been incorporated into the PRA Model of Record (MOR). This

submittal includes the adoption of the following risk-informed changes to the SQN CTS: TSTF-411 (Surveillance Test Interval Extensions for Components of the Reactor Protection System (WCAP-15376-P)), TSTF-418 (RPS and ESFAS Test Times and Completion Times (WCAP-14333)), TSTF-425 (Relocate Surveillance Frequencies to Licensee Control), TSTF-427 (Allowance for Non Technical Specification Barrier Degradation on Supported System OPERABILITY), and TSTF-446 (Risk Informed Evaluation of Extensions to Containment Isolation Valve Completion Times (WCAP-15791)). As of this submittal, there are no outstanding plant changes that necessitate a change to the PRA Model of Record dated June 3, 2011.

The evaluation for technical specification changes related to the RTS and ESFAS Instrumentation was performed generically in WCAP-14333-P-A, Revision 1, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times," and WCAP-15376-P-A, Revision 1, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times." As described in Enclosure 4, Attachment 1, "Sequoyah Nuclear Plant, Units 1 and 2 Implementation of Master and Slave Relays Technical Specification Changes Justified in WCAP-14333-P-A, Rev. 1 and WCAP-15376-P-A, Rev. 1," the increase in CDF is 8.50E-07/yr and the increase in LERF is 5.70E-08/yr. Additionally, in Enclosure 4 Attachment 2, "Sequoyah Nuclear Plant, Units 1 and 2 Implementation of Technical Specification Changes Justified in WCAP-14333-P-A, Rev. 1 and WCAP-15376-P-A, Rev. 1," the increase in CDF is 6.10E-07/yr and the increase in LERF is 2.20E-08/yr. The impact of the proposed changes on risk from external events is very small and will not impact the acceptability of adopting the TS changes justified in WCAP-14333-P-A, Rev. 1 and WCAP-15376-P-A, Rev. 1.

The evaluation for adoption of TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control," is described in Enclosure 10. When the surveillance requirement frequencies change, the impact on CDF and LERF will be determined and subsequently, the new periodicity will be included in the PRA model. The SQN PRA exhibits the technical adequacy to risk-inform (i.e., make changes) surveillance test intervals (STI) in accordance with the SQN-controlled program. These analyses will follow the NRC-approved process and methodology as described in NEI 04-10, Revision 1, "Risk-Informed Method for Control of Surveillance Frequencies."

The evaluation for adoption of TSTF-427, Revision 2, "Allowance for Non Technical Specification Barrier Degradation on Supported System OPERABILITY," considers PRA methods, in combination with deterministic and defense-in-depth arguments, to identify and justify delay times for entering the actions for the supported equipment associated with unavailable barriers at SQN. This is in accordance with guidance provided in RGs 1.174 and 1.177. The impact on CDF and LERF as a result of a degraded barrier(s) will be determined on a case-by-case basis and evaluated and managed under the Maintenance Rule plant configuration control requirement, 10 CFR 50.65(a)(4), and the associated industry guidance (NUMARC 93-01, Revision 3).

The evaluation for adoption of TSTF-446, Revision 3, "Risk Informed Evaluation of Extensions to Containment Isolation Valve Completion Times (WCAP-15791),"

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is described in Enclosure 5. While specific cumulative CDF and LERF values for CIV CT extensions were not determined, the cumulative impact of this risk-informed change along with past risk-informed changes and proposed risk-informed changes are recognized and understood.

The calculated increase in CDF for all these changes is 1.46E-06. The calculated change in LERF for all these changes is 7.90E-08.

Per Regulatory Guidance (RG) 1.174, Rev. 2, for a total CDF of 1E-04/yr, changes to CDF of 1E-05/yr are acceptable; and for a total LERF of 1E-05/yr, changes to LERF of 1E-06/yr are acceptable. The SQN CDFs for internal events are 1.59E-05/yr (Unit 1) and 1.48E-05/yr (Unit 2) and LERFs for internal events are 2.20E-06/yr (Unit 1) and 2.23E-06 (Unit 2); therefore, this is consistent with the guidelines in RG 1.174, Rev. 2 that allows small increases in CDF and LERF.

The CDF and LERF impact from the CIV CT extension will be very small, and when combined with the acceptably small quantified CDF and LERF impact from past and proposed risk-informed applications, it is concluded that the implementation of these changes will have an impact on CDF of less than 1.0E-05/yr and on LERF of less than 1.0E-06/yr which meets the guidance in RG 1.174, Rev. 2. Therefore, cumulative risk has been evaluated for SQN in accordance with guidance in RG 1.174, with respect to past SQN license amendments and additional SQN proposed applications under NRC review that have not been incorporated into the PRA MOR.

3.2.8 Demonstration (Regulatory commitment)

TVA has incorporated a regulatory commitment addressing how LERF/ICLERP is assessed and has provided documentation in the SQN submittal, Enclosure 8.

This change is designated as less restrictive, because less stringent Completion Times are being applied in the ITS than were applied in the CTS.

L04 *(Category 4 – Relaxation of Required Action)* CTS 3.6.3 Action a requires, in part, with one or more penetration flow paths with one containment isolation valve inoperable, that each affected penetration be isolated within 4 hours by use of at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. CTS Note ## modifies the use of the check valve to specify it is only to be used for penetration flow paths with two containment isolation valves. CTS 3.6.3 Action f requires, in part, with one or more penetration flow paths of a closed system design with one containment isolation valve inoperable, that each affected penetration be isolated within 72 hours by use of at least one closed and deactivated automatic valve, closed manual valve, or blind flange. ITS 3.6.3 ACTION A combines the CTS ACTIONS for inoperable containment isolation valves for penetration flow paths with one or two containment isolation valves. Required Action A.1 requires that with one or more penetration flow paths with one containment isolation valve inoperable, the affected penetration flow path be isolated by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. This changes the CTS by allowing penetration flow paths of a closed system design with one containment

isolation valve that have one containment isolation valve inoperable to use a check valve with flow through the valve secured as the means of isolating the penetration flow path.

The purpose of CTS 3.6.3 ACTIONS a and f is to provide assurance that the affected penetration flow path is isolated. This change is acceptable because the ITS 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 ITS Required Actions are consistent with safe operation under the specified Condition, considering the operability status of the redundant systems of required features, the capacity and capability of remaining features, a reasonable time for repairs or replacement of required features, and the low probability of a DBA occurring during the repair period. This change allows the flow path to be isolated by one check valve with flow through the valve secured. The requirement to isolate the flow path is retained, and using a check valve with flow through the valve secured is an appropriate method of isolation. This change is designated as less restrictive, because less stringent Required Actions 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)

 1

3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves ~~(Atmospheric, Subatmospheric, Ice Condenser, and Dual)~~ 1

3.6.3 LCO 3.6.3 Each containment isolation valve (CIV) shall be OPERABLE.

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

ACTIONS

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

3.6.3 Note *1
1. Penetration flow path(s) ~~[except for [42] inch purge valve flow paths]~~ may be unisolated intermittently under administrative controls. 3

DOC A02
2. Separate Condition entry is allowed for each penetration flow path.

DOC A03
3. Enter applicable Conditions and Required Actions for systems made inoperable by containment isolation valves.

3.6.3 Note *2
4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when isolation valve leakage results in exceeding the overall containment leakage rate acceptance criteria.

INSERT 1

---------- 4

4 **INSERT 1**

3.6.3 Note *3 5. No more than one pair of containment purge lines (one set of supply valves and one set of exhaust valves) may be opened.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a ACTION f A. ~~[~~ One or more penetration flow paths with one containment isolation valve inoperable ~~[~~for reasons other than Condition~~[s]~~ E ~~[~~and ~~F]]~~. (, F, / G) ~~AND~~ ~~Containment isolation valve pressure boundary intact.~~	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. AND	4 hours for Category 1 CIVs (or 8) AND 8 hours for Category 2 CIVs (or 9) AND 12 hours for Category 3 CIVs (or 10) AND 24 hours for Category 4 CIVs (or 11) AND 48 hours for Category 5 CIVs (or 12) AND 72 hours for Category 6 CIVs (or 13) AND 7 days for Category 7 CIVs (or 14)

3

CTS

1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION Note #1 ACTION Note #2 ACTION a ACTION b	A.2 ----------NOTES---------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment ~~]~~

3

2

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~B. [One or more penetration flow paths with one containment isolation valve inoperable [for reasons other than Condition[s] E [and F]].~~ ~~AND~~ ~~Containment isolation valve pressure boundary not intact.~~	~~B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.~~ ~~AND~~	~~4 hours for Category 8 CIVs~~ ~~AND~~ ~~8 hours for Category 9 CIVs~~ ~~AND~~ ~~12 hours for Category 10 CIVs~~ ~~AND~~ ~~24 hours for Category 11 CIVs~~ ~~AND~~ ~~48 hours for Category 12 CIVs~~ ~~AND~~ ~~72 hours for Category 13 CIVs~~ ~~AND~~ ~~7 days for Category 14 CIVs~~ 3

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	~~B.2~~ ~~----------NOTES----------~~ ~~1. Isolation devices in high radiation areas may be verified by use of administrative means.~~ ~~2. Isolation devices that are locked, sealed, or otherwise secured may be verified by administrative means.~~ ~~----------~~ ~~Verify the affected penetration flow path is isolated.~~	~~Once per 31 days for isolation devices outside containment~~ ~~AND~~ ~~Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment]~~ 3
ACTION b ~~C~~. B ----------NOTE---------- Only applicable to penetration flow paths with two ~~[or more]~~ containment isolation valves. ----------	~~C~~.1 B Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour 5 3
ACTION b One or more penetration flow paths with two ~~[or more]~~ containment isolation valves inoperable ~~[~~for reasons other than Condition~~[s]~~ E, F, [and ~~F]]~~. G		3 5

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a ACTION f ~~D~~. Two or more penetration flow paths with one containment isolation valve inoperable ~~[~~for reasons other than Condition~~[~~s~~]~~ E ~~[~~and F~~]]~~. (C; , F,; G)	~~D~~.1 Isolate all but one penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. (C)	4 hours (5)
ACTION d ~~E~~. ~~[~~ One or more shield building bypass leakage ~~[or purge valve leakage]~~ not within limit. (F; paths)	~~E~~.1 Restore leakage within limit. (F)	4 hours ~~for shield building bypass leakage~~ (6) ~~AND~~ ~~24 hours for purge valve leakage]~~ (6; 3)
ACTION e ~~F~~. ~~[~~ One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits. (G; supply or exhaust; supply and exhaust)	~~F~~.1 Isolate the affected penetration flow path by use of at least one ~~[~~closed and de-activated automatic valve, closed manual valve, or blind flange~~]~~. (G) AND	24 hours (6; 3)

INSERT 2 (6)

6 **INSERT 2**

ACTION b	D. Two or more pairs of containment purge lines open.	D.1	Isolate all but one penetration flow paths by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour
ACTION c	E. One or more containment vacuum relief isolation valves inoperable.	E.1	Restore containment vacuum relief isolation valve(s) to OPERABLE status.	72 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	~~F~~.2 G ----------NOTES---------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ----------	
ACTION e	Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
	AND	
ACTION e	~~F~~.3 G Perform SR 3.6.3.~~7~~ 5 for the resilient seal purge valves closed to comply with Required Action ~~F~~.1. G	Once per ~~[~~92~~]~~ days ~~]~~ 9 3 6
ACTION g	~~G~~. H Required Action and associated Completion Time not met.	~~G~~.1 H Be in MODE 3. AND ~~G~~.2 H Be in MODE 5.	6 hours 36 hours 6

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY	
~~SR 3.6.3.1~~	~~[Verify each [42] inch purge valve is sealed closed, except for one purge valve in a penetration flow path while in Condition E of this LCO.~~	~~[31 days~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~	7
4.6.3.1 SR 3.6.3.~~2~~ 1 INSERT 3	~~[~~ Verify each ~~[8] inch~~ containment purge valve is closed, except when the ~~[8] inch~~ containment purge valves are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]]~~	8 3 8
4.6.3.5, SR Note * SR 3.6.3.~~3~~ 2	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative controls. ---------- Verify each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	7 8 8

3 **INSERT 3**

4.6.3.1 (only one set of supply and one set of exhaust valves)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
4.6.3.4, SR Note *	SR 3.6.3.~~4~~ 3	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. ----------		7
		Verify each containment isolation manual valve and blind flange that is located inside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days	
4.6.3.3	SR 3.6.3.~~5~~ 4	Verify the isolation time of each automatic power operated containment isolation valve is within limits.	~~[~~In accordance with the Inservice Testing Program ~~OR~~ ~~[92 days]~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~	7 3
	~~SR 3.6.3.6~~	~~[Cycle each weight or spring loaded check valve testable during operation through one complete cycle of full travel, and verify each check valve remains closed when the differential pressure in the direction of flow is ≤ [1.2] psid and opens when the differential pressure in the direction of flow is ≥ [1.2] psid and < [5.0] psid.~~	~~[92 days~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~	9

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
4.6.3.6	SR 3.6.3.~~7~~ (5)	~~[~~ Perform leakage rate testing for containment purge valves with resilient seals.	~~[184 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	9, 8 8
			~~AND~~ ~~Within 92 days after opening the valve]~~	10
4.6.3.2	SR 3.6.3.~~8~~ (6)	Verify each automatic containment isolation valve that is not locked, sealed or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	9, 8 8
	~~SR 3.6.3.9~~	~~[Cycle each weight or spring loaded check valve not testable during operation through one complete cycle of full travel, and verify each check valve remains closed when the differential pressure in the direction of flow is ≤ [1.2] psid and opens when the differential pressure in the direction of flow is ≥ [1.2] psid and < [5.0] psid.~~	~~[18 months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~	11

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
4.6.3.7	SR 3.6.3.~~10~~ (7)	~~[~~ Verify each ~~[ ] inch~~ containment purge valve is blocked to restrict the valve from opening ~~>~~ (≥) ~~[~~50~~]~~% (degrees).	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~]	11, 8, 3, 8
4.6.3.8	SR 3.6.3.~~11~~ (8)	~~[~~ Verify the combined leakage rate for all shield building bypass leakage paths is ≤ ~~[~~L_a~~]~~ (0.25) when pressurized to ≥ ~~[psig]~~ (P_a).	In accordance with the Containment Leakage Rate Testing Program ~~]~~	11, 3

3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves ~~(Atmospheric, Subatmospheric, Ice Condenser, and Dual)~~ (1)

3.6.3 LCO 3.6.3 Each containment isolation valve (CIV) shall be OPERABLE.

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

ACTIONS

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

3.6.3 Note *1
1. Penetration flow path(s) ~~[except for [42] inch purge valve flow paths]~~ may be unisolated intermittently under administrative controls. (3)

DOC A02
2. Separate Condition entry is allowed for each penetration flow path.

DOC A03
3. Enter applicable Conditions and Required Actions for systems made inoperable by containment isolation valves.

3.6.3 Note *2
4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when isolation valve leakage results in exceeding the overall containment leakage rate acceptance criteria.

INSERT 1 (4)

---

4 **INSERT 1**

3.6.3 Note *3 5. No more than one pair of containment purge lines (one set of supply valves and one set of exhaust valves) may be opened.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a ACTION f A. ~~[~~ One or more penetration flow paths with one containment isolation valve inoperable ~~[~~for reasons other than Condition~~[s]~~ E ~~[~~and ~~F]]~~. (, F, / G) ~~AND~~ ~~Containment isolation valve pressure boundary intact.~~	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. AND	4 hours for Category 1 CIVs (or 8) AND 8 hours for Category 2 CIVs (or 9) AND 12 hours for Category 3 CIVs (or 10) AND 24 hours for Category 4 CIVs (or 11) AND 48 hours for Category 5 CIVs (or 12) AND 72 hours for Category 6 CIVs (or 13) AND 7 days for Category 7 CIVs (or 14)

3

CTS

1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION Note #1 ACTION Note #2 ACTION a ACTION b	A.2 ----------NOTES---------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment ~~]~~

3

2

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~B. [One or more penetration flow paths with one containment isolation valve inoperable [for reasons other than Condition[s] E [and F]].~~ ~~AND~~ ~~Containment isolation valve pressure boundary not intact.~~	~~B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.~~ ~~AND~~	~~4 hours for Category 8 CIVs~~ ~~AND~~ ~~8 hours for Category 9 CIVs~~ ~~AND~~ ~~12 hours for Category 10 CIVs~~ ~~AND~~ ~~24 hours for Category 11 CIVs~~ ~~AND~~ ~~48 hours for Category 12 CIVs~~ ~~AND~~ ~~72 hours for Category 13 CIVs~~ ~~AND~~ ~~7 days for Category 14 CIVs~~ 3

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	~~B.2~~ ----------NOTES---------- ~~1. Isolation devices in high radiation areas may be verified by use of administrative means.~~ ~~2. Isolation devices that are locked, sealed, or otherwise secured may be verified by administrative means.~~ ---------- ~~Verify the affected penetration flow path is isolated.~~	~~Once per 31 days for isolation devices outside containment~~ ~~AND~~ ~~Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment]~~ 3
ACTION b ~~C~~. (B) ----------NOTE---------- Only applicable to penetration flow paths with two ~~[or more]~~ containment isolation valves. ----------	~~C~~.1 (B) Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour 5 3
ACTION b One or more penetration flow paths with two ~~[or more]~~ containment isolation valves inoperable ~~[~~for reasons other than Condition~~[s]~~ E, ~~[~~and F~~]]~~. (G) (, F,)		3 5

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION a ACTION f ~~D~~. Two or more penetration flow paths with one containment isolation valve inoperable ~~[~~for reasons other than Condition~~[~~s~~]~~ E ~~[~~and F~~]]~~. (C; , F,; G)	~~D~~.1 Isolate all but one penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. (C)	4 hours (5)
ACTION d ~~E~~. ~~[~~ One or more shield building bypass leakage ~~[or purge valve leakage]~~ not within limit. (F; paths)	~~E~~.1 Restore leakage within limit. (F)	4 hours ~~for shield building bypass leakage~~ (6) ~~AND~~ ~~24 hours for purge valve leakage]~~ (3)
ACTION e ~~F~~. ~~[~~ One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits. (G; supply or exhaust; supply and exhaust)	~~F~~.1 Isolate the affected penetration flow path by use of at least one ~~[~~closed and de-activated automatic valve, closed manual valve, or blind flange~~]~~. (G) AND	24 hours (6, 3)

INSERT 2

6 **INSERT 2**

ACTION b	D. Two or more pairs of containment purge lines open.	D.1	Isolate all but one penetration flow paths by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour
ACTION c	E. One or more containment vacuum relief isolation valves inoperable.	E.1	Restore containment vacuum relief isolation valve(s) to OPERABLE status.	72 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	~~F~~.2 G ----------NOTES---------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ----------	
ACTION e	Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
	AND	
ACTION e	~~F~~.3 G Perform SR 3.6.3.~~7~~ 5 for the resilient seal purge valves closed to comply with Required Action ~~F~~.1. G	Once per ~~[~~92~~]~~ days ~~]~~ 9 3 6
ACTION g	~~G~~. H Required Action and associated Completion Time not met.	~~G~~.1 H Be in MODE 3. AND ~~G~~.2 H Be in MODE 5.	6 hours 36 hours 6

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY	
~~SR 3.6.3.1~~	~~[Verify each [42] inch purge valve is sealed closed, except for one purge valve in a penetration flow path while in Condition E of this LCO.~~	~~[31 days~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~	7
4.6.3.1 SR 3.6.3.~~2~~ 1 INSERT 3	~~[~~ Verify each ~~[8] inch~~ containment purge valve is closed, except when the ~~[8] inch~~ containment purge valves are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]]~~	8 3 8
4.6.3.5, SR Note * SR 3.6.3.~~3~~ 2	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative controls. ---------- Verify each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	~~[31 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	7 8 8

3 **INSERT 3**

4.6.3.1 (only one set of supply and one set of exhaust valves)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY	
4.6.3.4, SR Note *	SR 3.6.3.~~4~~ 3	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. ----------	7
		Verify each containment isolation manual valve and blind flange that is located inside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days
4.6.3.3	SR 3.6.3.~~5~~ 4	Verify the isolation time of each automatic power operated containment isolation valve is within limits.	~~[~~In accordance with the Inservice Testing Program ~~OR~~ ~~[92 days]~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~ 7, 3
	~~SR 3.6.3.6~~	~~[Cycle each weight or spring loaded check valve testable during operation through one complete cycle of full travel, and verify each check valve remains closed when the differential pressure in the direction of flow is ≤ [1.2] psid and opens when the differential pressure in the direction of flow is ≥ [1.2] psid and < [5.0] psid.~~	~~[92 days~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~ 9

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
4.6.3.6	SR 3.6.3.~~7~~ (5)	~~[~~ Perform leakage rate testing for containment purge valves with resilient seals.	~~[184 days~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	9, 8 8
			~~AND~~ ~~Within 92 days after opening the valve]~~	10
4.6.3.2	SR 3.6.3.~~8~~ (6)	Verify each automatic containment isolation valve that is not locked, sealed or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	9, 8 8
	~~SR 3.6.3.9~~	~~[Cycle each weight or spring loaded check valve not testable during operation through one complete cycle of full travel, and verify each check valve remains closed when the differential pressure in the direction of flow is ≤ [1.2] psid and opens when the differential pressure in the direction of flow is ≥ [1.2] psid and < [5.0] psid.~~	~~[18 months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]]~~	11

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
4.6.3.7	SR 3.6.3.~~10~~ (7)	~~[~~ Verify each ~~[ ] inch~~ containment purge valve is blocked to restrict the valve from opening ~~>~~ (≥) ~~[~~50~~]~~% (degrees).	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	11, 8, 3, 8
4.6.3.8	SR 3.6.3.~~11~~ (8)	~~[~~ Verify the combined leakage rate for all shield building bypass leakage paths is ≤ ~~[~~L_a~~]~~ (0.25) when pressurized to ≥ ~~[psig]~~ (P_a).	In accordance with the Containment Leakage Rate Testing Program ~~]~~	11, 3

JUSTIFICATION FOR DEVIATIONS
ITS 3.6.3, CONTAINMENT ISOLATION VALVES

1. The type of Containment (Atmospheric, Subatmospheric, Ice Condenser, and Dual) is deleted since it is unnecessary. This information is provided in NUREG-1431, Rev. 4.0, to assist in identifying the appropriate Specification to be used as a model for the plant specific ITS conversion, but serves no purpose in a plant specific implementation.

2. 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.

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 3.6.3 ACTIONS has been modified to include a new Note. ITS 3.6.3 ACTION Note 5 prohibits more than one pair of containment purge lines (one set of supply valves and one set of exhaust valves) to be opened. The addition of this Note maintains the current SQN accident analysis assumptions for the amount of containment volume released through the open purge lines prior to automatic isolation in the event of DBA.

5. As a result of combining ACTIONS A and B into one ACTION, as provided in the ISTS 3.6.3 Bases Reviewer's Note, subsequent ACTIONS (ISTS 3.6.3 ACTIONS C and D) have been renumbered. The renumbering of ISTS 3.6.3 ACTIONS E, F, and G is discussed in JFD 6.

6. ISTS 3.6.3 has been modified to include two new ACTIONS (ITS 3.6.3 ACTIONS D and E). ITS 3.6.3 ACTION D requires when two or more pairs of containment purge lines are open, to isolate all but one penetration flow paths by use of at least one closed and deactivated automatic valve, closed manual valve, or blind flange. ITS 3.6.3 ACTION E requires when one or more containment vacuum relief isolation valves are inoperable, to restore the containment vacuum relief isolation valves to OPERABLE status within 72 hours. This change is required because the vacuum relief isolation valves are containment isolation valves. Furthermore, this change reflects the current licensing bases. Additionally, due to the addition of ITS 3.6.3 ACTIONS D and E, subsequent ACTIONS (ISTS 3.6.3 ACTIONS E, F and G) have been renumbered.

7. ISTS SR 3.6.3.1 is a bracketed Surveillance Requirement. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. Since Sequoyah Nuclear Plant (SQN) has 24 inch purge valves for upper and lower compartment purge (supply and exhaust) and 12 inch purge valves for instrument room purge (supply and exhaust), ISTS SR 3.6.3.1 was not incorporated. Additionally, subsequent Surveillances (ISTS SR 3.6.3.2, SR 3.6.3.3, SR 3.6.3.4, and SR 3.6.3.5) were renumbered (ITS SR 3.6.3.1, SR 3.6.3.2, SR 3.6.3.3, and SR 3.6.3.4, respectively) because of the deletion of ISTS SR 3.6.3.1.

8. ISTS SR 3.6.3.2, SR 3.6.3.3, SR 3.6.3.7, SR 3.6.3.8, and SR 3.6.3.10 (ITS SR 3.6.3.1, SR 3.6.3.2, SR 3.6.3.5, SR 3.6.3.6, and SR 3.6.3.7, respectively) provides two options for controlling the Frequencies of Surveillance Requirements.

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JUSTIFICATION FOR DEVIATIONS
ITS 3.6.3, CONTAINMENT ISOLATION VALVES

SQN is proposing to control the Surveillance Frequencies under the Surveillance Frequency Control Program.

9. ISTS SR 3.6.3.6 is a bracketed Surveillance Requirement. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. Since Sequoyah Nuclear Plant (SQN) does not have weight or spring loaded check valves, this Surveillance is not required. Additionally, subsequent Surveillances (ISTS SR 3.6.3.7 and SR 3.6.3.8) were renumbered (ITS SR 3.6.3.5 and SR 3.6.3.6, respectively) because of the deletion of ISTS SR 3.6.3.6.

10. ISTS SR 3.6.3.7 requires performance of leakage testing for containment purge valves with resilient seals every 184 days and within 92 days after opening the valve. ITS SR 3.6.3.5 performs this Surveillance every 92 days instead of every 184 days. Therefore, the Surveillance will be performed within 92 days after the opening of the valve and it is not necessary to maintain this Frequency in the ITS. (JFD 6 provides the justification for changing the Frequency to in accordance with the Surveillance Frequency Control Program.)

11. ISTS SR 3.6.3.9 is a bracketed Surveillance Requirement. The ISTS contains bracketed information and/or values that are generic to Westinghouse vintage plants. Since SQN does not have weight or spring loaded check valves, this Surveillance is not required. Additionally, subsequent Surveillances (ISTS SR 3.6.3.10 and SR 3.6.3.11) were renumbered (ITS SR 3.6.3.7 and SR 3.6.3.8, respectively) because of the deletion of ISTS SR 3.6.3.6.

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

B 3.6 CONTAINMENT SYSTEMS

B 3.6.3 Containment Isolation Valves ~~(Atmospheric, Subatmospheric, Ice Condenser, and Dual)~~ 1

BASES

BACKGROUND

The containment isolation valves form part of the containment pressure boundary and provide a means for fluid penetrations not serving accident consequence limiting systems to be provided with two isolation barriers that are closed on a containment isolation signal. These isolation devices are either passive or active (automatic). Manual valves, de-activated automatic valves secured in their closed position (including check valves with flow through the valve secured), blind flanges, and closed systems are considered passive devices. Check valves, or other automatic valves designed to close without operator action following an accident, are considered active devices. Two barriers in series are provided for each penetration, or an approved exemption is provided, so that no single credible failure or malfunction of an active component can result in a loss of isolation or leakage that exceeds limits assumed in the safety analyses. One of these barriers may be a closed system. These barriers (typically containment isolation valves) make up the Containment Isolation System. 2

Automatic isolation signals are produced during accident conditions. Containment Phase "A" isolation occurs upon receipt of a safety injection signal. The Phase "A" isolation signal isolates nonessential process lines in order to minimize leakage of fission product radioactivity. Containment Phase "B" isolation occurs upon receipt of a containment pressure High-High signal and isolates the remaining process lines, except systems required for accident mitigation. In addition to the isolation signals listed above, the purge and exhaust valves receive an isolation signal on a containment high radiation condition. As a result, the containment isolation valves (and blind flanges) help ensure that the containment atmosphere will be isolated from the environment in the event of a release of fission product radioactivity to the containment atmosphere as a result of a Design Basis Accident (DBA).

The OPERABILITY requirements for containment isolation valves help ensure that containment is isolated within the time limits assumed in the safety analyses. Therefore, the OPERABILITY requirements provide assurance that the containment function assumed in the safety analyses will be maintained.

BASES

BACKGROUND (continued)

Reactor Building | Ventilation (RBPV)

~~Shutdown~~ Purge System ~~([42] inch purge valves)~~

RBPV

The ~~Shutdown~~ ~~Purge~~ System operates to supply outside air into the containment for ventilation and cooling or heating and may also be used to reduce the concentration of noble gases within containment prior to and during personnel access. ~~The supply and exhaust lines each contain two isolation valves. Because of their large size, the [42] inch purge valves in some units are not qualified for automatic closure from their open position under DBA conditions. Therefore, the [42] inch purge valves are normally maintained closed in MODES 1, 2, 3, and 4 to ensure the containment boundary is maintained.~~

INSERT 1

~~Minipurge System ([8] inch purge valves)~~

~~The Minipurge System operates to:~~

~~a. Reduce the concentration of noble gases within containment prior to and during personnel access and~~

~~b. Equalize internal and external pressures.~~

RBPV

Since the valves used in the ~~Minipurge~~ System are designed to meet the requirements for automatic containment isolation valves, these valves may be opened as needed in MODES 1, 2, 3, and 4. 3

APPLICABLE SAFETY ANALYSES

The containment isolation valve LCO was derived from the assumptions related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during major accidents. As part of the containment boundary, containment isolation valve OPERABILITY supports leak tightness of the containment. Therefore, the safety analyses of any event requiring isolation of containment is applicable to this LCO.

The DBAs that result in a release of radioactive material within containment are a loss of coolant accident (LOCA) and a rod ejection accident (Ref. 1). In the analyses for each of these accidents, it is assumed that containment isolation valves are either closed or function to close within the required isolation time following event initiation. This ensures that potential paths to the environment through containment isolation valves (including containment purge valves) are minimized. The safety analyses assume that ~~the [42] inch~~ purge ~~valves are closed at event initiation~~. 2

bounding

one pair of containment

INSERT 2

3 **INSERT 1**

The RBPV System provides for mechanical ventilation of the primary containment, the instrument room located within the containment, and the annulus secondary containment located between primary containment and the Shield Building.

The RBPV System includes one supply duct penetration through the Shield Building wall into the annulus area. There are four purge air supply penetrations through the containment vessel, two to the upper compartment and two to the lower containment. Two normally closed 24-inch purge supply isolation valves at each penetration through the containment vessel provide containment isolation.

The RBPV System includes one exhaust duct penetration through the Shield Building wall from the annulus area. There are three purge air exhaust penetrations through the containment vessel, two from the upper compartment and one from the lower containment. There is one pressure relief penetration through the containment vessel. Two normally closed 24-inch purge exhaust isolation valves at each penetration through the containment vessel provide containment isolation. Two normally closed 8-inch pressure relief isolation valves through the containment vessel provide containment isolation.

The RBPV System includes one supply and one exhaust duct penetration through the Shield Building wall and one supply and one exhaust duct penetration through the containment vessel wall for ventilation of the instrument room inside containment. Two normally closed 12-inch purge isolation valves at each supply and exhaust penetration through the containment vessel provide containment isolation.

3 **INSERT 2**

system lines are open at event initiation. The open purge system lines include one set of supply valves (i.e., inboard and outboard) and one set of exhaust valves (i.e., inboard and outboard).

BASES

APPLICABLE SAFETY ANALYSES (continued)

The DBA analysis assumes that, within ~~60~~ 85 seconds after the accident, isolation of the containment is complete and leakage terminated except for the design leakage rate, L_a. The containment isolation total response time of ~~60~~ 85 seconds includes signal delay, diesel generator startup (for loss of offsite power), and containment isolation valve stroke times. 4 4

~~[~~ The single failure criterion required to be imposed in the conduct of plant safety analyses was considered in the original design of the containment purge valves. Two valves (i.e., one set) in series on each purge line provide assurance that both the supply and exhaust lines could be isolated even if a single failure occurred. The inboard and outboard isolation valves on each line are provided with diverse power sources, ~~motor operated and~~ pneumatically operated to open and spring closed~~, respectively~~. This arrangement was designed to preclude common mode failures from disabling both valves on a purge line. ~~]~~ 5

~~[The purge valves may be unable to close in the environment following a LOCA. Therefore, each of the purge valves is required to remain sealed closed during MODES 1, 2, 3, and 4. In this case, the single failure criterion remains applicable to the containment purge valves due to failure in the control circuit associated with each valve. Again, the purge system valve design precludes a single failure from compromising the containment boundary as long as the system is operated in accordance with the subject LCO.]~~

The containment isolation valves satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Containment isolation valves form a part of the containment boundary. The containment isolation valves' safety function is related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during a DBA.

The automatic power operated isolation valves are required to have isolation times within limits and to actuate on an automatic isolation signal. The containment isolation ~~[42]inch~~ purge valves ~~must be maintained sealed closed [or~~ have blocks installed to prevent full opening~~]~~. ~~[~~Blocked purge valves also actuate on an automatic signal.~~]~~ The valves covered by this LCO are listed along with their associated stroke times in the U FSAR (Ref. 2). 5 2

The normally closed isolation valves are considered OPERABLE when manual valves are closed, automatic valves are de-activated and secured in their closed position, blind flanges are in place, and closed systems are intact. These passive isolation valves/devices are those listed in Reference 2.

BASES

LCO (continued)

shield building

Purge valves with resilient seals ~~[~~and ~~secondary containment~~ bypass leakage paths ~~valves]~~ must meet additional leakage rate requirements. The other containment isolation valve leakage rates are addressed by LCO 3.6.1, "Containment," as Type C testing. 6 5

This LCO provides assurance that the containment isolation valves and purge valves will perform their designed safety functions to minimize the loss of reactor coolant inventory and establish the containment boundary during accidents.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the containment isolation valves are not required to be OPERABLE in MODE 5. The requirements for containment isolation valves during MODE 6 are addressed in LCO 3.9.4, "Containment Penetrations."

ACTIONS

The ACTIONS are modified by a Note allowing penetration flow paths, ~~except for [42] inch purge valve penetration flow paths,~~ to be unisolated intermittently under administrative controls. These administrative controls consist of stationing a dedicated operator at the valve controls, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for containment isolation is indicated. ~~Due to the size of the containment purge line penetration and the fact that those penetrations exhaust directly from the containment atmosphere to the environment, the penetration flow path containing these valves may not be opened under administrative controls. A single purge valve in a penetration flow path may be opened to effect repairs to an inoperable valve, as allowed by SR 3.6.3.1.~~ 6 6

A second Note has been added to provide clarification that, for this LCO, separate Condition entry is allowed for each penetration flow path. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable containment isolation valve. Complying with the Required Actions may allow for continued operation, and subsequent inoperable containment isolation valves are governed by subsequent Condition entry and application of associated Required Actions.

The ACTIONS are further modified by a third Note, which ensures appropriate remedial actions are taken, if necessary, if the affected systems are rendered inoperable by an inoperable containment isolation valve.

BASES

ACTIONS (continued)

In the event the isolation valve leakage results in exceeding the overall containment leakage rate, Note 4 directs entry into the applicable Conditions and Required Actions of LCO 3.6.1.

INSERT 3

8

~~REVIEWERS NOTE~~

~~Conditions A and B may be combined into one Condition that addresses both the containment isolation valve pressure boundary intact and containment isolation valve pressure boundary not intact by specifying the limiting Completion Time for each configuration identified in Tables D-1, D-2, and D-3 of Reference 4.~~

9

~~[~~ A.1 and A.2

5

Condition A is applicable to penetration flow paths with two ~~[or more]~~ containment isolation valves, and penetration flow paths with only one containment isolation valve and a closed system. The closed system must meet the requirements of Reference 3.

isolation valve, containment vacuum relief isolation valve,

containment

In the event one containment isolation valve in one or more penetration flow paths is inoperable, ~~[~~except for purge ~~valve~~ or shield building bypass leakage not within limit~~]~~, ~~and the containment isolation valve pressure boundary is intact,~~ the affected penetration flow path must be isolated. ~~The containment isolation valve pressure boundary is considered to be intact when the inoperable containment isolation valve is capable of maintaining the boundary between the contained fluid and the containment or outside atmosphere. An example of when a containment isolation valve would be inoperable and the pressure boundary is considered to be intact is when work is being performed on a valve actuator.~~ The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic containment isolation valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. For a penetration flow path isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available one to containment. Required Action A.1 must be completed within the Completion Time specified for each Category of containment isolation valve identified in ~~[a licensee controlled document]~~. The Completion Time is justified in Reference 4.

5

Table B 3.6.3-1, Containment Isolation Valve Completion Times

5

8 **INSERT 3**

Note 5 limits the number of open containment purge lines to no more than one set of supply valves and one set of exhaust valves.

BASES

ACTIONS (continued)

~~REVIEWERS NOTE~~

~~Conditions A and B may be combined into one Condition that addresses both the containment isolation valve pressure boundary intact and containment isolation valve pressure boundary not intact by specifying the limiting Completion Time for each configuration identified in Tables D-1, D-2, and D-3 of Reference 4.~~

~~The plant specific determination of the containment isolation valve Completion Time categories is performed by comparing the plant specific penetration types to the generic penetration types evaluated that are identified in Tables D-1, D-2, and D-3 of Reference 4.~~

~~The plant specific application of the generic analysis that justified the generic Completion Time categories is discussed in Section 9.0 of Reference 4.~~

~~Plant specific Completion Time categories may also be calculated in lieu of the generic Completion Time categories. This approach is discussed in Section 10.0 of Reference 4.~~

~~For plants not adopting the risk-informed extended Completion Time for containment isolation valves, a Completion Time of 4 hours is maintained. The 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4. A Condition for one or more penetration flow paths with one containment isolation valve inoperable for penetrations with one containment isolation valve and a closed system would be required.~~

9

For affected penetration flow paths that cannot be restored to OPERABLE status within the specified Completion Time and that have been isolated in accordance with Required Action A.1, the affected penetration flow paths must be verified to be isolated on a periodic basis. This is necessary to ensure that containment penetrations required to be isolated following an accident and no longer capable of being automatically isolated will be in the isolation position should an event occur. This Required Action does not require any testing or device manipulation. Rather, it involves verification that those isolation devices outside containment and capable of being mispositioned are in the correct position. The Completion Time of "once per 31 days for isolation devices outside containment" is appropriate considering the fact that the devices are operated under administrative controls and the probability of their misalignment is low. For the isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not

BASES

ACTIONS (continued)

performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

Required Action A.2 is modified by two Notes. Note 1 applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. Therefore, the probability of misalignment of these devices once they have been verified to be in the proper position, is small. ~~]~~ 5

~~[B.1 and B.2~~

~~Condition B is applicable to penetration flow paths with two [or more] containment isolation valves, and penetration flow paths with only one containment isolation valve and a closed system. The closed system must meet the requirements of Reference 3.~~

~~In the event one containment isolation valve in one or more penetration flow paths is inoperable, [except for purge valve or shield building bypass leakage not within limit,] and the containment isolation valve pressure boundary is not intact, the affected penetration flow path must be isolated. The containment isolation valve pressure boundary is considered not to be intact when the inoperable containment isolation valve is not capable of maintaining the boundary between the contained fluid and the containment or outside atmosphere. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic containment isolation valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. For a penetration flow path isolated in accordance with Required Action B.1, the device used to isolate the penetration should be the closest available one to containment. Required Action B.1 must be completed within [the Completion Time specified for each Category of containment isolation valve identified in [a licensee controlled document]. The Completion Time is justified in Reference 4.~~ 10

BASES

ACTIONS (continued)

~~REVIEWERS NOTE~~

~~Conditions A and B may be combined into one Condition that addresses both the containment isolation valve pressure boundary intact and containment isolation valve pressure boundary not intact by specifying the limiting Completion Time for each configuration identified in Tables D-1, D-2, and D-3 of Reference 4.~~

~~The plant specific determination of the containment isolation valve Completion Time categories is performed by comparing the plant specific penetration types to the generic penetration types evaluated that are identified in Tables D-1, D-2, and D-3 of Reference 4.~~

~~The plant specific application of the generic analysis that justified the generic Completion Time categories is discussed in Section 9.0 of Reference 4.~~

~~Plant specific Completion Time categories may also be calculated in lieu of the generic Completion Time categories. This approach is discussed in Section 10.0 of Reference 4.~~

~~For plants not adopting the risk-informed extended Completion Time for containment isolation valves, a Completion Time of 4 hours is maintained. The 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4. A Condition for one or more penetration flow paths with one containment isolation valve inoperable for penetrations with one containment isolation valve and a closed system would be required.~~

9

~~For affected penetration flow paths that cannot be restored to OPERABLE status within the specified Completion Time and that have been isolated in accordance with Required Action B.1, the affected penetration flow paths must be verified to be isolated on a periodic basis. This is necessary to ensure that containment penetrations required to be isolated following an accident and no longer capable of being automatically isolated, will be in an isolated position should an event occur. This Required Action does not require any testing or device manipulation. Rather, it involves verification that those isolation devices outside containment and capable of being mispositioned, are in the correct position. The Completion Time of "once per 31 days for isolation devices outside containment" is appropriate considering the fact that the devices are operated under administrative controls and the probability of their misalignment is low. For isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not~~

10

BASES

ACTIONS (continued)

~~performed within the previous 92 days" is based on engineering judgment, and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.~~

~~Required Action B.2 is modified by two Notes. Note 1 applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that the devices are not inadvertently repositioned. Therefore, the probability of misalignment of these devices once they have been verified to be in the proper position is small.~~] 10

B

~~C~~.1

isolation valve, containment vacuum relief isolation valve, 10 5

containment

With two ~~[or more]~~ containment isolation valves in one or more penetration flow paths inoperable, ~~[~~except for purge ~~valve~~ or shield building bypass leakage not within limit,~~]~~ the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1. In the event the affected penetration is isolated in accordance with Required Action ~~C~~.1, the affected penetration must be verified to be isolated on a periodic basis per Required Action A.2 ~~or B.2~~, which remains in effect. This periodic verification is necessary to assure leak tightness of containment and that penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration flow path is isolated is appropriate considering the fact that the valves are operated under administrative control and the probability of their misalignment is low.

B

B 10

Condition ~~C~~ is modified by a Note indicating this Condition is only applicable to penetration flow paths with two ~~[or more]~~ containment isolation valves. 10 5

BASES

ACTIONS (continued)

C
~~D~~.1 10

~~----------REVIEWERS NOTE----------~~
~~The analysis in Reference 4 evaluated each CIV in each penetration individually and determines an acceptable Completion Time based on the ICLERP and ΔLERF for each CIV. It is assumed that only a single CIV is inoperable in one penetration flow path. If plant specific analyses are performed to evaluate multiple inoperable CIVs in separate penetration flow paths, Condition D should be revised to reflect the plant specific analyses.~~
~~----------~~ 9

isolation valve, containment vacuum relief isolation valve, 5

containment In the event one containment isolation valve in two or more penetration flow paths is inoperable ~~[~~except for purge ~~valve~~ or shield building bypass leakage not within limit~~]~~, all but one of the affected penetration flow path(s) must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic containment isolation valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. For a penetration flow path isolated in accordance with

C Required Action ~~D~~.1, the device used to isolate the penetration should be

C the closest available one to containment. Required Action ~~D~~.1 must be completed within 4 hours. For subsequent containment isolation valve inoperabilities, the Required Action and Completion Time continue to apply to each additional containment isolation valve inoperability, with the Completion Time based on each subsequent entry into the Condition consistent with Note 2 to the ACTIONS Table (e.g., for each entry into the Condition). Each containment isolation valve(s) that is (are) declared

C inoperable for subsequent Condition ~~D~~ entries shall meet the Required Action and Completion Time. For the penetration flow paths isolated in

C accordance with Required Action ~~D~~.1, the affected penetration(s) must be verified to be isolated on a periodic basis per Required Action A.2 ~~[or B.2]~~, which remains in effect. This periodic verification is necessary to assure that the penetrations requiring isolation following an accident are isolated. The 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting Containment OPERABILITY during MODES 1, 2, 3, and 4. 10

INSERT 4 6

6

INSERT 4

D.1 and D.2

In the event two or more pairs of containment purge lines are open, all but one penetration flow paths must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic containment isolation valve, a closed manual valve, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1. The 1 hour Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4.

E.1

With one or more containment vacuum relief isolation valve(s) inoperable, the inoperable valve(s) must be restored to OPERABLE status or the affected penetration flow path must be isolated.

In the containment vacuum relief lines, containment vacuum relief valves 30-571, 30-572, and 30-573 are qualified to perform a containment isolation function. These valves are self-actuated, swing disk (check) valves with an elastomer seat. The valves are normally closed and are equipped with limit switches that provide fully open and fully closed indication in the main control room (MCR). Therefore, a 72 hour Completion Time is appropriate while actions are taken to return the containment vacuum relief isolation valves to service.

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BASES

ACTIONS (continued)

F

~~[~~ ~~E~~.1

8

With the shield building bypass leakage rate (SR 3.6.3.~~11~~) ~~[or purge valve leakage rate (SR 3.6.3.7)]~~ not within limit, the assumptions of the safety analyses are not met. Therefore, the leakage must be restored to within limit. Restoration can be accomplished by isolating the penetration(s) that caused the limit to be exceeded by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. When a penetration is isolated the leakage rate for the isolated penetration is assumed to be the actual pathway leakage through the isolation device. If two isolation devices are used to isolate the penetration, the leakage rate is assumed to be the lesser actual pathway leakage of the two devices. The 4 hour Completion Time ~~for shield building bypass leakage~~ is reasonable considering the time required to restore the leakage by isolating the penetration(s) and the relative importance of secondary containment bypass leakage to the overall containment function. ~~[The 24 hour Completion time for purge valve leakage is acceptable considering the purge valves remain closed so that a gross breach of the containment does not exist.]~~

6 5 6

~~REVIEWER'S NOTE~~

~~[The bracketed options provided in ACTION E reflect options in plant design and options in adopting the associated leakage rate Surveillances.~~

~~The options (in both ACTION E and ACTION F) for purge valve leakage, are based primarily on the design - if leakage rates can be measured separately for each purge valve, ACTION F is intended to apply. This would be required to be able to implement Required Action F.3. Should the design allow only for leak testing both purge valves simultaneously, then the Completion Time for ACTION E should include the "24 hours for purge valve leakage" and ACTION F should be eliminated.]]~~

7

G

~~[~~ ~~F~~.1, ~~F~~.2, and ~~F~~.3

6

supply or exhaust

supply and exhaust

In the event one or more containment purge valves in one or more penetration flow paths are not within the purge valve leakage limits, purge valve leakage must be restored to within limits, or the affected penetration flow path must be isolated. The method of isolation must be by the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a ~~[~~closed and de-activated automatic valve, closed manual valve, or blind flange~~]~~. A purge valve with resilient seals utilized to satisfy Required Action ~~F~~.1

6 5 6

G

BASES

ACTIONS (continued)

5 must have been demonstrated to meet the leakage requirements of SR 3.6.3.~~7~~. The specified Completion Time is reasonable, considering that one containment purge valve remains closed so that a gross breach of containment does not exist. 6

G In accordance with Required Action ~~F~~.2, this penetration flow path must be verified to be isolated on a periodic basis. The periodic verification is necessary to ensure that containment penetrations required to be isolated following an accident, which are no longer capable of being automatically isolated, will be in the isolation position should an event occur. This Required Action does not require any testing or valve manipulation. Rather, it involves verification that those isolation devices outside containment capable of being mispositioned are in the correct position. For the isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility. 6

G For the containment purge valve with resilient seal that is isolated in accordance with Required Action ~~F~~.1, SR 3.6.3.~~7~~ must be performed at 5 least once every [92] days. This assures that degradation of the resilient seal is detected and confirms that the leakage rate of the containment purge valve does not increase during the time the penetration is isolated. 6 5

~~The normal Frequency for SR 3.6.3.7, 184 days, is based on an NRC initiative, Generic Issue B-20 (Ref. 5).~~ Since more reliance is placed on a single valve while in this Condition, ~~it is prudent to perform the SR more often. Therefore,~~ a Frequency of once per [92] days was chosen and has been shown to be acceptable based on operating experience. 11 5

G Required Action ~~F~~.2 is modified by two Notes. Note 1 applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned.] 6 5

BASES

ACTIONS (continued)

H

~~G~~.1 and ~~G~~.2 6

If the Required Actions and associated Completion Times are not met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

~~[SR 3.6.3.1~~

~~Each [42] inch containment purge valve is required to be verified sealed closed. This Surveillance is designed to ensure that a gross breach of containment is not caused by an inadvertent or spurious opening of a containment purge valve. Detailed analysis of the purge valves failed to conclusively demonstrate their ability to close during a LOCA in time to limit offsite doses. Therefore, these valves are required to be in the sealed closed position during MODES 1, 2, 3, and 4. A containment purge valve that is sealed closed must have motive power to the valve operator removed. This can be accomplished by de-energizing the source of electric power or by removing the air supply to the valve operator. In this application, the term "sealed" has no connotation of leak tightness. [The Frequency of 31 days is a result of an NRC initiative, Generic Issue B-24 (Ref. 6), related to containment purge valve use during plant operations. In the event purge valve leakage requires entry into Condition E, the Surveillance permits opening one purge valve in a penetration flow path to perform repairs.~~

~~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

BASES

SURVEILLANCE REQUIREMENTS (continued)

[SR 3.6.3.~~2~~ 1

This SR ensures that the ~~mini~~purge valves are closed as required or, if open, open for an allowable reason. If a purge valve is open in violation of this SR, the valve is considered inoperable. If the inoperable valve is not otherwise known to have excessive leakage when closed, it is not considered to have leakage outside of limits. The SR is not required to be met when the ~~mini~~purge valves are open for the reasons stated. The valves may be opened for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open. The ~~mini~~purge valves are capable of closing in the environment following a LOCA. Therefore, these valves are allowed to be open for limited periods of time. ~~[The 31 day Frequency is consistent with other containment isolation valve requirements discussed in SR 3.6.3.3.~~

~~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 3.6.3.~~3~~ 2

This SR requires verification that each containment isolation manual valve and blind flange located outside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the containment boundary is within design limits. This SR does not require any testing or valve manipulation. Rather, it involves verification that those containment isolation valves outside containment and capable of being mispositioned are in the correct position. ~~[Since verification of valve position for containment isolation valves outside containment is relatively easy, the 31 day Frequency is based on engineering judgment and was chosen to provide added assurance of the correct positions.~~

5

INSERT 5

The number of valves open during MODES 1, 2, 3, and 4, is limited to no more than one pair of containment purge lines, that includes one set of supply valves and one set of exhaust valves.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~OR~~ 12

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.~~
~~----------]~~ 9

The SR specifies that containment isolation valves that are open under administrative controls are not required to meet the SR during the time the valves are open. This SR does not apply to valves that are locked, sealed, or otherwise secured in the closed position, since these were verified to be in the correct position upon locking, sealing, or securing.

The Note applies to valves and blind flanges located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, 3, and 4 for ALARA reasons. Therefore, the probability of misalignment of these containment isolation valves, once they have been verified to be in the proper position, is small.

3
SR 3.6.3.~~4~~ 6

This SR requires verification that each containment isolation manual valve and blind flange located inside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the containment boundary is within design limits. For containment isolation valves inside containment, the Frequency of "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is appropriate since these containment isolation valves are operated under administrative controls and the probability of their misalignment is low. The SR specifies that containment isolation valves that are open under administrative controls are not required to meet the SR during the time they are open. This SR does not apply to valves that are locked, sealed, or otherwise secured in the closed position, since these were verified to be in the correct position upon locking, sealing, or securing.

BASES

SURVEILLANCE REQUIREMENTS (continued)

This Note allows valves and blind flanges located in high radiation areas to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, 3, and 4, for ALARA reasons. Therefore, the probability of misalignment of these containment isolation valves, once they have been verified to be in their proper position, is small.

4

SR 3.6.3.~~5~~ 6

Verifying that the isolation time of each automatic power operated containment isolation valve is within limits is required to demonstrate OPERABILITY. The isolation time test ensures the valve will isolate in a time period less than or equal to that assumed in the safety analyses.

~~---------- REVIEWER'S NOTE ----------~~
~~If the testing is within the scope of the licensee's Inservice Testing Program, the Frequency "In accordance with the Inservice Testing Program" should be used. Otherwise, the periodic Frequency of 92 days or the reference to the Surveillance Frequency Control Program should be used.~~
~~----------~~ 9

~~[~~ ~~The [isolation time and]~~ Frequency of this SR is in accordance with ~~[~~the Inservice Testing Program~~] [92 days~~.

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.]]~~ 5

~~---------- 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.~~
~~----------]~~ 9

~~[SR 3.6.3.6~~

~~In subatmospheric containments, the check valves that serve a containment isolation function are weight or spring loaded to provide positive closure in the direction of flow. This ensures that these check valves will remain closed when the inside containment atmosphere~~ 6

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~returns to subatmospheric conditions following a DBA. SR 3.6.3.6 requires verification of the operation of the check valves that are testable during unit operation. [The Frequency of 92 days is consistent with the Inservice Testing Program requirement for valve testing on a 92 day Frequency.~~

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

5

[SR 3.6.3.~~7~~ 5 6

For containment purge valves with resilient seals, additional leakage rate testing beyond the test requirements of 10 CFR 50, Appendix J, Option ~~[A]~~[B~~]~~, is required to ensure OPERABILITY. Operating experience has demonstrated that this type of seal has the potential to degrade in a shorter time period than do other seal types. 5

~~[Based on this observation and the importance of maintaining this penetration leak tight (due to the direct path between containment and the environment), a Frequency of 184 days was established as part of the NRC resolution of Generic Issue B-20, "Containment Leakage Due to Seal Deterioration" (Ref. 5).~~ 12

~~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.~~
~~----------]~~ 9

~~Additionally, this SR must be performed within 92 days after opening the valve. The 92 day Frequency was chosen recognizing that cycling the~~ 6

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~valve could introduce additional seal degradation (beyond that occurring to a valve that has not been opened). Thus, decreasing the interval is a prudent measure after a valve has been opened.]~~ 6

6

SR 3.6.3.~~8~~ 6

Automatic containment isolation valves close on a containment isolation signal to prevent leakage of radioactive material from containment following a DBA. This SR ensures that each automatic containment isolation valve will actuate to its isolation position on a containment isolation 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 plant 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 this Surveillance when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~ 12

~~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.~~
~~----------]~~ 9

~~[SR 3.6.3.9~~

~~In subatmospheric containments, the check valves that serve a containment isolation function are weight or spring loaded to provide positive closure in the direction of flow. This ensures that these check valves will remain closed when the inside containment atmosphere returns to subatmospheric conditions following a DBA. SR 3.6.3.9 verifies the operation of the check valves that are not testable during unit operation. [The Frequency of 18 months is based on such factors as the inaccessibility of these valves, the fact that the unit must be shut down to perform the tests, and the successful results of the tests on an 18 month basis during past unit operation.~~ 6

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.~~
~~]]~~ 6

7

~~[~~ SR 3.6.3.~~10~~ 5 6

~~REVIEWER'S NOTE~~
~~This SR is only required for those units with resilient seal purge valves allowed to be open during [MODE 1, 2, 3, or 4] and having blocking devices on the valves that are not permanently installed.~~ 9

degrees

Verifying that each ~~[42] inch~~ containment purge valve is blocked to restrict opening to ~~≤ [~~50~~]~~% is required to ensure that the valves can close under DBA conditions within the times assumed in the analyses of References 1 and 2. If a LOCA occurs, the purge valves must close to maintain containment leakage within the values assumed in the accident analysis. At other times when purge valves are required to be capable of closing (e.g., during movement of ~~[recently]~~ irradiated fuel assemblies), pressurization concerns are not present, thus the purge valves can be fully open. ~~[The 18 month Frequency is appropriate because the blocking devices are typically removed only during a refueling outage.~~ 5 5 12

~~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.~~
~~]]~~ 9

BASES

SURVEILLANCE REQUIREMENTS (continued)

8

~~[~~ SR 3.6.3.~~11~~ 5 6

(those paths that would potentially allow leakage from the primary containment to circumvent the annulus secondary containment enclosure and escape to the auxiliary building secondary enclosure)

This SR ensures that the combined leakage rate of all shield building bypass leakage paths is less than or equal to the specified leakage rate. This provides assurance that the assumptions in the safety analysis are met. The leakage rate ~~of each bypass leakage path is assumed to be the~~ maximum pathway leakage (leakage through the worse of the two isolation valves) ~~unless the~~ penetration is isolated by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. ~~In this case,~~ the leakage rate of the isolated bypass leakage path is assumed to be the actual pathway leakage through the isolation device. If both isolation valves in the penetration are closed, the actual leakage rate is the lesser leakage rate of the two valves. The Frequency is required by the Containment Leakage Rate Testing Program. This SR simply imposes additional acceptance criteria. 13 14

as-left bypass

prior to the first startup after performing a leakage test requires calculation using

. If the

, then

Following startup, the as-found leakage rate will be calculated using minimum pathway leakage.

~~[~~Bypass leakage is considered part of L_a. 5

~~REVIEWER'S NOTE~~
~~Unless specifically exempted.]]~~ 9

REFERENCES

Chapter

1. FSAR, ~~Section [~~15~~]~~. U

.4 and Table 6.2.4-1

2. FSAR, Section ~~[~~6.2~~]~~. 2 5 5

3. Standard Review Plan 6.2.4.

4. WCAP-15791-A, Rev. 2, "Risk-Informed Evaluation of Extensions to Containment Isolation Valve Completion Times," ~~[Date to be supplied later]~~.

June 2008 5

~~5. Generic Issue B-20, "Containment Leakage Due to Seal Deterioration."~~ 11

~~6. Generic Issue B-24.~~ 6

INSERT 6 15

15 **INSERT 6**

Table B 3.6.3-1 (Page 1 of 17)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
FCV-01-7	X-14D	2	8 hours	9	8 hours
FCV-01-14	X-14A	2	8 hours	9	8 hours
FCV-01-25	X-14C	2	8 hours	9	8 hours
FCV-01-32	X-14B	2	8 hours	9	8 hours
FCV-01-147	X-13A	2	8 hours	9	8 hours
FCV-01-148	X-13B	2	8 hours	9	8 hours
FCV-01-149	X-13C	2	8 hours	9	8 hours
FCV-01-150	X-13D	2	8 hours	9	8 hours
FCV-01-181	X-14D	2	8 hours	9	8 hours
FCV-01-182	X-14A	2	8 hours	9	8 hours
FCV-01-183	X-14C	2	8 hours	9	8 hours
FCV-01-184	X-14B	2	8 hours	9	8 hours
VLV-01-532	X-13C	2	8 hours	9	8 hours
VLV-01-534	X-13B	2	8 hours	9	8 hours
VLV-01-536	X-13A	2	8 hours	9	8 hours
VLV-01-538	X-13D	2	8 hours	9	8 hours
VLV-01-824	X-14D	2	8 hours	9	8 hours
VLV-01-825	X-14A	2	8 hours	9	8 hours
VLV-01-826	X-14C	2	8 hours	9	8 hours
VLV-01-827	X-14B	2	8 hours	9	8 hours
VLV-01-922	X-13A	2	8 hours	9	8 hours
VLV-01-923	X-13B	2	8 hours	9	8 hours
VLV-01-924	X-13C	2	8 hours	9	8 hours
VLV-01-925	X-13D	2	8 hours	9	8 hours
VLV-03-351C	X-104	2	8 hours	9	8 hours
VLV-03-352C	X-102	2	8 hours	9	8 hours
VLV-03-500	X-12C	2	8 hours	9	8 hours
VLV-03-502	X-12B	2	8 hours	9	8 hours
VLV-03-842	X-40B	1	4 hours	8	4 Hours
VLV-03-847	X-40B	1	4 hours	8	4 Hours
VLV-03-848	X-40A	1	4 hours	8	4 Hours
VLV-03-849	X-12A	2	8 hours	9	8 hours

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Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
VLV-03-850	X-12D	2	8 hours	9	8 hours
VLV-03-851	X-40B	1	4 hours	8	4 Hours
VLV-03-852	X-40A	1	4 hours	8	4 Hours
VLV-03-853	X-12A	2	8 hours	9	8 hours
VLV-03-854	X-12D	2	8 hours	9	8 hours
VLV-03-855	X-40B	1	4 hours	8	4 Hours
VLV-03-857	X-12A	2	8 hours	9	8 hours
VLV-03-858	X-12D	2	8 hours	9	8 hours
VLV-03-859	X-40B	1	4 hours	8	4 Hours
VLV-03-860	X-40A	1	4 hours	8	4 Hours
VLV-03-887	X-40B	1	4 hours	8	4 Hours
VLV-03-888	X-40A	1	4 hours	8	4 Hours
VLV-03-889	X-12A	2	8 hours	9	8 hours
VLV-03-890	X-12D	2	8 hours	9	8 hours
VLV-03-896	X-40B	1	4 hours	8	4 Hours
VLV-03-897	X-40B	1	4 hours	8	4 Hours
VLV-03-899	X-40A	1	4 hours	8	4 Hours
VLV-03-900	X-40A	1	4 hours	8	4 Hours
VLV-03-901	X-40A	1	4 hours	8	4 Hours
VLV-03-903	X-12A	2	8 hours	9	8 hours
VLV-03-904	X-12A	2	8 hours	9	8 hours
VLV-03-906	X-12D	2	8 hours	9	8 hours
VLV-03-907	X-12D	2	8 hours	9	8 hours
FCV-26-240	X-51	7	7 days	14	7 days
FCV-26-243	X-78	7	7 days	14	7 days
VLV-26-1258	X-51	7	7 days	14	7 days
VLV-26-1260	X-51	7	7 days	14	7 days
VLV-26-1293	X-78	7	7 days	14	7 days
VLV-26-1296	X-78	7	7 days	14	7 days
DRIV-30-30CX	X-27A	7	7 days	14	7 days
DRIV-30-30CY	X-27A	7	7 days	14	7 days
DRIV-30-42X	X-27B	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 3 of 17)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
DRIV-30-42Y	X-27B	7	7 days	14	7 days
DRIV-30-43X	X-26A	7	7 days	14	7 days
DRIV-30-43Y	X-26A	7	7 days	14	7 days
DRIV-30-44X	X-25B	7	7 days	14	7 days
DRIV-30-44Y	X-25B	7	7 days	14	7 days
DRIV-30-45X	X-85B	7	7 days	14	7 days
DRIV-30-45Y	X-85B	7	7 days	14	7 days
DRIV-30-46AX	X-111	7	7 days	14	7 days
DRIV-30-46AY	X-111	7	7 days	14	7 days
DRIV-30-46BY	X-111	7	7 days	14	7 days
DRIV-30-47AX	X-112	7	7 days	14	7 days
DRIV-30-47AY	X-112	7	7 days	14	7 days
DRIV-30-47BY	X-112	7	7 days	14	7 days
DRIV-30-48AX	X-113	7	7 days	14	7 days
DRIV-30-48AY	X-113	7	7 days	14	7 days
DRIV-30-48BY	X-113	7	7 days	14	7 days
DRIV-30-310X	X-26A	7	7 days	14	7 days
DRIV-30-310Y	X-26A	7	7 days	14	7 days
DRIV-30-311X	X-25B	7	7 days	14	7 days
DRIV-30-311Y	X-25B	7	7 days	14	7 days
FCV-30-7	X-9A	7	7 days	14	7 days
FCV-30-8	X-9A	7	7 days	14	7 days
FCV-30-9	X-9B	7	7 days	14	7 days
FCV-30-10	X-9B	7	7 days	14	7 days
FCV-30-14	X-10A	7	7 days	14	7 days
FCV-30-15	X-10A	7	7 days	14	7 days
FCV-30-16	X-10B	7	7 days	14	7 days
FCV-30-17	X-10B	7	7 days	14	7 days
FCV-30-19	X-11	7	7 days	14	7 days
FCV-30-20	X-11	7	7 days	14	7 days
FCV-30-37	X-80	7	7 days	14	7 days
FCV-30-40	X-80	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 4 of 17)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
FCV-30-46	X-111	7	7 days	14	7 days
FCV-30-47	X-112	7	7 days	14	7 days
FCV-30-48	X-113	7	7 days	14	7 days
FCV-30-50	X-6	7	7 days	14	7 days
FCV-30-51	X-6	7	7 days	14	7 days
FCV-30-52	X-7	7	7 days	14	7 days
FCV-30-53	X-7	7	7 days	14	7 days
FCV-30-56	X-4	7	7 days	14	7 days
FCV-30-57	X-4	7	7 days	14	7 days
FCV-30-58	X-5	7	7 days	14	7 days
FCV-30-59	X-5	7	7 days	14	7 days
FSV-30-134	X-97	7	7 days	14	7 days
FSV-30-135	X-97	7	7 days	14	7 days
PDT-30-30C	X-27A	7	7 days	14	7 days
PDT-30-42	X-27B	7	7 days	14	7 days
PDT-30-43	X-26A	7	7 days	14	7 days
PDT-30-44	X-25B	7	7 days	14	7 days
PDT-30-45	X-85B	7	7 days	14	7 days
PDT-30-310	X-26A	7	7 days	14	7 days
PDT-30-311	X-25B	7	7 days	14	7 days
VLV-30-554TP	X-5	7	7 days	14	7 days
VLV-30-555TP	X-4	7	7 days	14	7 days
VLV-30-556TP	X-80	7	7 days	14	7 days
VLV-30-557TP	X-7	7	7 days	14	7 days
VLV-30-558TP	X-6	7	7 days	14	7 days
VLV-30-559TP	X-11	7	7 days	14	7 days
VLV-30-560TP	X-10B	7	7 days	14	7 days
VLV-30-561TP	X-10A	7	7 days	14	7 days
VLV-30-562TP	X-9B	7	7 days	14	7 days
VLV-30-563TP	X-9A	7	7 days	14	7 days
VLV-30-571	X-111	7	7 days	14	7 days
VLV-30-572	X-112	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 5 of 17)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
VLV-30-573	X-113	7	7 days	14	7 days
FCV-31C-222	X-64	7	7 days	14	7 days
FCV-31C-223	X-64	7	7 days	14	7 days
FCV-31C-224	X-65	7	7 days	14	7 days
FCV-31C-225	X-65	7	7 days	14	7 days
FCV-31C-229	X-66	7	7 days	14	7 days
FCV-31C-230	X-66	7	7 days	14	7 days
FCV-31C-231	X-67	7	7 days	14	7 days
FCV-31C-232	X-67	7	7 days	14	7 days
VLV-31C-697	X-67	7	7 days	14	7 days
VLV-31C-715	X-66	7	7 days	14	7 days
VLV-31C-734	X-65	7	7 days	14	7 days
VLV-31C-752	X-64	7	7 days	14	7 days
FCV-32-80	X-90	7	7 days	14	7 days
FCV-32-102	X-26B	7	7 days	14	7 days
FCV-32-110	X-34	7	7 days	14	7 days
VLV-32-281	X-90	7	7 days	14	7 days
VLV-32-285	X-90	7	7 days	14	7 days
VLV-32-287	X-90	7	7 days	14	7 days
VLV-32-292	X-26B	7	7 days	14	7 days
VLV-32-295	X-26B	7	7 days	14	7 days
VLV-32-297	X-26B	7	7 days	14	7 days
VLV-32-373	X-34	7	7 days	14	7 days
VLV-32-375	X-34	7	7 days	14	7 days
VLV-32-377	X-34	7	7 days	14	7 days
BLF-Sys 33	X-40D	7	7 days	14	7 days
VLV-33-212	X-76	7	7 days	14	7 days
VLV-33-704	X-76	7	7 days	14	7 days
VLV-33-740	X-76	7	7 days	14	7 days
CKV-43-460	X-106	7	7 days	14	7 days
CKV-43-461	X-103	7	7 days	14	7 days
FSV-43-2	X-25A	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 6 of 17)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
FSV-43-3	X-25A	7	7 days	14	7 days
FSV-43-11	X-25D	7	7 days	14	7 days
FSV-43-12	X-25D	7	7 days	14	7 days
FSV-43-22	X-96C	7	7 days	14	7 days
FSV-43-23	X-96C	7	7 days	14	7 days
FSV-43-34	X-93	7	7 days	14	7 days
FSV-43-35	X-93	7	7 days	14	7 days
FSV-43-55	X-14D	2	8 hours	9	8 hours
FSV-43-58	X-14A	2	8 hours	9	8 hours
FSV-43-61	X-14C	2	8 hours	9	8 hours
FSV-43-64	X-14B	2	8 hours	9	8 hours
FSV-43-201	X-99, X-100	7	7 days	14	7 days
FSV-43-202	X-99, X-100	7	7 days	14	7 days
FSV-43-207	X-92A, X-92B	7	7 days	14	7 days
FSV-43-208	X-92A, X-92B	7	7 days	14	7 days
FSV-43-250	X-91	7	7 days	14	7 days
FSV-43-251	X-91	7	7 days	14	7 days
FSV-43-287	X-116A	7	7 days	14	7 days
FSV-43-288	X-116A	7	7 days	14	7 days
FSV-43-307	X-106	7	7 days	14	7 days
FSV-43-309	X-23	7	7 days	14	7 days
FSV-43-310	X-23	7	7 days	14	7 days
FSV-43-317	X-103	7	7 days	14	7 days
FSV-43-318	X-101	7	7 days	14	7 days
FSV-43-319	X-101	7	7 days	14	7 days
FSV-43-325	X-106	7	7 days	14	7 days
FSV-43-341	X-103	7	7 days	14	7 days
FSV-43-450	X-99, X-100	7	7 days	14	7 days
FSV-43-451	X-99, X-100	7	7 days	14	7 days

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Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
FSV-43-452	X-92A, X-92B	7	7 days	14	7 days
FSV-43-453	X-92A, X-92B	7	7 days	14	7 days
TV-43-464	X-103	7	7 days	14	7 days
TV-43-469	X-106	7	7 days	14	7 days
TV-43-474	X-101	7	7 days	14	7 days
TV-43-477	X-116A	7	7 days	14	7 days
VLV-43-423	X-92A, X-92B	7	7 days	14	7 days
VLV-43-424	X-92A, X-92B	7	7 days	14	7 days
VLV-43-425	X-99, X-100	7	7 days	14	7 days
VLV-43-426	X-99, X-100	7	7 days	14	7 days
VLV-43-492	X-23	7	7 days	14	7 days
VLV-43-497	X-91	7	7 days	14	7 days
TTIV-52-508	X-98	7	7 days	14	7 days
TTIV-52-510	X-27C	7	7 days	14	7 days
VLV-52-500	X-87D	7	7 days	14	7 days
VLV-52-501	X-87D	7	7 days	14	7 days
VLV-52-502	X-87B	7	7 days	14	7 days
VLV-52-503	X-87B	7	7 days	14	7 days
VLV-52-504	X-27C	7	7 days	14	7 days
VLV-52-505	X-27C	7	7 days	14	7 days
VLV-52-506	X-98	7	7 days	14	7 days
VLV-52-507	X-98	7	7 days	14	7 days
VLV-59-522	X-77	7	7 days	14	7 days
VLV-59-529	X-77	7	7 days	14	7 days
VLV-59-633	X-77	7	7 days	14	7 days
VLV-59-651	X-77	7	7 days	14	7 days
VLV-59-704	X-77	7	7 days	14	7 days
BLF-Sys 61	X-79A	7	7 days	13	72 hours
BLF-Sys 61	X-79B	7	7 days	13	72 hours

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Table B 3.6.3-1 (Page 8 of 17)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
FCV-61-96	X-115	7	7 days	14	7 days
FCV-61-97	X-115	7	7 days	14	7 days
FCV-61-110	X-114	7	7 days	14	7 days
FCV-61-122	X-114	7	7 days	14	7 days
FCV-61-191	X-47A	7	7 days	14	7 days
FCV-61-192	X-47A	7	7 days	14	7 days
FCV-61-193	X-47B	7	7 days	14	7 days
FCV-61-194	X-47B	7	7 days	14	7 days
VLV-61-532	X-47A	7	7 days	14	7 days
VLV-61-533	X-47A	7	7 days	14	7 days
VLV-61-680	X-47B	7	7 days	14	7 days
VLV-61-681	X-47B	7	7 days	14	7 days
VLV-61-691	X-115	7	7 days	14	7 days
VLV-61-692	X-115	7	7 days	14	7 days
VLV-61-745	X-114	7	7 days	14	7 days
VLV-61-746	X-114	7	7 days	14	7 days
FCV-62-61	X-44	7	7 days	14	7 days
FCV-62-63	X-44	7	7 days	14	7 days
FCV-62-72	X-15	7	7 days	14	7 days
FCV-62-73	X-15	7	7 days	14	7 days
FCV-62-74	X-15	7	7 days	14	7 days
FCV-62-77	X-15	7	7 days	14	7 days
FCV-62-90	X-16	7	7 days	14	7 days
VLV-62-505	X-24	7	7 days	14	7 days
VLV-62-543	X-16	7	7 days	14	7 days
VLV-62-544	X-16	7	7 days	14	7 days
VLV-62-546	X-43A, X-43B, X-43C, X43D	7	7 days	14	7 days
VLV-62-549	X-43A, X-43B, X-43C, X43D	7	7 days	14	7 days
VLV-62-550	X-43A, X-43B, X-	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 9 of 17)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
	43C, X43D				
VLV-62-555	X-43A, X-43B, X-43C, X43D	7	7 days	14	7 days
VLV-62-560	X-43D	7	7 days	14	7 days
VLV-62-561	X-43B	7	7 days	14	7 days
VLV-62-562	X-43C	7	7 days	14	7 days
VLV-62-563	X-43A	7	7 days	14	7 days
VLV-62-568	X-43D	7	7 days	14	7 days
VLV-62-569	X-43B	7	7 days	14	7 days
VLV-62-570	X-43C	7	7 days	14	7 days
VLV-62-571	X-43A	7	7 days	14	7 days
VLV-62-572	X-43D	7	7 days	14	7 days
VLV-62-573	X-43B	7	7 days	14	7 days
VLV-62-574	X-43C	7	7 days	14	7 days
VLV-62-575	X-43A	7	7 days	14	7 days
VLV-62-576	X-43D	7	7 days	14	7 days
VLV-62-577	X-43B	7	7 days	14	7 days
VLV-62-578	X-43A	7	7 days	14	7 days
VLV-62-579	X-43C	7	7 days	14	7 days
VLV-62-639	X-44	7	7 days	14	7 days
VLV-62-662	X-15	7	7 days	14	7 days
VLV-62-707	X-15	7	7 days	14	7 days
VLV-62-709	X-16	7	7 days	14	7 days
FCV-63-21	X-32	7	7 days	14	7 days
FCV-63-22	X-33	1	4 hours	8	4 hours
FCV-63-23	X-30	7	7 days	14	7 days
FCV-63-25	X-22	1	4 hours	8	4 hours
FCV-63-26	X-22	1	4 hours	8	4 hours
FCV-63-64	X-39A	7	7 days	14	7 days
FCV-63-71	X-30	7	7 days	14	7 days
FCV-63-84	X-30	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 10 of 17)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
FCV-63-93	X-20B	7	7 days	14	7 days
FCV-63-94	X-20A	7	7 days	14	7 days
FCV-63-111	X-20B	7	7 days	14	7 days
FCV-63-112	X-20A	7	7 days	14	7 days
FCV-63-121	X-33	7	7 days	14	7 days
FCV-63-156	X-32	7	7 days	8	4 hours
FCV-63-157	X-21	7	7 days	8	4 hours
FCV-63-158	X-17	7	7 days	14	7 days
FCV-63-167	X-21	7	7 days	14	7 days
FCV-63-172	X-17	1	4 hours	8	4 hours
FCV-63-174	X-22	7	7 days	14	7 days
FSV-63-25	X-22	7	7 days	14	7 days
FSV-63-26	X-22	7	7 days	14	7 days
VLV-63-311A	X-32	7	7 days	14	7 days
VLV-63-313A	X-21	7	7 days	14	7 days
VLV-63-314A	X-21	7	7 days	14	7 days
VLV-63-315A	X-32	7	7 days	14	7 days
VLV-63-316A	X-32	7	7 days	14	7 days
VLV-63-317A	X-21	7	7 days	14	7 days
VLV-63-318A	X-21	7	7 days	14	7 days
VLV-63-319A	X-33	7	7 days	14	7 days
VLV-63-320A	X-33	7	7 days	14	7 days
VLV-63-321A	X-33	7	7 days	14	7 days
VLV-63-322A	X-33	7	7 days	14	7 days
VLV-63-323A	X-33	7	7 days	14	7 days
VLV-63-324A	X-33	7	7 days	14	7 days
VLV-63-325A	X-33	7	7 days	14	7 days
VLV-63-326A	X-33	7	7 days	14	7 days
VLV-63-344A	X-30	7	7 days	14	7 days
VLV-63-413	X-20B	7	7 days	14	7 days
VLV-63-511	X-24	7	7 days	14	7 days
VLV-63-534	X-24	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 11 of 17)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
VLV-63-535	X-24	7	7 days	14	7 days
VLV-63-536	X-24	7	7 days	14	7 days
VLV-63-537	X-30	7	7 days	14	7 days
VLV-63-541	X-32	7	7 days	14	7 days
VLV-63-543	X-32	7	7 days	8	4 hours
VLV-63-545	X-32	7	7 days	8	4 hours
VLV-63-547	X-21	7	7 days	8	4 hours
VLV-63-549	X-21	7	7 days	8	4 hours
VLV-63-551	X-33	1	4 hours	8	4 hours
VLV-63-553	X-33	1	4 hours	8	4 hours
VLV-63-555	X-33	1	4 hours	8	4 hours
VLV-63-557	X-33	1	4 hours	8	4 hours
VLV-63-581	X-22	1	4 hours	8	4 hours
VLV-63-590	X-17	7	7 days	14	7 days
VLV-63-591	X-17	7	7 days	14	7 days
VLV-63-592	X-17	7	7 days	14	7 days
VLV-63-593	X-17	7	7 days	14	7 days
VLV-63-612A	X-32	7	7 days	14	7 days
VLV-63-626	X-24	7	7 days	14	7 days
VLV-63-627	X-24	7	7 days	14	7 days
VLV-63-630	X-20B	7	7 days	14	7 days
VLV-63-631	X-20A	7	7 days	14	7 days
VLV-63-632	X-20B	7	7 days	14	7 days
VLV-63-633	X-20A	7	7 days	14	7 days
VLV-63-634	X-20B	7	7 days	14	7 days
VLV-63-635	X-20A	7	7 days	14	7 days
VLV-63-636	X-17	7	7 days	14	7 days
VLV-63-637	X-17	7	7 days	14	7 days
VLV-63-638	X-24	7	7 days	14	7 days
VLV-63-640	X-17	1	4 hours	8	4 hours
VLV-63-642	X-17	7	7 days	14	7 days
VLV-63-643	X-17	1	4 hours	8	4 hours

Insert Page B 3.6.3-20k

15 **INSERT 6**

Table B 3.6.3-1 (Page 12 of 17)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
VLV-63-648	X-21	7	7 days	14	7 days
VLV-63-649	X-21	7	7 days	14	7 days
VLV-63-650	X-21	7	7 days	14	7 days
VLV-63-653	X-33	7	7 days	14	7 days
VLV-63-654	X-33	7	7 days	14	7 days
VLV-63-655	X-33	7	7 days	14	7 days
VLV-63-656	X-33	7	7 days	14	7 days
VLV-63-657	X-32	7	7 days	14	7 days
VLV-63-658	X-32	7	7 days	14	7 days
VLV-63-659	X-20B	7	7 days	14	7 days
VLV-63-660	X-20B	7	7 days	14	7 days
VLV-63-661	X-20A	7	7 days	14	7 days
VLV-63-667	X-20A	7	7 days	14	7 days
VLV-63-823	X-32	7	7 days	14	7 days
VLV-63-831	X-33	7	7 days	14	7 days
VLV-63-833	X-20A	7	7 days	14	7 days
VLV-63-836	X-33	7	7 days	14	7 days
VLV-63-862	X-21	7	7 days	14	7 days
VLV-63-864	X-32	7	7 days	14	7 days
VLV-63-870	X-17	7	7 days	14	7 days
CKV-67-1523A	X-58	7	7 days	14	7 days
CKV-67-1523B	X-60	7	7 days	14	7 days
CKV-67-1523C	X-62	7	7 days	14	7 days
CKV-67-1523D	X-56	7	7 days	14	7 days
FCV-67-83	X-56	7	7 days	14	7 days
FCV-67-87	X-59	7	7 days	14	7 days
FCV-67-88	X-59	7	7 days	14	7 days
FCV-67-89	X-56	7	7 days	14	7 days
FCV-67-90	X-60	7	7 days	14	7 days
FCV-67-91	X-60	7	7 days	14	7 days
FCV-67-95	X-63	7	7 days	14	7 days
FCV-67-96	X-63	7	7 days	14	7 days

15 **INSERT 6**

Table B 3.6.3-1 (Page 13 of 17)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
FCV-67-99	X-62	7	7 days	14	7 days
FCV-67-103	X-61	7	7 days	14	7 days
FCV-67-104	X-61	7	7 days	14	7 days
FCV-67-105	X-62	7	7 days	14	7 days
FCV-67-106	X-58	7	7 days	14	7 days
FCV-67-107	X-58	7	7 days	14	7 days
FCV-67-111	X-57	7	7 days	14	7 days
FCV-67-112	X-57	7	7 days	14	7 days
VLV-67-561A	X-58	7	7 days	14	7 days
VLV-67-561B	X-60	7	7 days	14	7 days
VLV-67-561C	X-62	7	7 days	14	7 days
VLV-67-561D	X-56	7	7 days	14	7 days
VLV-67-575A	X-59	7	7 days	14	7 days
VLV-67-575B	X-61	7	7 days	14	7 days
VLV-67-575C	X-63	7	7 days	14	7 days
VLV-67-575D	X-57	7	7 days	14	7 days
VLV-67-772	X-56	7	7 days	14	7 days
VLV-67-774	X-60	7	7 days	14	7 days
VLV-67-776	X-62	7	7 days	14	7 days
VLV-67-778	X-58	7	7 days	14	7 days
FCV-68-305	X-39B	7	7 days	14	7 days
FCV-68-307	X-84A	7	7 days	14	7 days
FCV-68-308	X-84A	7	7 days	14	7 days
RVLIS-Sys 68	X-85C	7	7 days	14	7 days
RVLIS-Sys 68	X-86A	7	7 days	14	7 days
RVLIS-Sys 68	X-86B	7	7 days	14	7 days
RVLIS-Sys 68	X-86C	7	7 days	14	7 days
RVLIS-Sys 68	X-25C	7	7 days	14	7 days
RVLIS-Sys 68	X-27D	7	7 days	14	7 days
RVLIS-Sys 68	X-26C	7	7 days	14	7 days
VLV-68-559	X-24	7	7 days	14	7 days
VLV-68-560	X-24	7	7 days	14	7 days

15 **INSERT 6**

Table B 3.6.3-1 (Page 14 of 17)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
VLV-68-561	X-24	7	7 days	14	7 days
FCV-70-85	X-35	7	7 days	14	7 days
FCV-70-87	X-50A	7	7 days	14	7 days
FCV-70-89	X-29	7	7 days	14	7 days
FCV-70-90	X-50A	7	7 days	14	7 days
FCV-70-92	X-29	7	7 days	14	7 days
FCV-70-134	X-50B	7	7 days	14	7 days
FCV-70-140	X-52	7	7 days	14	7 days
FCV-70-141	X-52	7	7 days	14	7 days
FCV-70-143	X-53	7	7 days	14	7 days
VLV-70-678B	X-50B	7	7 days	14	7 days
VLV-70-679	X-50B	7	7 days	14	7 days
VLV-70-687	X-50A	7	7 days	14	7 days
VLV-70-691B	X-52	7	7 days	14	7 days
VLV-70-698	X-29	7	7 days	14	7 days
VLV-70-702B	X-53	7	7 days	14	7 days
VLV-70-702C	X-35	7	7 days	14	7 days
VLV-70-702E	X-53	7	7 days	14	7 days
VLV-70-702F	X-35	7	7 days	14	7 days
VLV-70-703	X-35, X-53	7	7 days	14	7 days
VLV-70-735	X-29	7	7 days	14	7 days
VLV-70-737	X-50A	7	7 days	14	7 days
VLV-70-760	X-53	7	7 days	14	7 days
VLV-70-762	X-35	7	7 days	14	7 days
VLV-70-764	X-35	7	7 days	14	7 days
VLV-70-765	X-53	7	7 days	14	7 days
VLV-70-791	X-52	7	7 days	14	7 days
DRIV-72-215F	X-49A	7	7 days	14	7 days
DRIV-72-216F	X-49A	7	7 days	14	7 days
DRIV-72-217F	X-49B	7	7 days	14	7 days
DRIV-72-218F	X-49B	7	7 days	14	7 days
FCV-72-2	X-48B	7	7 days	14	7 days

15 **INSERT 6**

Table B 3.6.3-1 (Page 15 of 17)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
FCV-72-39	X-48A	7	7 days	14	7 days
FCV-72-40	X-49A	7	7 days	14	7 days
FCV-72-41	X-49B	7	7 days	14	7 days
FCV-72-546	X-48B	7	7 days	14	7 days
RFV-72-40	X-49A	7	7 days	14	7 days
RFV-72-41	X-49B	7	7 days	14	7 days
TTIV-72-215E	X-49A	7	7 days	14	7 days
TTIV-72-216E	X-49A	7	7 days	14	7 days
TTIV-72-217E	X-49B	7	7 days	14	7 days
TTIV-72-218E	X-49B	7	7 days	14	7 days
VLV-72-512	X-24	7	7 days	14	7 days
VLV-72-513	X-24	7	7 days	14	7 days
VLV-72-517	X-24	7	7 days	14	7 days
VLV-72-518	X-24	7	7 days	14	7 days
VLV-72-543	X-48A	7	7 days	14	7 days
VLV-72-544	X-48B	7	7 days	14	7 days
VLV-72-545	X-48A	7	7 days	14	7 days
VLV-72-547	X-48A	7	7 days	14	7 days
VLV-72-548	X-48B	7	7 days	14	7 days
VLV-72-551	X-49B	7	7 days	14	7 days
VLV-72-552	X-49A	7	7 days	14	7 days
VLV-72-555	X-49B	7	7 days	14	7 days
VLV-72-556	X-49A	7	7 days	14	7 days
FCV-74-1	X-107	1	4 hours	8	4 hours
FCV-74-2	X-107	1	4 hours	8	4 hours
VLV-74-503	X-107	7	7 days	14	7 days
VLV-74-504	X-107	7	7 days	14	7 days
VLV-74-505	X-107	1	4 hours	8	4 hours
VLV-74-549	X-107	7	7 days	14	7 days
FCV-77-9	X-46	7	7 days	14	7 days
FCV-77-10	X-46	7	7 days	14	7 days
FCV-77-18	X-45	7	7 days	14	7 days

15 **INSERT 6**

Table B 3.6.3-1 (Page 16 of 17)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
FCV-77-19	X-45	7	7 days	14	7 days
FCV-77-20	X-45	7	7 days	14	7 days
FCV-77-127	X-41	7	7 days	14	7 days
FCV-77-128	X-41	7	7 days	14	7 days
VLV-77-848	X-39B	7	7 days	14	7 days
VLV-77-849	X-39B	7	7 days	14	7 days
VLV-77-867	X-39A	7	7 days	14	7 days
VLV-77-868	X-39A	7	7 days	14	7 days
VLV-77-984	X-45	7	7 days	14	7 days
VLV-78-226A	X-83	7	7 days	14	7 days
VLV-78-228A	X-82	7	7 days	14	7 days
VLV-78-557	X-83	6	72 hours	13	72 hours
VLV-78-558	X-83	6	72 hours	13	72 hours
VLV-78-560	X-82	6	72 hours	13	72 hours
VLV-78-561	X-82	6	72 hours	13	72 hours
FCV-81-12	X-42	7	7 days	14	7 days
VLV-81-502	X-42	7	7 days	14	7 days
VLV-81-529	X-42	7	7 days	14	7 days
VLV-84-511	X-46	7	7 days	14	7 days
BLF-Sys 88	X-54	7	7 days	13	72 hours
BLF-Sys 88	X-88	7	7 days	14	7 days
BLF-Sys 88	X-108	1	4 hours	8	4 hours
BLF-Sys 88	X-109	1	4 hours	8	4 hours
BLF-Sys 88	X-117	6	72 hours	13	72 hours
BLF-Sys 88	X-118	6	72 hours	13	72 hours
FCV-90-107	X-94A	7	7 days	14	7 days
FCV-90-107	X-94B	7	7 days	14	7 days
FCV-90-108	X-94B	7	7 days	14	7 days
FCV-90-109	X-94A	7	7 days	14	7 days
FCV-90-110	X-94C	7	7 days	14	7 days
FCV-90-111	X-94C	7	7 days	14	7 days
FCV-90-113	X-95A	7	7 days	14	7 days

15 **INSERT 6**

Table B 3.6.3-1 (Page 17 of 17)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
FCV-90-113	X-95B	7	7 days	14	7 days
FCV-90-114	X-95B	7	7 days	14	7 days
FCV-90-115	X-95A	7	7 days	14	7 days
FCV-90-116	X-95C	7	7 days	14	7 days
FCV-90-117	X-95C	7	7 days	14	7 days

B 3.6 CONTAINMENT SYSTEMS

B 3.6.3 Containment Isolation Valves ~~(Atmospheric, Subatmospheric, Ice Condenser, and Dual)~~ 1

BASES

BACKGROUND

The containment isolation valves form part of the containment pressure boundary and provide a means for fluid penetrations not serving accident consequence limiting systems to be provided with two isolation barriers that are closed on a containment isolation signal. These isolation devices are either passive or active (automatic). Manual valves, de-activated automatic valves secured in their closed position (including check valves with flow through the valve secured), blind flanges, and closed systems are considered passive devices. Check valves, or other automatic valves designed to close without operator action following an accident, are considered active devices. Two barriers in series are provided for each penetration, or an approved exemption is provided, so that no single credible failure or malfunction of an active component can result in a loss of isolation or leakage that exceeds limits assumed in the safety analyses. One of these barriers may be a closed system. These barriers (typically containment isolation valves) make up the Containment Isolation System. 2

Automatic isolation signals are produced during accident conditions. Containment Phase "A" isolation occurs upon receipt of a safety injection signal. The Phase "A" isolation signal isolates nonessential process lines in order to minimize leakage of fission product radioactivity. Containment Phase "B" isolation occurs upon receipt of a containment pressure High-High signal and isolates the remaining process lines, except systems required for accident mitigation. In addition to the isolation signals listed above, the purge and exhaust valves receive an isolation signal on a containment high radiation condition. As a result, the containment isolation valves (and blind flanges) help ensure that the containment atmosphere will be isolated from the environment in the event of a release of fission product radioactivity to the containment atmosphere as a result of a Design Basis Accident (DBA).

The OPERABILITY requirements for containment isolation valves help ensure that containment is isolated within the time limits assumed in the safety analyses. Therefore, the OPERABILITY requirements provide assurance that the containment function assumed in the safety analyses will be maintained.

BASES

BACKGROUND (continued)

Reactor Building

Ventilation (RBPV)

~~Shutdown~~ Purge System ~~([42] inch purge valves)~~

RBPV

The ~~Shutdown~~ ~~Purge~~ System operates to supply outside air into the containment for ventilation and cooling or heating and may also be used to reduce the concentration of noble gases within containment prior to and during personnel access. ~~The supply and exhaust lines each contain two isolation valves. Because of their large size, the [42] inch purge valves in some units are not qualified for automatic closure from their open position under DBA conditions. Therefore, the [42] inch purge valves are normally maintained closed in MODES 1, 2, 3, and 4 to ensure the containment boundary is maintained.~~

INSERT 1

3

~~Minipurge System ([8] inch purge valves)~~

~~The Minipurge System operates to:~~

~~a. Reduce the concentration of noble gases within containment prior to and during personnel access and~~

~~b. Equalize internal and external pressures.~~

RBPV

Since the valves used in the ~~Minipurge~~ System are designed to meet the requirements for automatic containment isolation valves, these valves may be opened as needed in MODES 1, 2, 3, and 4.

APPLICABLE SAFETY ANALYSES

The containment isolation valve LCO was derived from the assumptions related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during major accidents. As part of the containment boundary, containment isolation valve OPERABILITY supports leak tightness of the containment. Therefore, the safety analyses of any event requiring isolation of containment is applicable to this LCO.

The DBAs that result in a release of radioactive material within containment are a loss of coolant accident (LOCA) and a rod ejection accident (Ref. 1). In the analyses for each of these accidents, it is assumed that containment isolation valves are either closed or function to close within the required isolation time following event initiation. This ensures that potential paths to the environment through containment isolation valves (including containment purge valves) are minimized. The safety analyses assume that ~~the [42] inch~~ purge ~~valves are closed at event initiation~~.

bounding

one pair of containment

INSERT 2

2

3 **INSERT 1**

The RBPV System provides for mechanical ventilation of the primary containment, the instrument room located within the containment, and the annulus secondary containment located between primary containment and the Shield Building.

The RBPV System includes one supply duct penetration through the Shield Building wall into the annulus area. There are four purge air supply penetrations through the containment vessel, two to the upper compartment and two to the lower containment. Two normally closed 24-inch purge supply isolation valves at each penetration through the containment vessel provide containment isolation.

The RBPV System includes one exhaust duct penetration through the Shield Building wall from the annulus area. There are three purge air exhaust penetrations through the containment vessel, two from the upper compartment and one from the lower containment. There is one pressure relief penetration through the containment vessel. Two normally closed 24-inch purge exhaust isolation valves at each penetration through the containment vessel provide containment isolation. Two normally closed 8-inch pressure relief isolation valves through the containment vessel provide containment isolation.

The RBPV System includes one supply and one exhaust duct penetration through the Shield Building wall and one supply and one exhaust duct penetration through the containment vessel wall for ventilation of the instrument room inside containment. Two normally closed 12-inch purge isolation valves at each supply and exhaust penetration through the containment vessel provide containment isolation.

3 **INSERT 2**

system lines are open at event initiation. The open purge system lines include one set of supply valves (i.e., inboard and outboard) and one set of exhaust valves (i.e., inboard and outboard).

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BASES

APPLICABLE SAFETY ANALYSES (continued)

The DBA analysis assumes that, within ~~60~~ 85 seconds after the accident, isolation of the containment is complete and leakage terminated except for the design leakage rate, L_a. The containment isolation total response time of ~~60~~ 85 seconds includes signal delay, diesel generator startup (for loss of offsite power), and containment isolation valve stroke times. 4 4

~~[~~ The single failure criterion required to be imposed in the conduct of plant safety analyses was considered in the original design of the containment purge valves. Two valves (i.e., one set) in series on each purge line provide assurance that both the supply and exhaust lines could be isolated even if a single failure occurred. The inboard and outboard isolation valves on each line are provided with diverse power sources, ~~motor operated and~~ pneumatically operated to open and spring closed~~, respectively~~. This arrangement was designed to preclude common mode failures from disabling both valves on a purge line. ~~]~~ 5

~~[The purge valves may be unable to close in the environment following a LOCA. Therefore, each of the purge valves is required to remain sealed closed during MODES 1, 2, 3, and 4. In this case, the single failure criterion remains applicable to the containment purge valves due to failure in the control circuit associated with each valve. Again, the purge system valve design precludes a single failure from compromising the containment boundary as long as the system is operated in accordance with the subject LCO.]~~

The containment isolation valves satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Containment isolation valves form a part of the containment boundary. The containment isolation valves' safety function is related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during a DBA.

The automatic power operated isolation valves are required to have isolation times within limits and to actuate on an automatic isolation signal. The containment isolation ~~[42]inch~~ purge valves ~~must be maintained sealed closed [or~~ have blocks installed to prevent full opening~~]~~. ~~[~~Blocked purge valves also actuate on an automatic signal.~~]~~ The valves covered by this LCO are listed along with their associated stroke times in the U FSAR (Ref. 2). 5 2

The normally closed isolation valves are considered OPERABLE when manual valves are closed, automatic valves are de-activated and secured in their closed position, blind flanges are in place, and closed systems are intact. These passive isolation valves/devices are those listed in Reference 2.

BASES

LCO (continued)

shield building

Purge valves with resilient seals [and ~~secondary containment~~ bypass ~~valves]~~ must meet additional leakage rate requirements. The other containment isolation valve leakage rates are addressed by LCO 3.6.1, "Containment," as Type C testing. 6 5

leakage paths

This LCO provides assurance that the containment isolation valves and purge valves will perform their designed safety functions to minimize the loss of reactor coolant inventory and establish the containment boundary during accidents.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the containment isolation valves are not required to be OPERABLE in MODE 5. The requirements for containment isolation valves during MODE 6 are addressed in LCO 3.9.4, "Containment Penetrations."

ACTIONS

The ACTIONS are modified by a Note allowing penetration flow paths, ~~except for [42] inch purge valve penetration flow paths,~~ to be unisolated intermittently under administrative controls. These administrative controls consist of stationing a dedicated operator at the valve controls, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for containment isolation is indicated. ~~Due to the size of the containment purge line penetration and the fact that those penetrations exhaust directly from the containment atmosphere to the environment, the penetration flow path containing these valves may not be opened under administrative controls. A single purge valve in a penetration flow path may be opened to effect repairs to an inoperable valve, as allowed by SR 3.6.3.1.~~ 6 6

A second Note has been added to provide clarification that, for this LCO, separate Condition entry is allowed for each penetration flow path. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable containment isolation valve. Complying with the Required Actions may allow for continued operation, and subsequent inoperable containment isolation valves are governed by subsequent Condition entry and application of associated Required Actions.

The ACTIONS are further modified by a third Note, which ensures appropriate remedial actions are taken, if necessary, if the affected systems are rendered inoperable by an inoperable containment isolation valve.

BASES

ACTIONS (continued)

In the event the isolation valve leakage results in exceeding the overall containment leakage rate, Note 4 directs entry into the applicable Conditions and Required Actions of LCO 3.6.1.

INSERT 3

8

~~REVIEWERS NOTE~~

~~Conditions A and B may be combined into one Condition that addresses both the containment isolation valve pressure boundary intact and containment isolation valve pressure boundary not intact by specifying the limiting Completion Time for each configuration identified in Tables D-1, D-2, and D-3 of Reference 4.~~

9

~~[~~ A.1 and A.2

5

Condition A is applicable to penetration flow paths with two ~~[or more]~~ containment isolation valves, and penetration flow paths with only one containment isolation valve and a closed system. The closed system must meet the requirements of Reference 3.

isolation valve, containment vacuum relief isolation valve,

containment

In the event one containment isolation valve in one or more penetration flow paths is inoperable, ~~[~~except for purge ~~valve~~ or shield building bypass leakage not within limit~~]~~, ~~and the containment isolation valve pressure boundary is intact,~~ the affected penetration flow path must be isolated. ~~The containment isolation valve pressure boundary is considered to be intact when the inoperable containment isolation valve is capable of maintaining the boundary between the contained fluid and the containment or outside atmosphere. An example of when a containment isolation valve would be inoperable and the pressure boundary is considered to be intact is when work is being performed on a valve actuator.~~ The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic containment isolation valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. For a penetration flow path isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available one to containment. Required Action A.1 must be completed within the Completion Time specified for each Category of containment isolation valve identified in ~~[a licensee controlled document]~~. The Completion Time is justified in Reference 4.

5

Table B 3.6.3-1, Containment Isolation Valve Completion Times

5

8 **INSERT 3**

Note 5 limits the number of open containment purge lines to no more than one set of supply valves and one set of exhaust valves.

BASES

ACTIONS (continued)

~~REVIEWERS NOTE~~

~~Conditions A and B may be combined into one Condition that addresses both the containment isolation valve pressure boundary intact and containment isolation valve pressure boundary not intact by specifying the limiting Completion Time for each configuration identified in Tables D-1, D-2, and D-3 of Reference 4.~~

~~The plant specific determination of the containment isolation valve Completion Time categories is performed by comparing the plant specific penetration types to the generic penetration types evaluated that are identified in Tables D-1, D-2, and D-3 of Reference 4.~~

~~The plant specific application of the generic analysis that justified the generic Completion Time categories is discussed in Section 9.0 of Reference 4.~~

~~Plant specific Completion Time categories may also be calculated in lieu of the generic Completion Time categories. This approach is discussed in Section 10.0 of Reference 4.~~

~~For plants not adopting the risk-informed extended Completion Time for containment isolation valves, a Completion Time of 4 hours is maintained. The 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4. A Condition for one or more penetration flow paths with one containment isolation valve inoperable for penetrations with one containment isolation valve and a closed system would be required.~~

9

For affected penetration flow paths that cannot be restored to OPERABLE status within the specified Completion Time and that have been isolated in accordance with Required Action A.1, the affected penetration flow paths must be verified to be isolated on a periodic basis. This is necessary to ensure that containment penetrations required to be isolated following an accident and no longer capable of being automatically isolated will be in the isolation position should an event occur. This Required Action does not require any testing or device manipulation. Rather, it involves verification that those isolation devices outside containment and capable of being mispositioned are in the correct position. The Completion Time of "once per 31 days for isolation devices outside containment" is appropriate considering the fact that the devices are operated under administrative controls and the probability of their misalignment is low. For the isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not

BASES

ACTIONS (continued)

performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

Required Action A.2 is modified by two Notes. Note 1 applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. Therefore, the probability of misalignment of these devices once they have been verified to be in the proper position, is small. ~~]~~ 5

~~[B.1 and B.2~~

~~Condition B is applicable to penetration flow paths with two [or more] containment isolation valves, and penetration flow paths with only one containment isolation valve and a closed system. The closed system must meet the requirements of Reference 3.~~

~~In the event one containment isolation valve in one or more penetration flow paths is inoperable, [except for purge valve or shield building bypass leakage not within limit,] and the containment isolation valve pressure boundary is not intact, the affected penetration flow path must be isolated. The containment isolation valve pressure boundary is considered not to be intact when the inoperable containment isolation valve is not capable of maintaining the boundary between the contained fluid and the containment or outside atmosphere. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic containment isolation valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. For a penetration flow path isolated in accordance with Required Action B.1, the device used to isolate the penetration should be the closest available one to containment. Required Action B.1 must be completed within [the Completion Time specified for each Category of containment isolation valve identified in [a licensee controlled document]. The Completion Time is justified in Reference 4.~~ 10

BASES

ACTIONS (continued)

~~REVIEWERS NOTE~~

~~Conditions A and B may be combined into one Condition that addresses both the containment isolation valve pressure boundary intact and containment isolation valve pressure boundary not intact by specifying the limiting Completion Time for each configuration identified in Tables D-1, D-2, and D-3 of Reference 4.~~

~~The plant specific determination of the containment isolation valve Completion Time categories is performed by comparing the plant specific penetration types to the generic penetration types evaluated that are identified in Tables D-1, D-2, and D-3 of Reference 4.~~

~~The plant specific application of the generic analysis that justified the generic Completion Time categories is discussed in Section 9.0 of Reference 4.~~

~~Plant specific Completion Time categories may also be calculated in lieu of the generic Completion Time categories. This approach is discussed in Section 10.0 of Reference 4.~~

~~For plants not adopting the risk-informed extended Completion Time for containment isolation valves, a Completion Time of 4 hours is maintained. The 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4. A Condition for one or more penetration flow paths with one containment isolation valve inoperable for penetrations with one containment isolation valve and a closed system would be required.~~

9

~~For affected penetration flow paths that cannot be restored to OPERABLE status within the specified Completion Time and that have been isolated in accordance with Required Action B.1, the affected penetration flow paths must be verified to be isolated on a periodic basis. This is necessary to ensure that containment penetrations required to be isolated following an accident and no longer capable of being automatically isolated, will be in an isolated position should an event occur. This Required Action does not require any testing or device manipulation. Rather, it involves verification that those isolation devices outside containment and capable of being mispositioned, are in the correct position. The Completion Time of "once per 31 days for isolation devices outside containment" is appropriate considering the fact that the devices are operated under administrative controls and the probability of their misalignment is low. For isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not~~

10

BASES

ACTIONS (continued)

~~performed within the previous 92 days" is based on engineering judgment, and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.~~

~~Required Action B.2 is modified by two Notes. Note 1 applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that the devices are not inadvertently repositioned. Therefore, the probability of misalignment of these devices once they have been verified to be in the proper position is small.~~] 10

B

~~C~~.1

isolation valve, containment vacuum relief isolation valve, 10 5

containment

With two ~~[or more]~~ containment isolation valves in one or more penetration flow paths inoperable, ~~[~~except for purge ~~valve~~ or shield building bypass leakage not within limit,~~]~~ the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1. In the event the affected penetration is isolated in accordance with Required Action ~~C~~.1, the affected penetration must be verified to be isolated on a periodic basis per Required Action A.2 ~~or B.2~~, which remains in effect. This periodic verification is necessary to assure leak tightness of containment and that penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration flow path is isolated is appropriate considering the fact that the valves are operated under administrative control and the probability of their misalignment is low.

B

B 10

Condition ~~C~~ is modified by a Note indicating this Condition is only applicable to penetration flow paths with two ~~[or more]~~ containment isolation valves. 10 5

BASES

ACTIONS (continued)

C
~~D~~.1 10

~~----------REVIEWERS NOTE----------~~
~~The analysis in Reference 4 evaluated each CIV in each penetration individually and determines an acceptable Completion Time based on the ICLERP and ΔLERF for each CIV. It is assumed that only a single CIV is inoperable in one penetration flow path. If plant specific analyses are performed to evaluate multiple inoperable CIVs in separate penetration flow paths, Condition D should be revised to reflect the plant specific analyses.~~
~~----------~~ 9

isolation valve, containment vacuum relief isolation valve, 5

containment In the event one containment isolation valve in two or more penetration flow paths is inoperable ~~[~~except for purge ~~valve~~ or shield building bypass leakage not within limit~~]~~, all but one of the affected penetration flow path(s) must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic containment isolation valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. For a penetration flow path isolated in accordance with

C C Required Action ~~D~~.1, the device used to isolate the penetration should be the closest available one to containment. Required Action ~~D~~.1 must be completed within 4 hours. For subsequent containment isolation valve inoperabilities, the Required Action and Completion Time continue to apply to each additional containment isolation valve inoperability, with the Completion Time based on each subsequent entry into the Condition consistent with Note 2 to the ACTIONS Table (e.g., for each entry into the Condition). Each containment isolation valve(s) that is (are) declared

C inoperable for subsequent Condition ~~D~~ entries shall meet the Required Action and Completion Time. For the penetration flow paths isolated in

C accordance with Required Action ~~D~~.1, the affected penetration(s) must be verified to be isolated on a periodic basis per Required Action A.2 ~~[or B.2]~~, which remains in effect. This periodic verification is necessary to assure that the penetrations requiring isolation following an accident are isolated. The 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting Containment OPERABILITY during MODES 1, 2, 3, and 4. 10

INSERT 4 6

6

INSERT 4

D.1 and D.2

In the event two or more pairs of containment purge lines are open, all but one penetration flow paths must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic containment isolation valve, a closed manual valve, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1. The 1 hour Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4.

E.1

With one or more containment vacuum relief isolation valve(s) inoperable, the inoperable valve(s) must be restored to OPERABLE status or the affected penetration flow path must be isolated.

In the containment vacuum relief lines, containment vacuum relief valves 30-571, 30-572, and 30-573 are qualified to perform a containment isolation function. These valves are self-actuated, swing disk (check) valves with an elastomer seat. The valves are normally closed and are equipped with limit switches that provide fully open and fully closed indication in the main control room (MCR). Therefore, a 72 hour Completion Time is appropriate while actions are taken to return the containment vacuum relief isolation valves to service.

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BASES

ACTIONS (continued)

F

~~[~~ ~~E~~.1

8

With the shield building bypass leakage rate (SR 3.6.3.~~11~~) ~~[or purge valve leakage rate (SR 3.6.3.7)]~~ not within limit, the assumptions of the safety analyses are not met. Therefore, the leakage must be restored to within limit. Restoration can be accomplished by isolating the penetration(s) that caused the limit to be exceeded by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. When a penetration is isolated the leakage rate for the isolated penetration is assumed to be the actual pathway leakage through the isolation device. If two isolation devices are used to isolate the penetration, the leakage rate is assumed to be the lesser actual pathway leakage of the two devices. The 4 hour Completion Time ~~for shield building bypass leakage~~ is reasonable considering the time required to restore the leakage by isolating the penetration(s) and the relative importance of secondary containment bypass leakage to the overall containment function. ~~[The 24 hour Completion time for purge valve leakage is acceptable considering the purge valves remain closed so that a gross breach of the containment does not exist.]~~

6 5 6

~~REVIEWER'S NOTE~~

~~[The bracketed options provided in ACTION E reflect options in plant design and options in adopting the associated leakage rate Surveillances.~~

~~The options (in both ACTION E and ACTION F) for purge valve leakage, are based primarily on the design - if leakage rates can be measured separately for each purge valve, ACTION F is intended to apply. This would be required to be able to implement Required Action F.3. Should the design allow only for leak testing both purge valves simultaneously, then the Completion Time for ACTION E should include the "24 hours for purge valve leakage" and ACTION F should be eliminated.]]~~

7

G

~~[~~ ~~F~~.1, ~~F~~.2, and ~~F~~.3

6

supply or exhaust

supply and exhaust

In the event one or more containment purge valves in one or more penetration flow paths are not within the purge valve leakage limits, purge valve leakage must be restored to within limits, or the affected penetration flow path must be isolated. The method of isolation must be by the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a ~~[~~closed and de-activated automatic valve, closed manual valve, or blind flange~~]~~. A purge valve with resilient seals utilized to satisfy Required Action ~~F~~.1

6 5 6

G

BASES

ACTIONS (continued)

must have been demonstrated to meet the leakage requirements of SR 3.6.3.~~7~~. The specified Completion Time is reasonable, considering that one containment purge valve remains closed so that a gross breach of containment does not exist.

In accordance with Required Action ~~F~~.2, this penetration flow path must be verified to be isolated on a periodic basis. The periodic verification is necessary to ensure that containment penetrations required to be isolated following an accident, which are no longer capable of being automatically isolated, will be in the isolation position should an event occur. This Required Action does not require any testing or valve manipulation. Rather, it involves verification that those isolation devices outside containment capable of being mispositioned are in the correct position. For the isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

For the containment purge valve with resilient seal that is isolated in accordance with Required Action ~~F~~.1, SR 3.6.3.~~7~~ must be performed at least once every ~~[~~92~~]~~ days. This assures that degradation of the resilient seal is detected and confirms that the leakage rate of the containment purge valve does not increase during the time the penetration is isolated. ~~The normal Frequency for SR 3.6.3.7, 184 days, is based on an NRC initiative, Generic Issue B-20 (Ref. 5).~~ Since more reliance is placed on a single valve while in this Condition, ~~it is prudent to perform the SR more often. Therefore,~~ a Frequency of once per ~~[~~92~~]~~ days was chosen and has been shown to be acceptable based on operating experience.

Required Action ~~F~~.2 is modified by two Notes. Note 1 applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. ~~]~~

BASES

ACTIONS (continued)

H

~~G~~.1 and ~~G~~.2 6

If the Required Actions and associated Completion Times are not met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

~~[SR 3.6.3.1~~

~~Each [42] inch containment purge valve is required to be verified sealed closed. This Surveillance is designed to ensure that a gross breach of containment is not caused by an inadvertent or spurious opening of a containment purge valve. Detailed analysis of the purge valves failed to conclusively demonstrate their ability to close during a LOCA in time to limit offsite doses. Therefore, these valves are required to be in the sealed closed position during MODES 1, 2, 3, and 4. A containment purge valve that is sealed closed must have motive power to the valve operator removed. This can be accomplished by de-energizing the source of electric power or by removing the air supply to the valve operator. In this application, the term "sealed" has no connotation of leak tightness. [The Frequency of 31 days is a result of an NRC initiative, Generic Issue B-24 (Ref. 6), related to containment purge valve use during plant operations. In the event purge valve leakage requires entry into Condition E, the Surveillance permits opening one purge valve in a penetration flow path to perform repairs.~~

~~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

BASES

SURVEILLANCE REQUIREMENTS (continued)

[SR 3.6.3.~~2~~ 1

This SR ensures that the ~~mini~~purge valves are closed as required or, if open, open for an allowable reason. If a purge valve is open in violation of this SR, the valve is considered inoperable. If the inoperable valve is not otherwise known to have excessive leakage when closed, it is not considered to have leakage outside of limits. The SR is not required to be met when the ~~mini~~purge valves are open for the reasons stated. The valves may be opened for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open. The ~~mini~~purge valves are capable of closing in the environment following a LOCA. Therefore, these valves are allowed to be open for limited periods of time. ~~[The 31 day Frequency is consistent with other containment isolation valve requirements discussed in SR 3.6.3.3.~~

~~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 3.6.3.~~3~~ 2

This SR requires verification that each containment isolation manual valve and blind flange located outside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the containment boundary is within design limits. This SR does not require any testing or valve manipulation. Rather, it involves verification that those containment isolation valves outside containment and capable of being mispositioned are in the correct position. ~~[Since verification of valve position for containment isolation valves outside containment is relatively easy, the 31 day Frequency is based on engineering judgment and was chosen to provide added assurance of the correct positions.~~

5

INSERT 5

The number of valves open during MODES 1, 2, 3, and 4, is limited to no more than one pair of containment purge lines, that includes one set of supply valves and one set of exhaust valves.

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~OR~~ 12

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.~~
~~----------]~~ 9

The SR specifies that containment isolation valves that are open under administrative controls are not required to meet the SR during the time the valves are open. This SR does not apply to valves that are locked, sealed, or otherwise secured in the closed position, since these were verified to be in the correct position upon locking, sealing, or securing.

The Note applies to valves and blind flanges located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, 3, and 4 for ALARA reasons. Therefore, the probability of misalignment of these containment isolation valves, once they have been verified to be in the proper position, is small.

3
SR 3.6.3.~~4~~ 6

This SR requires verification that each containment isolation manual valve and blind flange located inside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed. The SR helps to ensure that post accident leakage of radioactive fluids or gases outside of the containment boundary is within design limits. For containment isolation valves inside containment, the Frequency of "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is appropriate since these containment isolation valves are operated under administrative controls and the probability of their misalignment is low. The SR specifies that containment isolation valves that are open under administrative controls are not required to meet the SR during the time they are open. This SR does not apply to valves that are locked, sealed, or otherwise secured in the closed position, since these were verified to be in the correct position upon locking, sealing, or securing.

BASES

SURVEILLANCE REQUIREMENTS (continued)

This Note allows valves and blind flanges located in high radiation areas to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted during MODES 1, 2, 3, and 4, for ALARA reasons. Therefore, the probability of misalignment of these containment isolation valves, once they have been verified to be in their proper position, is small.

4

SR 3.6.3.~~5~~ 6

Verifying that the isolation time of each automatic power operated containment isolation valve is within limits is required to demonstrate OPERABILITY. The isolation time test ensures the valve will isolate in a time period less than or equal to that assumed in the safety analyses.

~~REVIEWER'S NOTE~~
~~If the testing is within the scope of the licensee's Inservice Testing Program, the Frequency "In accordance with the Inservice Testing Program" should be used. Otherwise, the periodic Frequency of 92 days or the reference to the Surveillance Frequency Control Program should be used.~~ 9

~~[~~ The ~~[~~isolation time and~~]~~ Frequency of this SR is in accordance with ~~[~~the Inservice Testing Program~~]~~ ~~[92 days~~.

~~OR~~

~~The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.]]~~ 5

~~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.~~
~~]~~ 9

~~[SR 3.6.3.6~~

~~In subatmospheric containments, the check valves that serve a containment isolation function are weight or spring loaded to provide positive closure in the direction of flow. This ensures that these check valves will remain closed when the inside containment atmosphere~~ 6

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~returns to subatmospheric conditions following a DBA. SR 3.6.3.6 requires verification of the operation of the check valves that are testable during unit operation. [The Frequency of 92 days is consistent with the Inservice Testing Program requirement for valve testing on a 92 day Frequency.~~

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

5

[SR 3.6.3.~~7~~ 5 6

For containment purge valves with resilient seals, additional leakage rate testing beyond the test requirements of 10 CFR 50, Appendix J, Option ~~[A]~~[B~~]~~, is required to ensure OPERABILITY. Operating experience has demonstrated that this type of seal has the potential to degrade in a shorter time period than do other seal types. 5

~~[Based on this observation and the importance of maintaining this penetration leak tight (due to the direct path between containment and the environment), a Frequency of 184 days was established as part of the NRC resolution of Generic Issue B-20, "Containment Leakage Due to Seal Deterioration" (Ref. 5).~~ 12

~~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.~~
~~----------]~~ 9

~~Additionally, this SR must be performed within 92 days after opening the valve. The 92 day Frequency was chosen recognizing that cycling the~~ 6

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~valve could introduce additional seal degradation (beyond that occurring to a valve that has not been opened). Thus, decreasing the interval is a prudent measure after a valve has been opened.]~~ 6

6

SR 3.6.3.~~8~~ 6

Automatic containment isolation valves close on a containment isolation signal to prevent leakage of radioactive material from containment following a DBA. This SR ensures that each automatic containment isolation valve will actuate to its isolation position on a containment isolation 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 plant 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 this Surveillance when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~ 12

~~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.~~
~~----------]~~ 9

~~[SR 3.6.3.9~~

~~In subatmospheric containments, the check valves that serve a containment isolation function are weight or spring loaded to provide positive closure in the direction of flow. This ensures that these check valves will remain closed when the inside containment atmosphere returns to subatmospheric conditions following a DBA. SR 3.6.3.9 verifies the operation of the check valves that are not testable during unit operation. [The Frequency of 18 months is based on such factors as the inaccessibility of these valves, the fact that the unit must be shut down to perform the tests, and the successful results of the tests on an 18 month basis during past unit operation.~~ 6

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.~~
~~]]~~ 6

7

~~[~~ SR 3.6.3.~~10~~ 5 6

~~REVIEWER'S NOTE~~
~~This SR is only required for those units with resilient seal purge valves allowed to be open during [MODE 1, 2, 3, or 4] and having blocking devices on the valves that are not permanently installed.~~ 9

Verifying that each ~~[42] inch~~ containment purge valve is blocked to restrict opening to ~~≤ [~~50~~]~~% is required to ensure that the valves can close under DBA conditions within the times assumed in the analyses of References 1 and 2. If a LOCA occurs, the purge valves must close to maintain containment leakage within the values assumed in the accident analysis. At other times when purge valves are required to be capable of closing (e.g., during movement of ~~[recently]~~ irradiated fuel assemblies), pressurization concerns are not present, thus the purge valves can be fully open. ~~[The 18 month Frequency is appropriate because the blocking devices are typically removed only during a refueling outage.~~ 5 12

degrees

<

~~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.~~
~~]]~~ 9

BASES

SURVEILLANCE REQUIREMENTS (continued)

8

~~[~~ SR 3.6.3.~~11~~ 5 6

(those paths that would potentially allow leakage from the primary containment to circumvent the annulus secondary containment enclosure and escape to the auxiliary building secondary enclosure)

This SR ensures that the combined leakage rate of all shield building bypass leakage paths is less than or equal to the specified leakage rate. This provides assurance that the assumptions in the safety analysis are met. The leakage rate ~~of each bypass leakage path is assumed to be the~~ maximum pathway leakage (leakage through the worse of the two isolation valves) ~~unless the~~ penetration is isolated by use of one closed and de-activated automatic valve, closed manual valve, or blind flange~~.~~ ~~In this case,~~ the leakage rate of the isolated bypass leakage path is assumed to be the actual pathway leakage through the isolation device. If both isolation valves in the penetration are closed, the actual leakage rate is the lesser leakage rate of the two valves. The Frequency is required by the Containment Leakage Rate Testing Program. This SR simply imposes additional acceptance criteria. 13 14

as-left bypass

prior to the first startup after performing a leakage test requires calculation using

. If the

, then

Following startup, the as-found leakage rate will be calculated using minimum pathway leakage.

~~[~~Bypass leakage is considered part of L_a. 5

~~REVIEWER'S NOTE~~
~~Unless specifically exempted.]]~~ 9

REFERENCES

Chapter

U

1. FSAR, ~~Section [~~15~~]~~.
2. FSAR, Section ~~[~~6.2~~]~~. .4 and Table 6.2.4-1
3. Standard Review Plan 6.2.4.
4. WCAP-15791-A, Rev. 2, "Risk-Informed Evaluation of Extensions to Containment Isolation Valve Completion Times," ~~[Date to be supplied later]~~. June 2008
5. ~~Generic Issue B-20, "Containment Leakage Due to Seal Deterioration."~~
6. ~~Generic Issue B-24.~~

2 5 5 5 11 6

INSERT 6 15

15 **INSERT 6**

Table B 3.6.3-1 (Page 1 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
FCV-01-7	X-14D	2	8 hours	9	8 hours
FCV-01-14	X-14A	2	8 hours	9	8 hours
FCV-01-25	X-14C	2	8 hours	9	8 hours
FCV-01-32	X-14B	2	8 hours	9	8 hours
FCV-01-147	X-13A	2	8 hours	9	8 hours
FCV-01-148	X-13B	2	8 hours	9	8 hours
FCV-01-149	X-13C	2	8 hours	9	8 hours
FCV-01-150	X-13D	2	8 hours	9	8 hours
FCV-01-181	X-14D	2	8 hours	9	8 hours
FCV-01-182	X-14A	2	8 hours	9	8 hours
FCV-01-183	X-14C	2	8 hours	9	8 hours
FCV-01-184	X-14B	2	8 hours	9	8 hours
VLV-01-532	X-13C	2	8 hours	9	8 hours
VLV-01-534	X-13B	2	8 hours	9	8 hours
VLV-01-536	X-13A	2	8 hours	9	8 hours
VLV-01-538	X-13D	2	8 hours	9	8 hours
VLV-01-824	X-14D	2	8 hours	9	8 hours
VLV-01-825	X-14A	2	8 hours	9	8 hours
VLV-01-826	X-14C	2	8 hours	9	8 hours
VLV-01-827	X-14B	2	8 hours	9	8 hours
VLV-01-922	X-13A	2	8 hours	9	8 hours
VLV-01-923	X-13B	2	8 hours	9	8 hours
VLV-01-924	X-13C	2	8 hours	9	8 hours
VLV-01-925	X-13D	2	8 hours	9	8 hours
VLV-03-351C	X-104	2	8 hours	9	8 hours
VLV-03-352C	X-102	2	8 hours	9	8 hours
VLV-03-500	X-12C	2	8 hours	9	8 hours
VLV-03-502	X-12B	2	8 hours	9	8 hours
VLV-03-504	X-12A	2	8 hours	9	8 hours
VLV-03-506	X-12D	2	8 hours	9	8 hours
VLV-03-842	X-40B	1	4 hours	8	4 Hours
VLV-03-847	X-40B	1	4 hours	8	4 Hours

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15 **INSERT 6**

Table B 3.6.3-1 (Page 2 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
VLV-03-848	X-40A	1	4 hours	8	4 Hours
VLV-03-849	X-12A	2	8 hours	9	8 hours
VLV-03-850	X-12D	2	8 hours	9	8 hours
VLV-03-851	X-40B	1	4 hours	8	4 Hours
VLV-03-852	X-40A	1	4 hours	8	4 Hours
VLV-03-853	X-12A	2	8 hours	9	8 hours
VLV-03-854	X-12D	2	8 hours	9	8 hours
VLV-03-855	X-40B	1	4 hours	8	4 Hours
VLV-03-857	X-12A	2	8 hours	9	8 hours
VLV-03-858	X-12D	2	8 hours	9	8 hours
VLV-03-859	X-40B	1	4 hours	8	4 Hours
VLV-03-860	X-40A	1	4 hours	8	4 Hours
VLV-03-887	X-40B	1	4 hours	8	4 Hours
VLV-03-888	X-40A	1	4 hours	8	4 Hours
VLV-03-889	X-12A	2	8 hours	9	8 hours
VLV-03-890	X-12D	2	8 hours	9	8 hours
VLV-03-896	X-40B	1	4 hours	8	4 Hours
VLV-03-897	X-40B	1	4 hours	8	4 Hours
VLV-03-899	X-40A	1	4 hours	8	4 Hours
VLV-03-900	X-40A	1	4 hours	8	4 Hours
VLV-03-901	X-40A	1	4 hours	8	4 Hours
VLV-03-903	X-12A	2	8 hours	9	8 hours
VLV-03-904	X-12A	2	8 hours	9	8 hours
VLV-03-906	X-12D	2	8 hours	9	8 hours
VLV-03-907	X-12D	2	8 hours	9	8 hours
VLV-03-970	X-104	7	7 days	14	7 days
VLV-03-971	X-104	7	7 days	14	7 days
VLV-03-972	X-102	7	7 days	14	7 days
FCV-26-240	X-51	7	7 days	14	7 days
FCV-26-243	X-78	7	7 days	14	7 days
VLV-26-1258	X-51	7	7 days	14	7 days
VLV-26-1260	X-51	7	7 days	14	7 days

15 **INSERT 6**

Table B 3.6.3-1 (Page 3 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
VLV-26-1293	X-78	7	7 days	14	7 days
VLV-26-1296	X-78	7	7 days	14	7 days
DRIV-30-30CX	X-27A	7	7 days	14	7 days
DRIV-30-30CY	X-27A	7	7 days	14	7 days
DRIV-30-42X	X-27B	7	7 days	14	7 days
DRIV-30-42Y	X-27B	7	7 days	14	7 days
DRIV-30-43X	X-26A	7	7 days	14	7 days
DRIV-30-43Y	X-26A	7	7 days	14	7 days
DRIV30-44X	X-25B	7	7 days	14	7 days
DRIV-30-44Y	X-25B	7	7 days	14	7 days
DRIV-30-45X	X-85B	7	7 days	14	7 days
DRIV-30-45Y	X-85B	7	7 days	14	7 days
DRIV-30-46AX	X-111	7	7 days	14	7 days
DRIV-30-46AY	X-111	7	7 days	14	7 days
DRIV-30-46BY	X-111	7	7 days	14	7 days
DRIV-30-47AX	X-112	7	7 days	14	7 days
DRIV-30-47AY	X-112	7	7 days	14	7 days
DRIV-30-47BY	X-112	7	7 days	14	7 days
DRIV-30-48AX	X-113	7	7 days	14	7 days
DRIV-30-48AY	X-113	7	7 days	14	7 days
DRIV-30-48BY	X-113	7	7 days	14	7 days
DRIV-30-310X	X-26A	7	7 days	14	7 days
DRIV-30-310Y	X-26A	7	7 days	14	7 days
DRIV-30-311X	X-25B	7	7 days	14	7 days
DRIV-30-311Y	X-25B	7	7 days	14	7 days
FCV-30-7	X-9A	7	7 days	14	7 days
FCV-30-8	X-9A	7	7 days	14	7 days
FCV-30-9	X-9B	7	7 days	14	7 days
FCV-30-10	X-9B	7	7 days	14	7 days
FCV-30-14	X-10A	7	7 days	14	7 days
FCV-30-15	X-10A	7	7 days	14	7 days
FCV-30-16	X-10B	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 4 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
FCV-30-17	X-10B	7	7 days	14	7 days
FCV-30-19	X-11	7	7 days	14	7 days
FCV-30-20	X-11	7	7 days	14	7 days
FCV-30-37	X-80	7	7 days	14	7 days
FCV-30-40	X-80	7	7 days	14	7 days
FCV-30-46	X-111	7	7 days	14	7 days
FCV-30-47	X-112	7	7 days	14	7 days
FCV-30-48	X-113	7	7 days	14	7 days
FCV-30-50	X-6	7	7 days	14	7 days
FCV-30-51	X-6	7	7 days	14	7 days
FCV-30-52	X-7	7	7 days	14	7 days
FCV-30-53	X-7	7	7 days	14	7 days
FCV-30-56	X-4	7	7 days	14	7 days
FCV-30-57	X-4	7	7 days	14	7 days
FCV-30-58	X-5	7	7 days	14	7 days
FCV-30-59	X-5	7	7 days	14	7 days
FSV-30-134	X-97	7	7 days	14	7 days
FSV-30-135	X-97	7	7 days	14	7 days
PDT-30-30C	X-27A	7	7 days	14	7 days
PDT-30-42	X-27B	7	7 days	14	7 days
PDT-30-43	X-26A	7	7 days	14	7 days
PDT-30-44	X-25B	7	7 days	14	7 days
PDT-30-45	X-85B	7	7 days	14	7 days
PDT-30-310	X-26A	7	7 days	14	7 days
PDT-30-311	X-25B	7	7 days	14	7 days
VLV-30-554TP	X-5	7	7 days	14	7 days
VLV-30-555TP	X-4	7	7 days	14	7 days
VLV-30-556TP	X-80	7	7 days	14	7 days
VLV-30-557TP	X-7	7	7 days	14	7 days
VLV-30-558TP	X-6	7	7 days	14	7 days
VLV-30-559TP	X-11	7	7 days	14	7 days
VLV-30-560TP	X-10B	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 5 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
VLV-30-561TP	X-10A	7	7 days	14	7 days
VLV-30-562TP	X-9B	7	7 days	14	7 days
VLV-30-563TP	X-9A	7	7 days	14	7 days
VLV-30-571	X-111	7	7 days	14	7 days
VLV-30-572	X-112	7	7 days	14	7 days
VLV-30-573	X-113	7	7 days	14	7 days
FCV-31C-222	X-64	7	7 days	14	7 days
FCV-31C-223	X-64	7	7 days	14	7 days
FCV-31C-224	X-65	7	7 days	14	7 days
FCV-31C-225	X-65	7	7 days	14	7 days
FCV-31C-229	X-66	7	7 days	14	7 days
FCV-31C-230	X-66	7	7 days	14	7 days
FCV-31C-231	X-67	7	7 days	14	7 days
FCV-31C-232	X-67	7	7 days	14	7 days
VLV-31C-697	X-67	7	7 days	14	7 days
VLV-31C-715	X-66	7	7 days	14	7 days
VLV-31C-734	X-65	7	7 days	14	7 days
VLV-31C-752	X-64	7	7 days	14	7 days
FCV-32-81	X-90	7	7 days	14	7 days
FCV-32-103	X-26B	7	7 days	14	7 days
FCV-32-110	X-34	7	7 days	14	7 days
FCV-32-111	X-34	7	7 days	14	7 days
VLV-32-341	X-26B	7	7 days	14	7 days
VLV-32-345	X-26B	7	7 days	14	7 days
VLV-32-348	X-26B	7	7 days	14	7 days
VLV-32-353	X-90	7	7 days	14	7 days
VLV-32-354	X-90	7	7 days	14	7 days
VLV-32-358	X-90	7	7 days	14	7 days
VLV-32-373	X-34	7	7 days	14	7 days
VLV-32-375	X-34	7	7 days	14	7 days
VLV-32-377	X-34	7	7 days	14	7 days
VLV-32-383	X-34	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 6 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
VLV-32-385	X-34	7	7 days	14	7 days
VLV-32-387	X-34	7	7 days	14	7 days
BLF - Sys 33	X-40D	7	7 days	14	7 days
VLV-33-211	X-76	7	7 days	14	7 days
VLV-33-722	X-76	7	7 days	14	7 days
VLV-33-739	X-76	7	7 days	14	7 days
CKV-43-460	X-106	7	7 days	14	7 days
CKV-43-461	X-103	7	7 days	14	7 days
FCV-43-3	X-25A	7	7 days	14	7 days
FCV-43-12	X-25D	7	7 days	14	7 days
FCV-43-23	X-96C	7	7 days	14	7 days
FCV-43-35	X-93	7	7 days	14	7 days
FSV-43-2	X-25A	7	7 days	14	7 days
FSV-43-11	X-25D	7	7 days	14	7 days
FSV-43-22	X-96C	7	7 days	14	7 days
FSV-43-34	X-93	7	7 days	14	7 days
FSV-43-55	X-14D	2	8 hours	9	8 hours
FSV-43-58	X-14A	2	8 hours	9	8 hours
FSV-43-61	X-14C	2	8 hours	9	8 hours
FSV-43-64	X-14B	2	8 hours	9	8 hours
FSV-43-200A	X-99, X-100	7	7 days	14	7 days
FSV-43-200I	X-99, X-100	7	7 days	14	7 days
FSV-43-201	X-99, X-100	7	7 days	14	7 days
FSV-43-202	X-99, X-100	7	7 days	14	7 days
FSV-43-207	X-92A, X-92B	7	7 days	14	7 days
FSV-43-208	X-92A, X-92B	7	7 days	14	7 days
FSV-43-210A	X-92A, X-92B	7	7 days	14	7 days
FSV-43-210I	X-92A, X-92B	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 7 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
FSV-43-250	X-91	7	7 days	14	7 days
FSV-43-251	X-91	7	7 days	14	7 days
FSV-43-287	X-116A	7	7 days	14	7 days
FSV-43-288	X-116A	7	7 days	14	7 days
FSV-43-307	X-106	7	7 days	14	7 days
FSV-43-309	X-23	7	7 days	14	7 days
FSV-43-310	X-23	7	7 days	14	7 days
FSV-43-317	X-103	7	7 days	14	7 days
FSV-43-318	X-101	7	7 days	14	7 days
FSV-43-319	X-101	7	7 days	14	7 days
FSV-43-325	X-106	7	7 days	14	7 days
FSV-43-341	X-103	7	7 days	14	7 days
TV-43-464	X-103	7	7 days	14	7 days
TV-43-469	X-106	7	7 days	14	7 days
TV-43-474	X-101	7	7 days	14	7 days
TV-43-477	X-116A	7	7 days	14	7 days
VLV-43-417	X-92A, X-92B	7	7 days	14	7 days
VLV-43-419	X-99, X-100	7	7 days	14	7 days
VLV-43-421	X-92A, X-92B	7	7 days	14	7 days
VLV-43-423	X-99, X-100	7	7 days	14	7 days
VLV-43-424	X-92A, X-92B	7	7 days	14	7 days
VLV-43-426	X-99, X-100	7	7 days	14	7 days
VLV-43-427	X-99, X-100	7	7 days	14	7 days
VLV-43-492	X-23	7	7 days	14	7 days
VLV-43-497	X-91	7	7 days	14	7 days
VLV-43-525	X-92A, X-92B	7	7 days	14	7 days
TTIV-52-508	X-98	7	7 days	14	7 days
TTIV-52-510	X-27C	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 8 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
VLV-52-500	X-87D	7	7 days	14	7 days
VLV-52-501	X-87D	7	7 days	14	7 days
VLV-52-502	X-87B	7	7 days	14	7 days
VLV-52-503	X-87B	7	7 days	14	7 days
VLV-52-504	X-27C	7	7 days	14	7 days
VLV-52-505	X-27C	7	7 days	14	7 days
VLV-52-506	X-98	7	7 days	14	7 days
VLV-52-507	X-98	7	7 days	14	7 days
VLV-59-522	X-77	7	7 days	14	7 days
VLV-59-529	X-77	7	7 days	14	7 days
VLV-59-633	X-77	7	7 days	14	7 days
VLV-59-651	X-77	7	7 days	14	7 days
VLV-59-704	X-77	7	7 days	14	7 days
BLF - Sys 61	X-79A	7	7 days	13	72 hours
BLF - Sys 61	X-79B	7	7 days	13	72 hours
FCV-61-96	X-115	7	7 days	14	7 days
FCV-61-97	X-115	7	7 days	14	7 days
FCV-61-110	X-114	7	7 days	14	7 days
FCV-61-122	X-114	7	7 days	14	7 days
FCV-61-191	X-47A	7	7 days	14	7 days
FCV-61-192	X-47A	7	7 days	14	7 days
FCV-61-193	X-47B	7	7 days	14	7 days
FCV-61-194	X-47B	7	7 days	14	7 days
VLV-61-532	X-47A	7	7 days	14	7 days
VLV-61-533	X-47A	7	7 days	14	7 days
VLV-61-680	X-47B	7	7 days	14	7 days
VLV-61-681	X-47B	7	7 days	14	7 days
VLV-61-691	X-115	7	7 days	14	7 days
VLV-61-692	X-115	7	7 days	14	7 days
VLV-61-745	X-114	7	7 days	14	7 days
VLV-61-746	X-114	7	7 days	14	7 days
FCV-62-61	X-44	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 9 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
FCV-62-63	X-44	7	7 days	14	7 days
FCV-62-72	X-15	7	7 days	14	7 days
FCV-62-73	X-15	7	7 days	14	7 days
FCV-62-74	X-15	7	7 days	14	7 days
FCV-62-77	X-15	7	7 days	14	7 days
FCV-62-90	X-16	7	7 days	14	7 days
VLV-62-505	X-24	7	7 days	14	7 days
VLV-62-543	X-16	7	7 days	14	7 days
VLV-62-544	X-16	7	7 days	14	7 days
VLV-62-546	X-43A, X-43B, X-43C, X-43D	7	7 days	14	7 days
VLV-62-549	X-43A, X-43B, X-43C, X-43D	7	7 days	14	7 days
VLV-62-550	X-43A, X-43B, X-43C, X-43D	7	7 days	14	7 days
VLV-62-555	X-43A, X-43B, X-43C, X-43D	7	7 days	14	7 days
VLV-62-560	X-43D	7	7 days	14	7 days
VLV-62-561	X-43B	7	7 days	14	7 days
VLV-62-562	X-43C	7	7 days	14	7 days
VLV-62-563	X-43A	7	7 days	14	7 days
VLV-62-568	X-43D	7	7 days	14	7 days
VLV-62-569	X-43B	7	7 days	14	7 days
VLV-62-570	X-43C	7	7 days	14	7 days
VLV-62-571	X-43A	7	7 days	14	7 days
VLV-62-572	X-43D	7	7 days	14	7 days
VLV-62-573	X-43B	7	7 days	14	7 days
VLV-62-574	X-43C	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 10 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
VLV-62-575	X-43A	7	7 days	14	7 days
VLV-62-576	X-43D	7	7 days	14	7 days
VLV-62-577	X-43B	7	7 days	14	7 days
VLV-62-578	X-43A	7	7 days	14	7 days
VLV-62-579	X-43C	7	7 days	14	7 days
VLV-62-639	X-44	7	7 days	14	7 days
VLV-62-662	X-15	7	7 days	14	7 days
VLV-62-707	X-15	7	7 days	14	7 days
VLV-62-709	X-16	7	7 days	14	7 days
FCV-63-21	X-32	7	7 days	14	7 days
FCV-63-22	X-33	1	4 hours	8	4 hours
FCV-63-23	X-30	7	7 days	14	7 days
FCV-63-25	X-22	1	4 hours	8	4 hours
FCV-63-26	X-22	1	4 hours	8	4 hours
FCV-63-64	X-39A	7	7 days	14	7 days
FCV-63-71	X-30	7	7 days	14	7 days
FCV-63-72	X-19A	1	4 hours	8	4 hours
FCV-63-73	X-19B	1	4 hours	8	4 hours
FCV-63-84	X-30	7	7 days	14	7 days
FCV-63-93	X-20B	7	7 days	14	7 days
FCV-63-94	X-20A	7	7 days	14	7 days
FCV-63-111	X-20B	7	7 days	14	7 days
FCV-63-112	X-20A	7	7 days	14	7 days
FCV-63-121	X-33	7	7 days	14	7 days
FCV-63-156	X-32	7	7 days	14	4 hours
FCV-63-157	X-21	7	7 days	14	4 hours
FCV-63-158	X-17	7	7 days	14	7 days
FCV-63-167	X-21	7	7 days	14	7 days
FCV-63-172	X-17	1	4 hours	8	4 hours
FCV-63-174	X-22	7	7 days	14	7 days
FSV-63-25	X-22	7	7 days	14	7 days
FSV-63-26	X-22	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 11 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
VLV-63-311A	X-32	7	7 days	14	7 days
VLV-63-313A	X-21	7	7 days	14	7 days
VLV-63-314A	X-21	7	7 days	14	7 days
VLV-63-315A	X-32	7	7 days	14	7 days
VLV-63-316A	X-32	7	7 days	14	7 days
VLV-63-317A	X-21	7	7 days	14	7 days
VLV-63-318A	X-21	7	7 days	14	7 days
VLV-63-319A	X-33	7	7 days	14	7 days
VLV-63-320A	X-33	7	7 days	14	7 days
VLV-63-321A	X-33	7	7 days	14	7 days
VLV-63-322A	X-33	7	7 days	14	7 days
VLV-63-323A	X-33	7	7 days	14	7 days
VLV-63-324A	X-33	7	7 days	14	7 days
VLV-63-325A	X-33	7	7 days	14	7 days
VLV-63-326A	X-33	7	7 days	14	7 days
VLV-63-344A	X-30	7	7 days	14	7 days
VLV-63-413	X-20B	7	7 days	14	7 days
VLV-63-511	X-24	7	7 days	14	7 days
VLV-63-534	X-24	7	7 days	14	7 days
VLV-63-535	X-24	7	7 days	14	7 days
VLV-63-536	X-24	7	7 days	14	7 days
VLV-63-537	X-30	7	7 days	14	7 days
VLV-63-541	X-32	7	7 days	14	7 days
VLV-63-543	X-32	7	7 days	8	4 Hours
VLV-63-545	X-32	7	7 days	8	4 Hours
VLV-63-547	X-21	7	7 days	8	4 Hours
VLV-63-549	X-21	7	7 days	8	4 Hours
VLV-63-551	X-33	1	4 hours	8	4 Hours
VLV-63-553	X-33	1	4 hours	8	4 Hours
VLV-63-555	X-33	1	4 hours	8	4 Hours
VLV-63-557	X-33	1	4 hours	8	4 Hours
VLV-63-581	X-22	1	4 hours	8	4 Hours

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Table B 3.6.3-1 (Page 12 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
VLV-63-590	X-17	7	7 days	14	7 days
VLV-63-591	X-17	7	7 days	14	7 days
VLV-63-592	X-17	7	7 days	14	7 days
VLV-63-593	X-17	7	7 days	14	7 days
VLV-63-612A	X-32	7	7 days	14	7 days
VLV-63-626	X-24	7	7 days	14	7 days
VLV-63-627	X-24	7	7 days	14	7 days
VLV-63-630	X-20B	7	7 days	14	7 days
VLV-63-631	X-20A	7	7 days	14	7 days
VLV-63-632	X-20B	7	7 days	14	7 days
VLV-63-633	X-20A	7	7 days	14	7 days
VLV-63-634	X-20B	7	7 days	14	7 days
VLV-63-635	X-20A	7	7 days	14	7 days
VLV-63-636	X-17	7	7 days	14	7 days
VLV-63-637	X-17	7	7 days	14	7 days
VLV-63-638	X-24	7	7 days	14	7 days
VLV-63-640	X-17	1	4 hours	8	4 hours
VLV-63-642	X-17	7	7 days	14	7 days
VLV-63-643	X-17	1	4 hours	8	4 hours
VLV-63-648	X-21	7	7 days	14	7 days
VLV-63-649	X-21	7	7 days	14	7 days
VLV-63-650	X-21	7	7 days	14	7 days
VLV-63-653	X-33	7	7 days	14	7 days
VLV-63-654	X-33	7	7 days	14	7 days
VLV-63-655	X-33	7	7 days	14	7 days
VLV-63-656	X-33	7	7 days	14	7 days
VLV-63-657	X-32	7	7 days	14	7 days
VLV-63-658	X-32	7	7 days	14	7 days
VLV-63-659	X-20B	7	7 days	14	7 days
VLV-63-660	X-20B	7	7 days	14	7 days
VLV-63-661	X-20A	7	7 days	14	7 days
VLV-63-667	X-20A	7	7 days	14	7 days

15 **INSERT 6**

Table B 3.6.3-1 (Page 13 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
VLV-63-816	X-22	7	7 days	14	7 days
VLV-63-823	X-32	7	7 days	14	7 days
VLV-63-831	X-33	7	7 days	14	7 days
VLV-63-833	X-20A	7	7 days	14	7 days
VLV-63-836	X-33	7	7 days	14	7 days
VLV-63-862	X-21	7	7 days	14	7 days
VLV-63-864	X-32	7	7 days	14	7 days
VLV-63-870	X-17	7	7 days	14	7 days
CKV-67-1523A	X-58	7	7 days	14	7 days
CKV-67-1523B	X-60	7	7 days	14	7 days
CKV-67-1523C	X-62	7	7 days	14	7 days
CKV-67-1523D	X-56	7	7 days	14	7 days
FCV-67-83	X-56	7	7 days	14	7 days
FCV-67-87	X-59	7	7 days	14	7 days
FCV-67-88	X-59	7	7 days	14	7 days
FCV-67-89	X-56	7	7 days	14	7 days
FCV-67-90	X-60	7	7 days	14	7 days
FCV-67-91	X-60	7	7 days	14	7 days
FCV-67-95	X-63	7	7 days	14	7 days
FCV-67-96	X-63	7	7 days	14	7 days
FCV-67-99	X-62	7	7 days	14	7 days
FCV-67-103	X-61	7	7 days	14	7 days
FCV-67-104	X-61	7	7 days	14	7 days
FCV-67-105	X-62	7	7 days	14	7 days
FCV-67-106	X-58	7	7 days	14	7 days
FCV-67-107	X-58	7	7 days	14	7 days
FCV-67-111	X-57	7	7 days	14	7 days
FCV-67-112	X-57	7	7 days	14	7 days
FCV-67-130	X-69	7	7 days	14	7 days
FCV-67-131	X-73	7	7 days	14	7 days
FCV-67-133	X-75	7	7 days	14	7 days
FCV-67-134	X-71	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 14 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
FCV-67-138	X-74	7	7 days	14	7 days
FCV-67-139	X-70	7	7 days	14	7 days
FCV-67-141	X-68	7	7 days	14	7 days
FCV-67-142	X-72	7	7 days	14	7 days
FCV-67-295	X-73	7	7 days	14	7 days
FCV-67-296	X-71	7	7 days	14	7 days
FCV-67-297	X-70	7	7 days	14	7 days
FCV-67-298	X-72	7	7 days	14	7 days
VLV-67-561A	X-58	7	7 days	14	7 days
VLV-67-561B	X-60	7	7 days	14	7 days
VLV-67-561C	X-62	7	7 days	14	7 days
VLV-67-561D	X-56	7	7 days	14	7 days
VLV-67-575A	X-59	7	7 days	14	7 days
VLV-67-575B	X-61	7	7 days	14	7 days
VLV-67-575C	X-63	7	7 days	14	7 days
VLV-67-575D	X-57	7	7 days	14	7 days
VLV-67-579A	X-69	7	7 days	14	7 days
VLV-67-579B	X-74	7	7 days	14	7 days
VLV-67-579C	X-75	7	7 days	14	7 days
VLV-67-579D	X-68	7	7 days	14	7 days
VLV-67-580A	X-69	7	7 days	14	7 days
VLV-67-580B	X-74	7	7 days	14	7 days
VLV-67-580C	X-75	7	7 days	14	7 days
VLV-67-580D	X-68	7	7 days	14	7 days
VLV-67-585A	X-73	7	7 days	14	7 days
VLV-67-585B	X-70	7	7 days	14	7 days
VLV-67-585C	X-71	7	7 days	14	7 days
VLV-67-585D	X-72	7	7 days	14	7 days
VLV-67-772	X-56	7	7 days	14	7 days
VLV-67-774	X-60	7	7 days	14	7 days
VLV-67-776	X-62	7	7 days	14	7 days
VLV-67-778	X-58	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 15 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
FCV-68-305	X-39B	7	7 days	14	7 days
FCV-68-307	X-84A	7	7 days	14	7 days
FCV-68-308	X-84A	7	7 days	14	7 days
RVLIS - Sys 68	X-85C	7	7 days	14	7 days
RVLIS - Sys 68	X-86A	7	7 days	14	7 days
RVLIS - Sys 68	X-86B	7	7 days	14	7 days
RVLIS - Sys 68	X-86C	7	7 days	14	7 days
RVLIS - Sys 68	X-25C	7	7 days	14	7 days
RVLIS - Sys 68	X-27D	7	7 days	14	7 days
RVLIS - Sys 68	X-26C	7	7 days	14	7 days
VLV-68-559	X-24	7	7 days	14	7 days
VLV-68-560	X-24	7	7 days	14	7 days
VLV-68-561	X-24	7	7 days	14	7 days
FCV-70-85	X-35	7	7 days	14	7 days
FCV-70-87	X-50A	7	7 days	14	7 days
FCV-70-89	X-29	7	7 days	14	7 days
FCV-70-90	X-50A	7	7 days	14	7 days
FCV-70-92	X-29	7	7 days	14	7 days
FCV-70-134	X-50B	7	7 days	14	7 days
FCV-70-140	X-52	7	7 days	14	7 days
FCV-70-141	X-52	7	7 days	14	7 days
FCV-70-143	X-53	7	7 days	14	7 days
VLV-70-678B	X-50B	7	7 days	14	7 days
VLV-70-679	X-50B	7	7 days	14	7 days
VLV-70-687	X-50A	7	7 days	14	7 days
VLV-70-691B	X-52	7	7 days	14	7 days
VLV-70-698	X-29	7	7 days	14	7 days
VLV-70-702B	X-53	7	7 days	14	7 days
VLV-70-702C	X-35	7	7 days	14	7 days
VLV-70-702E	X-53	7	7 days	14	7 days
VLV-70-702F	X-35	7	7 days	14	7 days
VLV-70-703	X-35, X-53	7	7 days	14	7 days

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Table B 3.6.3-1 (Page 16 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
VLV-70-735	X-29	7	7 days	14	7 days
VLV-70-737	X-50A	7	7 days	14	7 days
VLV-70-759	X-35	7	7 days	14	7 days
VLV-70-760	X-53	7	7 days	14	7 days
VLV-70-762	X-35	7	7 days	14	7 days
VLV-70-764	X-35	7	7 days	14	7 days
VLV-70-765	X-53	7	7 days	14	7 days
VLV-70-791	X-52	7	7 days	14	7 days
DRIV-72-215F	X-49A	7	7 days	14	7 days
DRIV-72-216F	X-49A	7	7 days	14	7 days
DRIV-72-217F	X-49B	7	7 days	14	7 days
DRIV-72-218F	X-49B	7	7 days	14	7 days
FCV-72-2	X-48B	7	7 days	14	7 days
FCV-72-39	X-48A	7	7 days	14	7 days
FCV-72-40	X-49A	7	7 days	14	7 days
FCV-72-41	X-49B	7	7 days	14	7 days
RFV-72-40	X-49A	7	7 days	14	7 days
RFV-72-41	X-49B	7	7 days	14	7 days
TTIV-72-215E	X-49A	7	7 days	14	7 days
TTIV-72-216E	X-49A	7	7 days	14	7 days
TTIV-72-217E	X-49B	7	7 days	14	7 days
TTIV-72-218E	X-49B	7	7 days	14	7 days
VLV-72-512	X-24	7	7 days	14	7 days
VLV-72-513	X-24	7	7 days	14	7 days
VLV-72-517	X-24	7	7 days	14	7 days
VLV-72-518	X-24	7	7 days	14	7 days
VLV-72-543	X-48A	7	7 days	14	7 days
VLV-72-544	X-48B	7	7 days	14	7 days
VLV-72-545	X-48A	7	7 days	14	7 days
VLV-72-546	X-48B	7	7 days	14	7 days
VLV-72-547	X-48A	7	7 days	14	7 days
VLV-72-548	X-48B	7	7 days	14	7 days

Insert Page B 3.6.3-20p

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Table B 3.6.3-1 (Page 17 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
VLV-72-551	X-49B	7	7 days	14	7 days
VLV-72-552	X-49A	7	7 days	14	7 days
VLV-72-555	X-49B	7	7 days	14	7 days
VLV-72-556	X-49A	7	7 days	14	7 days
FCV-74-1	X-107	1	4 hours	8	4 hours
FCV-74-2	X-107	1	4 hours	8	4 hours
VLV-74-503	X-107	7	7 days	14	7 days
VLV-74-504	X-107	7	7 days	14	7 days
VLV-74-505	X-107	1	4 hours	8	4 hours
VLV-74-549	X-107	7	7 days	14	7 days
FCV-77-9	X-46	7	7 days	14	7 days
FCV-77-10	X-46	7	7 days	14	7 days
FCV-77-18	X-45	7	7 days	14	7 days
FCV-77-19	X-45	7	7 days	14	7 days
FCV-77-20	X-45	7	7 days	14	7 days
FCV-77-127	X-41	7	7 days	14	7 days
FCV-77-128	X-41	7	7 days	14	7 days
VLV-77-848	X-39B	7	7 days	14	7 days
VLV-77-849	X-39B	7	7 days	14	7 days
VLV-77-867	X-39A	7	7 days	14	7 days
VLV-77-868	X-39A	7	7 days	14	7 days
VLV-77-984	X-45	7	7 days	14	7 days
VLV-78-226A	X-83	7	7 days	14	7 days
VLV-78-228A	X-82	7	7 days	14	7 days
VLV-78-557	X-83	6	72 hours	13	72 hours
VLV-78-558	X-83	6	72 hours	13	72 hours
VLV-78-560	X-82	6	72 hours	13	72 hours
VLV-78-561	X-82	6	72 hours	13	72 hours
FCV-81-12	X-42	7	7 days	14	7 days
VLV-81-502	X-42	7	7 days	14	7 days
VLV-81-529	X-42	7	7 days	14	7 days
VLV-84-511	X-46	7	7 days	14	7 days

15 **INSERT 6**

Table B 3.6.3-1 (Page 18 of 18)
Containment Isolation Valve Completion Times

UNID	Penetration	Pressure Boundary Maintained		Pressure Boundary Compromised	
		Category	Completion Time	Category	Completion Time
BLF - Sys 88	X-54	7	7 days	13	72 hours
BLF - Sys 88	X-88	7	7 days	14	7 days
BLF - Sys 88	X-108	1	4 hours	8	4 hours
BLF - Sys 88	X-109	1	4 hours	8	4 hours
BLF - Sys 88	X-117	6	72 hours	13	72 hours
BLF - Sys 88	X-118	6	72 hours	13	72 hours
FCV-90-107	X-94A	7	7 days	14	7 days
FCV-90-107	X-94B	7	7 days	14	7 days
FCV-90-108	X-94B	7	7 days	14	7 days
FCV-90-109	X-94A	7	7 days	14	7 days
FCV-90-110	X-94C	7	7 days	14	7 days
FCV-90-111	X-94C	7	7 days	14	7 days
FCV-90-113	X-95A	7	7 days	14	7 days
FCV-90-113	X-95B	7	7 days	14	7 days
FCV-90-114	X-95B	7	7 days	14	7 days
FCV-90-115	X-95A	7	7 days	14	7 days
FCV-90-116	X-95C	7	7 days	14	7 days
FCV-90-117	X-95C	7	7 days	14	7 days

JUSTIFICATION FOR DEVIATIONS
ITS 3.6.3 BASES, CONTAINMENT ISOLATION VALVES

1. The type of Containment (Atmospheric, Subatmospheric, Ice Condenser, and Dual) is deleted since it is unnecessary. This information is provided in NUREG-1431, Rev. 4.0, to assist in identifying the appropriate Specification to be used as a model for the plant specific ITS conversion, but serves no purpose in a plant specific implementation.

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

3. ISTS 3.6.3 Background section describes the Shutdown Purge System and the Minipurge System. Sequoyah Nuclear Plant (SQN) does not have a Shutdown Purge System or a Minipurge System. Instead SQN uses the Reactor Building Purge Ventilation for purging. Therefore, all information pertaining to the Shutdown Purge System and the Minipurge System has been deleted and information pertaining to the Reactor Building Purge Ventilation has been added.

4. ISTS 3.6.3 Applicable Safety Analysis (ASA) section states "The DBA analysis assumes that, within 60 seconds after the accident, isolation of the containment is complete and leakage terminated except for the design leakage rate, L_a. The containment isolation total response time of 60 seconds includes signal delay, diesel generator startup (for loss of offsite power), and containment isolation valve stroke times." For SQN this time is 85 seconds. Therefore, the time duration has been changed to reflect the proper DBA time for SQN.

5. 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.

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

7. ISTS 3.6.3 ACTION E.1 (ITS ACTION F) Bases contains a bracketed value for the 24 hours completion Time of Action E for purge valve leakage which is generic to Westinghouse vintage plants. At SQN, the purge valves are designed to allow the leakage rates to be measured separately on each purge valve. Therefore, ISTS 3.6.3 ACTION F (ITS ACTION G) has been identified as the appropriate ACTION for these purge valves and the bracketed value in ISTS 3.6.3 ACTION E has been deleted. Additionally, ISTS 3.6.3 ACTION E.1 Bases contains a Reviewer's Note which advises the NRC reviewer on when to apply the ACTION E option and when to apply the ACTION F option. This 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. Furthermore, this is current licensing bases for SQN.

8. ISTS 3.6.3 Bases has been modified to include a discussion of the new ACTIONS Note 5. ITS 3.6.3 ACTION Note 5 prohibits more than one pair of containment purge lines (one set of supply valves and one set of exhaust valves) to be opened.

9. 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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JUSTIFICATION FOR DEVIATIONS
ITS 3.6.3 BASES, CONTAINMENT ISOLATION VALVES

10. ACTIONS A and B have been combined into one ACTION, as provided in the ISTS 3.6.3 Bases Reviewer's Note. Subsequent ACTIONS (ISTS 3.6.3 ACTIONS C and D) have been renumbered.

11. ISTS 3.6.3 ACTION F (ITS ACTION G) states, in part, "The normal Frequency for SR 3.6.3.7, 184 days, is based on an NRC initiative, Generic Issue B-20 (Ref. 4). Since more reliance is placed on a single valve while in this Condition, it is prudent to perform the SR more often. Therefore, a Frequency of once per 92 days was chosen and has been shown to be acceptable based on operating experience." This statement is not true for SQN. The current Frequency for verifying the isolation time of each automatic power operated containment isolation valve is within limits is at least once per 3 months (for ITS this frequency is 92 days). Therefore, the ISTS 3.6.3 ACTION F statement has been modified to reflect the current licensing bases.

12. ISTS SR 3.6.3.2, SR 3.6.3.3, SR 3.6.3.7, SR 3.6.3.8, and SR 3.6.3.10 Bases (ITS SR 3.6.3.1, SR 3.6.3.2, SR 3.6.3.5, SR 3.6.3.6, and SR 3.6.3.7, 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.

13. Changes are made to include details moved from the Current Technical Specifications to the Bases.

14. Changes are made to be consistent with statements in the LCO Section of the 3.6.1 Bases.

15. Table B 3.6.3-1, Containment Isolation Valve Completion Times, has been added to provide the specified Completion Time and Category for each containment isolation valve.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.6.3, CONTAINMENT ISOLATION VALVES

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

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ATTACHMENT 4

ITS 3.6.4, CONTAINMENT PRESSURE

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

ITS

A01

ITS 3.6.4

CONTAINMENT SYSTEMS

CONTAINMENT

~~INTERNAL~~ PRESSURE

A02

LIMITING CONDITION FOR OPERATION

LCO 3.6.4

3.6.1.4 ~~Primary~~ containment ~~internal~~ pressure shall be maintained between -0.1 and 0.3 psig ~~relative to the annulus pressure~~.

Keep

A02

LA01

Keep

CSS-016

Applicability

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

ACTION A

With the containment internal pressure outside of the limits above, restore the internal pressure to within the limits within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD

ACTION B

SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1

4.6.1.4 The primary containment internal pressure shall be determined to within the limits ~~at least once per 12 hours~~.

In accordance with the Surveillance Frequency Control Program

LA02

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ITS

A01

ITS 3.6.4

CONTAINMENT SYSTEMS

CONTAINMENT

~~INTERNAL~~ PRESSURE

A02

LIMITING CONDITION FOR OPERATION

LCO 3.6.4 3.6.1.4 ~~Primary~~ containment ~~internal~~ pressure shall be maintained between -0.1 and 0.3 psig ~~relative to the annulus pressure~~.

Keep

A02

LA01

Keep

CSS-016

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

ACTION:

ACTION A With the containment internal pressure outside of the above limits, restore the internal pressure to within the limits within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD

ACTION B SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1 4.6.1.4 The primary containment internal pressure shall be determined to within the specified limits ~~at least once per 12 hours~~.

In accordance with the Surveillance Frequency Control Program

LA02

DISCUSSION OF CHANGES
ITS 3.6.4, CONTAINMENT PRESSURE

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 3.6.1.4 states, in part, "Primary containment internal pressure shall be maintained between -0.1 and 0.3 psig…" ITS 3.6.4 states "Containment pressure shall be ≥ -0.1 and ≤ +0.3 psig." Additionally, the title for CTS 3.6.1.4 is "Internal Pressure." The title for ITS 3.6.4 is "Containment Pressure." This changes the CTS by changing the title and changing the LCO statement.

This change is a wording preference that does not change the requirements for Containment Pressure. This change is designated as an administrative change and is acceptable 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 3.6.1.4 states that the Primary containment internal pressure shall be maintained between -0.1 and 0.3 psig relative to the annulus pressure. ITS LCO 3.6.4 includes a similar requirement, but does not specify that it is relative to the annulus pressure. This changes the CTS by moving the detail that the containment pressure limits are relative to the annulus pressure to the Bases.~~

Not used.

CSS-016

~~The removal of this detail, which is related to system design, from the CTS 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 LCO 3.6.4 still provides a requirement to maintain containment pressure within limits. 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~~

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DISCUSSION OF CHANGES
ITS 3.6.4, CONTAINMENT PRESSURE

~~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 CTS.~~ CSS-016

LA02 *(Type 5 – Removal of SR Requirement to the Surveillance Frequency Control Program)* CTS 4.6.1.4 requires the primary containment internal pressure to be determined to be within limits at least once per 12 hours. ITS SR 3.6.4.1 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 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 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

Containment Pressure ~~(Atmospheric, Dual, and Ice Condenser)~~
3.6.4~~A~~ (1)

3.6 CONTAINMENT SYSTEMS

3.6.4~~A~~ Containment Pressure ~~(Atmospheric, Dual, and Ice Condenser)~~ (1)

3.6.1.4 LCO 3.6.4~~A~~ Containment pressure shall be ≥ ~~[~~-0.~~3]~~ (1) psig and ≤ ~~[~~+~~1.5]~~ (0.3) psig. (3)

relative to the annulus pressure

CSS-016

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A. Containment pressure not within limits.	A.1 Restore containment pressure to within limits.	1 hour
ACTION B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
4.6.1.4 SR 3.6.4~~A~~.1 Verify containment pressure is within limits.	~~[~~ 12 hours ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ (1) (4) (4)

CTS

Containment Pressure ~~(Atmospheric, Dual, and Ice Condenser)~~
3.6.4~~A~~ (1)

3.6 CONTAINMENT SYSTEMS

3.6.4~~A~~ Containment Pressure ~~(Atmospheric, Dual, and Ice Condenser)~~ (1)

3.6.1.4 LCO 3.6.4~~A~~ Containment pressure shall be ≥ ~~[~~-0.~~3]~~ (1) psig and ≤ ~~[~~+~~1.5]~~ (0.3) psig. (3)

relative to the annulus pressure

CSS-016

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A. Containment pressure not within limits.	A.1 Restore containment pressure to within limits.	1 hour
ACTION B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
4.6.1.4 SR 3.6.4~~A~~.1 Verify containment pressure is within limits.	~~[12 hours~~ (1) (4) ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ (4)

JUSTIFICATION FOR DEVIATIONS
ITS 3.6.4, CONTAINMENT PRESSURE

1. The type of Containment (Atmospheric Dual, and Ice Condenser) and the Specification designator "A" are deleted since they are unnecessary (only one Containment Pressure Specification is used in the Sequoyah Nuclear (SQN) Plant ITS.) This information is provided in NUREG-1431, Rev. 4.0, to assist in indentifying the appropriate Specification to be used as a model for the plant specific ITS conversion, but serves no purpose in a plant specific implementation. In addition, the Subatmospheric Containment Pressure Bases (ISTS 3.6.4B) is not used and is not shown.

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

3. The 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. ISTS SR 3.6.4A.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.

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

B 3.6 CONTAINMENT SYSTEMS

B 3.6.4~~A~~ Containment Pressure ~~(Atmospheric, Dual, and Ice Condenser)~~

BASES

BACKGROUND

The containment pressure is limited during normal operation to preserve the initial conditions assumed in the accident analyses for a loss of coolant accident (LOCA) or steam line break (SLB). These limits also prevent the containment pressure from exceeding the containment design negative pressure differential with respect to the ~~outside atmosphere~~ annulus pressure in the event of inadvertent actuation of the Containment Spray System.

Containment pressure is a process variable that is monitored and controlled. The containment pressure limits are derived from the input conditions used in the containment functional analyses ~~and the containment structure external pressure analysis~~. Should operation occur outside these limits coincident with a Design Basis Accident (DBA), post accident containment pressures could exceed calculated values.

APPLICABLE SAFETY ANALYSES

Containment internal pressure is an initial condition used in the DBA analyses to establish the maximum peak containment internal pressure. The limiting DBAs considered, relative to containment pressure, are the LOCA and SLB, which are analyzed using computer pressure transients. The worst case LOCA generates larger mass and energy release than the worst case SLB. Thus, the LOCA event bounds the SLB event from the containment peak pressure standpoint (Ref. 1).

CSS-022

The initial pressure condition used in the containment analysis was 0.3 ~~[17.7] psia ([3.0]~~ psig~~)~~. This resulted in a maximum peak compression pressure of 7.18 psig in the upper containment from a LOCA ~~of [53.9] psig~~. The containment analysis (Ref. 1) shows that the maximum peak calculated containment pressure, P_a, results from the limiting LOCA. The maximum containment pressure resulting from the worst case LOCA, ~~[44.1]~~ psig, does not exceed the containment design pressure, ~~[55]~~ psig.

~~CSS-022~~ 11.33 12 ~~11.48~~ 11.44 ICE

The containment was also designed for an external pressure load equivalent to ~~[-2.5]~~ 0.5 psig. The inadvertent actuation of the Containment Spray System and Air Return System was analyzed to determine the resulting reduction in containment pressure. The initial pressure condition used in this analysis was ~~[-0.3] psig~~ 0.1 psi less than annulus pressure. This resulted in a minimum pressure inside containment of ~~[-2.0] psig~~ 0.49 psi less than annulus pressure, which is less than the design load.

BASES

APPLICABLE SAFETY ANALYSES (continued)

For certain aspects of transient accident analyses, maximizing the calculated containment pressure is not conservative. In particular, the cooling effectiveness of the Emergency Core Cooling System during the core reflood phase of a LOCA analysis increases with increasing containment backpressure. Therefore, for the reflood phase, the containment backpressure is calculated in a manner designed to conservatively minimize, rather than maximize, the containment pressure response in accordance with 10 CFR 50, Appendix K (Ref. 2).

Containment pressure satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

, relative to the annulus pressure,

Maintaining containment pressure at less than or equal to the LCO upper pressure limit ensures that, in the event of a DBA, the resultant peak containment accident pressure will remain below the containment design pressure. Maintaining containment pressure at greater than or equal to the LCO lower pressure limit ensures that the containment will not exceed the design negative differential pressure following the inadvertent actuation of the Containment Spray System.

2

, relative to the annulus pressure,

2

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. Since maintaining containment pressure within limits is essential to ensure initial conditions assumed in the accident analyses are maintained, the LCO is applicable in MODES 1, 2, 3 and 4.

In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, maintaining containment pressure within the limits of the LCO is not required in MODE 5 or 6.

ACTIONS

A.1

When containment pressure is not within the limits of the LCO, it must be restored to within these limits within 1 hour. The Required Action is necessary to return operation to within the bounds of the containment analysis. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1, "Containment," which requires that containment be restored to OPERABLE status within 1 hour.

BASES

ACTIONS (continued)

B.1 and B.2

If containment pressure cannot be restored to within limits within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.4~~A~~.1

Verifying that containment pressure is within limits ensures that unit operation remains within the limits assumed in the containment analysis. ~~[The 12 hour Frequency of this SR was developed based on operating experience related to trending of containment pressure variations during the applicable MODES. Furthermore, the 12 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal containment pressure condition.~~

~~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

U

1. FSAR, Section ~~[~~6.2~~]~~.
2. 10 CFR 50, Appendix K.

B 3.6 CONTAINMENT SYSTEMS

B 3.6.4~~A~~ Containment Pressure ~~(Atmospheric, Dual, and Ice Condenser)~~

BASES

BACKGROUND

The containment pressure is limited during normal operation to preserve the initial conditions assumed in the accident analyses for a loss of coolant accident (LOCA) or steam line break (SLB). These limits also prevent the containment pressure from exceeding the containment design negative pressure differential with respect to the ~~outside atmosphere~~ annulus pressure in the event of inadvertent actuation of the Containment Spray System.

Containment pressure is a process variable that is monitored and controlled. The containment pressure limits are derived from the input conditions used in the containment functional analyses ~~and the containment structure external pressure analysis~~. Should operation occur outside these limits coincident with a Design Basis Accident (DBA), post accident containment pressures could exceed calculated values.

APPLICABLE SAFETY ANALYSES

Containment internal pressure is an initial condition used in the DBA analyses to establish the maximum peak containment internal pressure. The limiting DBAs considered, relative to containment pressure, are the LOCA and SLB, which are analyzed using computer pressure transients. The worst case LOCA generates larger mass and energy release than the worst case SLB. Thus, the LOCA event bounds the SLB event from the containment peak pressure standpoint (Ref. 1).

CSS-022

The initial pressure condition used in the containment analysis was ~~[17.7] psia ([3.0] psig~~. This resulted in a maximum peak pressure compression of 7.18 psig in the upper containment from a LOCA ~~of [53.9] psig~~. The containment analysis (Ref. 1) shows that the maximum peak calculated containment pressure, P_a, results from the limiting LOCA. The maximum containment pressure resulting from the worst case LOCA, ~~[44.1]~~ psig, does not exceed the containment design pressure, ~~[55]~~ psig.

~~CSS-022~~

11.44 ICE

The containment was also designed for an external pressure load equivalent to ~~[-2.5]~~ psig. The inadvertent actuation of the Containment Spray System and Air Return System was analyzed to determine the resulting reduction in containment pressure. The initial pressure condition used in this analysis was ~~[-0.3] psig~~. This resulted in a minimum pressure inside containment of ~~[-2.0] psig~~, which is less than the design load.

BASES

APPLICABLE SAFETY ANALYSES (continued)

For certain aspects of transient accident analyses, maximizing the calculated containment pressure is not conservative. In particular, the cooling effectiveness of the Emergency Core Cooling System during the core reflood phase of a LOCA analysis increases with increasing containment backpressure. Therefore, for the reflood phase, the containment backpressure is calculated in a manner designed to conservatively minimize, rather than maximize, the containment pressure response in accordance with 10 CFR 50, Appendix K (Ref. 2).

Containment pressure satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

, relative to the annulus pressure,

Maintaining containment pressure at less than or equal to the LCO upper pressure limit ensures that, in the event of a DBA, the resultant peak containment accident pressure will remain below the containment design pressure. Maintaining containment pressure at greater than or equal to the LCO lower pressure limit ensures that the containment will not exceed the design negative differential pressure following the inadvertent actuation of the Containment Spray System. 2

, relative to the annulus pressure, 2

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. Since maintaining containment pressure within limits is essential to ensure initial conditions assumed in the accident analyses are maintained, the LCO is applicable in MODES 1, 2, 3 and 4.

In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, maintaining containment pressure within the limits of the LCO is not required in MODE 5 or 6.

ACTIONS

A.1

When containment pressure is not within the limits of the LCO, it must be restored to within these limits within 1 hour. The Required Action is necessary to return operation to within the bounds of the containment analysis. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1, "Containment," which requires that containment be restored to OPERABLE status within 1 hour.

BASES

ACTIONS (continued)

B.1 and B.2

If containment pressure cannot be restored to within limits within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.4~~A~~.1

Verifying that containment pressure is within limits ensures that unit operation remains within the limits assumed in the containment analysis. ~~[The 12 hour Frequency of this SR was developed based on operating experience related to trending of containment pressure variations during the applicable MODES. Furthermore, the 12 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal containment pressure condition.~~

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

2. 10 CFR 50, Appendix K.

JUSTIFICATION FOR DEVIATIONS
ITS 3.6.4 BASES, CONTAINMENT PRESSURE

1. The type of Containment (Atmospheric Dual, and Ice Condenser) and the Specification designator "A" are deleted since they are unnecessary (only one Containment Pressure Specification is used in the Sequoyah Nuclear (SQN) Plant ITS.) This information is provided in NUREG-1431, Rev. 4.0, to assist in indentifying the appropriate Specification to be used as a model for the plant specific ITS conversion, but serves no purpose in a plant specific implementation. In addition, the Subatmospheric Containment Pressure Bases (ISTS B 3.6.4B) is not used and is not shown.

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

3. The 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 3.6.4A.1 Bases 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.

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 3.6.4, CONTAINMENT PRESSURE

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

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ATTACHMENT 5

ITS 3.6.5, CONTAINMENT AIR TEMPERATURE

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

ITS A01 ITS 3.6.5

CONTAINMENT SYSTEMS

AIR TEMPERATURE

LIMITING CONDITION FOR OPERATION

LCO 3.6.5 3.6.1.5 Primary containment average air temperature shall be maintained:

LCO 3.6.5.a a. between 85°F* and 105°F in the containment upper compartment, and

LCO 3.6.5.b b. between 100°F* and 125°F in the containment lower compartment.

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

ACTION:

ACTION A With the containment average air temperature not conforming to the above limits, restore the air temperature to within the limits within 8 hours or be in at least HOT STANDBY within the next 6 hours and
ACTION B in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

SR 3.6.5.1 4.6.1.5.1 The primary containment upper compartment average air temperature shall be ~~the weighted average** of all ambient air temperature monitoring stations located in the upper compartment. As a minimum, temperature readings will be obtained at least once per 24 hours from the following locations:~~

within limits

In accordance with the Surveillance Frequency Control Program

LA01 LA02

~~Location~~
~~a. Elev. 743 ft.~~
~~b. Elev. 786 ft.~~
~~c. Elev. 786 or 845 ft.~~

SR 3.6.5.2 4.6.1.5.2 The primary containment lower compartment average air temperature shall be ~~the weighted average** of all ambient air temperature monitoring stations located in the lower compartment. As a minimum, temperature readings will be obtained at least once per 24 hours from the following locations:~~

within limits

In accordance with the Surveillance Frequency Control Program

LA01 LA02

~~Location~~
~~a. Elev. 722 ft.~~
~~b. Elev. 700 ft.~~
~~c. Elev. 685 or 703 ft.~~

LCO Note * Lower limit may be reduced to 60°F in MODES 2, 3 and 4.

~~** The weighted average is the sum of each temperature multiplied by its respective containment volume fraction. In the event of inoperable temperature sensor(s), the weighted average shall be taken as the reduced total divided by one minus the volume fraction represented by the sensor(s) out of service.~~

LA02

ITS A01 ITS 3.6.5

CONTAINMENT SYSTEMS

AIR TEMPERATURE

LIMITING CONDITION FOR OPERATION

LCO 3.6.5 3.6.1.5 Primary containment average air temperature shall be maintained:

LCO 3.6.5.a a. between 85°F* and 105°F in the containment upper compartment, and

LCO 3.6.5.b b. between 100°F* and 125°F in the containment lower compartment.

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

ACTION:

ACTION A With the containment average air temperature not conforming to the above limits, restore the air temperature to within the limits within 8 hours or be in at least HOT STANDBY within the next 6 hours and
ACTION B in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

SR 3.6.5.1 4.6.1.5.1 The primary containment upper compartment average air temperature shall be ~~the weighted average** of all ambient air temperature monitoring stations located in the upper compartment. As a minimum, temperature readings will be obtained at least once per 24 hours from the following locations:~~

within limits

In accordance with the Surveillance Frequency Control Program — LA01

LA02

~~Location~~

~~a. Elev. 743 ft.~~
~~b. Elev. 786 ft.~~
~~c. Elev. 786 or 845 ft~~.

SR 3.6.5.2 4.6.1.5.2 The primary containment lower compartment average air temperature shall be ~~the weighted average** of all ambient air temperature monitoring stations located in the lower compartment. As a minimum, temperature readings will be obtained at least once per 24 hours from the following locations:~~

within limits

In accordance with the Surveillance Frequency Control Program — LA01

LA02

~~Location~~

~~a. Elev. 722 ft.~~
~~b. Elev. 700 ft.~~
~~c. Elev. 685 or 703 ft~~.

LCO Note

* Lower limit may be reduced to 60°F in MODES 2, 3 and 4.

~~** The weighted average is the sum of each temperature multiplied by its respective containment volume fraction. In the event of inoperable temperature sensor(s), the weighted average shall be taken as the reduced total divided by one minus the volume fraction represented by the sensor(s) out of service.~~

LA02

DISCUSSION OF CHANGES
ITS 3.6.5, CONTAINMENT AIR TEMPERATURE

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 4.6.1.5.1 requires that the primary containment upper compartment average air temperature readings to be obtained at least once per 24 hours. CTS 4.6.1.5.2 requires that the primary containment lower compartment average air temperature readings to be obtained at least once per 24 hours. ITS SR 3.6.5.1 and SR 3.6.5.2 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 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

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DISCUSSION OF CHANGES
ITS 3.6.5, CONTAINMENT AIR TEMPERATURE

as a less restrictive removal of detail change, because the Surveillance Frequencies are being removed from the Technical Specifications.

LA02 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 4.6.1.5.1 requires the primary containment upper compartment average air temperature to be the weighted average of all ambient air temperature monitoring stations located in the upper compartment. Furthermore, CTS 4.6.1.5.1 requires, as a minimum, that temperature readings be obtained from Elevation 743 ft., Elevation 786 ft., and Elevation 786 or 845 ft. CTS 4.6.1.5.2 requires that the primary containment lower compartment average air temperature to be the weighted average of all ambient air temperature monitoring stations located in the lower compartment. Additionally, CTS 4.6.1.5.2 requires, as a minimum, temperature readings be obtained from Elevation 722 ft., Elevation 700 ft., and Elevation 685 or 703 ft. Furthermore, CTS 4.6.1.5.1 and CTS 4.6.1.5.2 state that the weighted average is the sum of each temperature multiplied by its respective containment volume fraction and in the event of inoperable temperature sensor(s), the weighted average shall be taken as the reduced total divided by one minus the volume fraction represented by the sensor(s) out of service. ITS SR 3.6.5.1 requires verification that the containment upper compartment average air temperature is within the limits. ITS SR 3.6.5.2 requires verification that the containment lower compartment average air temperature is within the limits. This changes the CTS by moving the description of how compliance with the Technical Specification LCO is determined 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 to verify containment average air temperatures are within limits. Also, this change is acceptable because these types of procedural details will be adequately controlled in the Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

None

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

CTS

1

3.6 CONTAINMENT SYSTEMS

3.6.5~~B~~ Containment Air Temperature ~~(Ice Condenser)~~

1

3.6.1.5 LCO 3.6.5~~B~~ Containment average air temperature shall be: 1

105

3.6.1.5.a a. ≥ ~~[~~85~~]~~°F and ≤ ~~[~~110~~]~~°F for the containment upper compartment and 3

125

3.6.1.5.b b. ≥ ~~[~~100~~]~~°F and ≤ ~~[~~120~~]~~°F for the containment lower compartment. 3

Footnote *

----------NOTE----------
The minimum containment average air temperature in MODES 2, 3, and 4 may be reduced to ~~[~~60~~]~~°F. 3

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A. Containment average air temperature not within limits.	A.1 Restore containment average air temperature to within limits.	8 hours
ACTION B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

2 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY
4.6.1.5.1	SR 3.6.5~~B~~.1	Verify containment upper compartment average air temperature is within limits.	~~[~~ 24 hours ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 4
4.6.1.5.2	SR 3.6.5~~B~~.2	Verify containment lower compartment average air temperature is within limits.	~~[~~ 24 hours ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 4

CTS

1

3.6 CONTAINMENT SYSTEMS

3.6.5~~B~~ Containment Air Temperature ~~(Ice Condenser)~~

1

3.6.1.5 LCO 3.6.5~~B~~ Containment average air temperature shall be: 1

105

3.6.1.5.a a. ≥ ~~[~~85~~]~~°F and ≤ ~~[~~110~~]~~°F for the containment upper compartment and 3

125

3.6.1.5.b b. ≥ ~~[~~100~~]~~°F and ≤ ~~[~~120~~]~~°F for the containment lower compartment. 3

Footnote *

----------NOTE----------
The minimum containment average air temperature in MODES 2, 3, and 4 may be reduced to ~~[~~60~~]~~°F. 3

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A. Containment average air temperature not within limits.	A.1 Restore containment average air temperature to within limits.	8 hours
ACTION B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

2 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY
4.6.1.5.1	SR 3.6.5~~B~~.1	Verify containment upper compartment average air temperature is within limits.	~~[~~ 24 hours ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 4
4.6.1.5.2	SR 3.6.5~~B~~.2	Verify containment lower compartment average air temperature is within limits.	~~[~~ 24 hours ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~ 4

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JUSTIFICATION FOR DEVIATIONS
ITS 3.6.5, CONTAINMENT AIR TEMPERATURE

1. The type of Containment (Ice Condenser) and the Specification designator "B" are deleted since they are unnecessary (only one Containment Specification is used in the Sequoyah Nuclear (SQN) Plant ITS). This information is provided in NUREG-1431, Rev. 4.0, to assist in identifying the appropriate Specification to be used as a model for the plant specific ITS conversion, but serves no purpose in a plant specific implementation. In addition, the Atmospheric, Subatmospheric, and Dual Containment Specification (ISTS 3.6.5A and ISTS 3.6.5C) are not used and are not shown.

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

3. The 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 3.6.5B.1 and SR 3.6.5B.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.

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

B 3.6 CONTAINMENT SYSTEMS

B 3.6.5~~B~~ Containment Air Temperature ~~(Ice Condenser)~~ 1

BASES

BACKGROUND

The containment structure serves to contain radioactive material that may be released from the reactor core following a Design Basis Accident (DBA). The containment average air temperature is limited, during normal operation, to preserve the initial conditions assumed in the accident analyses for a loss of coolant accident (LOCA) or steam line break (SLB).

The containment average air temperature limit is derived from the input conditions used in the containment functional analyses and the containment structure external pressure analyses. This LCO ensures that initial conditions assumed in the analysis of containment response to a DBA are not violated during unit operations. The total amount of energy to be removed from containment by the Containment Spray and Cooling systems during post accident conditions is dependent upon the energy released to the containment due to the event, as well as the initial containment temperature and pressure. The higher the initial temperature, the more energy that must be removed, resulting in a higher peak containment pressure and temperature. Exceeding containment design pressure may result in leakage greater than that assumed in the accident analysis. Operation with containment temperature in excess of the LCO limit violates an initial condition assumed in the accident analysis.

APPLICABLE SAFETY ANALYSES

Containment average air temperature is an initial condition used in the DBA analyses that establishes the containment environmental qualification operating envelope for both pressure and temperature. The limit for containment average air temperature ensures that operation is maintained within the assumptions used in the DBA analyses for containment (Ref. 1).

The limiting DBAs considered relative to containment OPERABILITY are the LOCA and SLB. The DBA LOCA and SLB are analyzed using computer codes designed to predict the resultant containment pressure transients. No two DBAs are assumed to occur simultaneously or consecutively. The postulated DBAs are analyzed with regard to Engineered Safety Feature (ESF) systems, assuming the loss of one ESF bus, which is the worst case single active failure, resulting in one train each of Containment Spray System, Residual Heat Removal System, and Air Return System being rendered inoperable.

The limiting DBA for the maximum peak containment air temperature is an SLB. For the upper compartment, the initial containment average air temperature assumed in the design basis analyses (Ref. 1) is ~~[110]~~ 85 °F. 3

BASES

APPLICABLE SAFETY ANALYSES (continued)

For the lower compartment, the initial average containment air temperature assumed in the design basis analyses is ~~[~~120~~]~~°F. This resulted in a maximum containment air temperature of ~~[326]~~°F. The design temperature is ~~[250]~~°F.

INSERT 1

325.6

327

The temperature upper limits are used to establish the environmental qualification operating envelope for both containment compartments. The maximum peak containment air temperature for both containment compartments was calculated to not exceed the containment design temperature ~~for only a few seconds during the transient~~. The basis of the containment design temperature, however, is to ensure the performance of safety related equipment inside containment (Ref. ~~2~~3). ~~Thermal analyses showed that the time interval during which the containment air temperature exceeded the containment design temperature was short enough that the equipment surface temperatures remained below the design temperature.~~ Therefore, it is concluded that the calculated transient containment air temperatures are acceptable for the DBA SLB.

The temperature upper limits are also used in the depressurization analyses to ensure that the minimum pressure limit is maintained following an inadvertent actuation of the Containment Spray System for both containment compartments.

The containment pressure transient is sensitive to the initial air mass in containment and, therefore, to the initial containment air temperature. The limiting DBA for establishing the maximum peak containment internal pressure is a LOCA. The temperature lower limits, ~~[~~85~~]~~°F for the upper compartment and ~~[~~100~~]~~°F for the lower compartment, are used in this analysis to ensure that, in the event of an accident, the maximum containment internal pressure will not be exceeded in either containment compartment.

Containment average air temperature satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

During a DBA, with an initial containment average air temperature within the LCO temperature limits, the resultant accident temperature profile assures that the containment structural temperature is maintained below its design temperature and that required safety related equipment will continue to perform its function. In MODES ~~3~~ and 4, containment air temperature may be as low as 60°F because the resultant calculated peak containment accident pressure would not exceed the design pressure due to a lesser amount of energy released from the pipe break in these MODES.

2, 3,

2

INSERT 1

However, a sensitivity analysis performed on the steam line break containment response analysis (Ref. 2) indicates that an increase of 5 °F in the initial lower containment temperature to 125 °F would net a 0.1 °F increase in the calculated peak temperature in the lower containment.

BASES

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, maintaining containment average air temperature within the limit is not required in MODE 5 or 6.

ACTIONS

A.1

When containment average air temperature in the upper or lower compartment is not within the limit of the LCO, the average air temperature in the affected compartment must be restored to within limits within 8 hours. This Required Action is necessary to return operation to within the bounds of the containment analysis. The 8 hour Completion Time is acceptable considering the sensitivity of the analysis to variations in this parameter and provides sufficient time to correct minor problems.

B.1 and B.2

If the containment average air temperature cannot be restored to within its limits within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.5~~B~~.1 and SR 3.6.5~~B~~.2

Verifying that containment average air temperature is within the LCO limits ensures that containment operation remains within the limits assumed for the containment analyses. In order to determine the containment average air temperature, ~~a weighted average is calculated using measurements taken at locations within the containment selected to provide a representative sample of the overall containment atmosphere. [The 24 hour Frequency of these SRs is considered acceptable based on observed slow rates of temperature increase within containment as a result of environmental heat sources (due to the large volume of containment). Furthermore, the 24 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal containment temperature condition.~~

INSERT 2

~~OR~~

2

INSERT 2

the primary containment upper and lower compartment average air temperatures are the weighted average of the ambient air temperature monitoring stations located in the upper and lower compartment, respectively. The weighted average is the sum of each temperature multiplied by its respective containment volume fraction. In the event of inoperable temperature sensor(s), the weighted average shall be taken as the reduced total divided by one minus the volume fraction represented by the sensor(s) out of service. As a minimum, the temperature readings for the upper compartment average air temperature shall be obtained from Elevation 743 feet (ft), Elevation 786 ft, and either Elevation 786 or 845 ft. Additionally, as a minimum, the temperature readings for the lower compartment average air temperature shall be obtained from Elevation 722 ft, Elevation 700 ft, and either Elevation 685 or 703 ft.

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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.~~
~~]~~

REFERENCES

1. FSAR, Section ~~[~~6.2~~]~~.
2. 10 CFR 50.49.

INSERT 3

2

INSERT 3

2. LTR-CRA-11-201, Westinghouse Memo – Sequoyah Units 1 and 2 Steamline Break Containment Response Sensitivity Analysis Addressing an Increase in the Initial Temperature in the Lower Containment, August 5, 2011.

B 3.6 CONTAINMENT SYSTEMS

B 3.6.5~~B~~ Containment Air Temperature ~~(Ice Condenser)~~ 1

BASES

BACKGROUND	The containment structure serves to contain radioactive material that may be released from the reactor core following a Design Basis Accident (DBA). The containment average air temperature is limited, during normal operation, to preserve the initial conditions assumed in the accident analyses for a loss of coolant accident (LOCA) or steam line break (SLB). The containment average air temperature limit is derived from the input conditions used in the containment functional analyses and the containment structure external pressure analyses. This LCO ensures that initial conditions assumed in the analysis of containment response to a DBA are not violated during unit operations. The total amount of energy to be removed from containment by the Containment Spray and Cooling systems during post accident conditions is dependent upon the energy released to the containment due to the event, as well as the initial containment temperature and pressure. The higher the initial temperature, the more energy that must be removed, resulting in a higher peak containment pressure and temperature. Exceeding containment design pressure may result in leakage greater than that assumed in the accident analysis. Operation with containment temperature in excess of the LCO limit violates an initial condition assumed in the accident analysis.
APPLICABLE SAFETY ANALYSES	Containment average air temperature is an initial condition used in the DBA analyses that establishes the containment environmental qualification operating envelope for both pressure and temperature. The limit for containment average air temperature ensures that operation is maintained within the assumptions used in the DBA analyses for containment (Ref. 1). The limiting DBAs considered relative to containment OPERABILITY are the LOCA and SLB. The DBA LOCA and SLB are analyzed using computer codes designed to predict the resultant containment pressure transients. No two DBAs are assumed to occur simultaneously or consecutively. The postulated DBAs are analyzed with regard to Engineered Safety Feature (ESF) systems, assuming the loss of one ESF bus, which is the worst case single active failure, resulting in one train each of Containment Spray System, Residual Heat Removal System, and Air Return System being rendered inoperable. The limiting DBA for the maximum peak containment air temperature is an SLB. For the upper compartment, the initial containment average air temperature assumed in the design basis analyses (Ref. 1) is ~~[110]~~ 85 °F. 3

BASES

APPLICABLE SAFETY ANALYSES (continued)

For the lower compartment, the initial average containment air temperature assumed in the design basis analyses is ~~[~~120~~]~~°F. This resulted in a maximum containment air temperature of ~~[326]~~°F. The design temperature is ~~[250]~~°F.

The temperature upper limits are used to establish the environmental qualification operating envelope for both containment compartments. The maximum peak containment air temperature for both containment compartments was calculated to exceed the containment design temperature ~~for only a few seconds during the transient~~. The basis of the containment design temperature, however, is to ensure the performance of safety related equipment inside containment (Ref. ~~2~~). ~~Thermal analyses showed that the time interval during which the containment air temperature exceeded the containment design temperature was short enough that the equipment surface temperatures remained below the design temperature.~~ Therefore, it is concluded that the calculated transient containment air temperatures are acceptable for the DBA SLB.

The temperature upper limits are also used in the depressurization analyses to ensure that the minimum pressure limit is maintained following an inadvertent actuation of the Containment Spray System for both containment compartments.

The containment pressure transient is sensitive to the initial air mass in containment and, therefore, to the initial containment air temperature. The limiting DBA for establishing the maximum peak containment internal pressure is a LOCA. The temperature lower limits, ~~[~~85~~]~~°F for the upper compartment and ~~[~~100~~]~~°F for the lower compartment, are used in this analysis to ensure that, in the event of an accident, the maximum containment internal pressure will not be exceeded in either containment compartment.

Containment average air temperature satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

During a DBA, with an initial containment average air temperature within the LCO temperature limits, the resultant accident temperature profile assures that the containment structural temperature is maintained below its design temperature and that required safety related equipment will continue to perform its function. In MODES ~~3~~ and 4, containment air temperature may be as low as 60°F because the resultant calculated peak containment accident pressure would not exceed the design pressure due to a lesser amount of energy released from the pipe break in these MODES.

2

INSERT 1

However, a sensitivity analysis performed on the steam line break containment response analysis (Ref. 2) indicates that an increase of 5 °F in the initial lower containment temperature to 125 °F would net a 0.1 °F increase in the calculated peak temperature in the lower containment.

BASES

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, maintaining containment average air temperature within the limit is not required in MODE 5 or 6.

ACTIONS

A.1

When containment average air temperature in the upper or lower compartment is not within the limit of the LCO, the average air temperature in the affected compartment must be restored to within limits within 8 hours. This Required Action is necessary to return operation to within the bounds of the containment analysis. The 8 hour Completion Time is acceptable considering the sensitivity of the analysis to variations in this parameter and provides sufficient time to correct minor problems.

B.1 and B.2

If the containment average air temperature cannot be restored to within its limits within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.5~~B~~.1 and SR 3.6.5~~B~~.2

Verifying that containment average air temperature is within the LCO limits ensures that containment operation remains within the limits assumed for the containment analyses. In order to determine the containment average air temperature, ~~a weighted average is calculated using measurements taken at locations within the containment selected to provide a representative sample of the overall containment atmosphere. [The 24 hour Frequency of these SRs is considered acceptable based on observed slow rates of temperature increase within containment as a result of environmental heat sources (due to the large volume of containment). Furthermore, the 24 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal containment temperature condition.~~

INSERT 2

~~OR~~

2

INSERT 2

the primary containment upper and lower compartment average air temperatures are the weighted average of the ambient air temperature monitoring stations located in the upper and lower compartment, respectively. The weighted average is the sum of each temperature multiplied by its respective containment volume fraction. In the event of inoperable temperature sensor(s), the weighted average shall be taken as the reduced total divided by one minus the volume fraction represented by the sensor(s) out of service. As a minimum, the temperature readings for the upper compartment average air temperature shall be obtained from Elevation 743 feet (ft), Elevation 786 ft, and either Elevation 786 or 845 ft. Additionally, as a minimum, the temperature readings for the lower compartment average air temperature shall be obtained from Elevation 722 ft, Elevation 700 ft, and either Elevation 685 or 703 ft.

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.~~
~~]~~

REFERENCES

1. FSAR, Section ~~[~~6.2~~]~~.
2. 10 CFR 50.49.

INSERT 3

2

INSERT 3

2. LTR-CRA-11-201, Westinghouse Memo – Sequoyah Units 1 and 2 Steamline Break Containment Response Sensitivity Analysis Addressing an Increase in the Initial Temperature in the Lower Containment, August 5, 2011.

JUSTIFICATION FOR DEVIATIONS
ITS 3.6.5 BASES, CONTAINMENT AIR TEMPERATURE

1. The type of Containment (Ice Condenser) and the Specification designator "B" are deleted since they are unnecessary (only one Containment Specification is used in the Sequoyah Nuclear (SQN) Plant ITS). This information is provided in NUREG-1431, Rev. 4.0, to assist in identifying the appropriate Specification to be used as a model for the plant specific ITS conversion, but serves no purpose in a plant specific implementation. In addition, the Atmospheric, Subatmospheric, and Dual Containment Specification (ISTS 3.6.5A and ISTS 3.6.5C) are not used and are not shown.

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. ISTS SR 3.6.5B.1 and SR 3.6.5B.2 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.

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 3.6.5, CONTAINMENT AIR TEMPERATURE

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

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ATTACHMENT 6

ITS 3.6.6, CONTAINMENT SPRAY SYSTEM

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

ITS

A01

ITS 3.6.6

CONTAINMENT SYSTEMS

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

CONTAINMENT SPRAY SUBSYSTEMS

LIMITING CONDITION FOR OPERATION

LCO 3.6.6

3.6.2.1 Two ~~independent~~ containment spray subsystems shall be OPERABLE ~~with each subsystem comprised of:~~

~~a. A Containment Spray train with:~~

~~1. One OPERABLE Containment Spray pump.~~

~~2. One OPERABLE Containment Spray heat exchanger.~~

~~3. An OPERABLE Containment Spray pump flow path capable of taking suction from the refueling water storage tank and transferring suction to the containment sump, and~~

LA01

~~b. A RHR Spray train with:~~

~~1. One OPERABLE residual heat removal pump,~~

~~2. One OPERABLE residual heat removal heat exchanger, and~~

~~3. An OPERABLE residual heat removal pump flow path capable of taking suction from the containment sump and supplying flow to the spray header.~~

Applicability

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

ACTION:

ACTION A

ACTION B

With one containment spray subsystem inoperable, restore the inoperable sub-system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours; ~~restore the inoperable subsystem to OPERABLE status~~ within the next 48 hours or be in COLD SHUTDOWN within the next 30 hours.

A02

SURVEILLANCE REQUIREMENTS

4.6.2.1.1 Each Containment Spray train shall be demonstrated OPERABLE:

SR 3.6.6.1

a. ~~At least once per 31 days by~~ In accordance with the Surveillance Frequency Control Program verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

LA02

Applicability Note

* OPERABILITY of RHR Spray trains is not required in MODE 4.

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ITS A01 ITS 3.6.6

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

SR 3.6.6.2 b. By verifying that each pump's developed head at the flow test point is greater than or equal to the required developed head when tested ~~pursuant to Specification 4.0.5~~ in accordance with the Inservice Testing Program. A04

SR 3.6.6.3, SR 3.6.6.4 c. ~~At least once per 18 months~~ In accordance with the Surveillance Frequency Control Program by: LA02

SR 3.6.6.3 1. Verifying that each automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to its correct position on an actual or simulated actuation signal.

SR 3.6.6.4 2. Verifying that each spray pump starts automatically on an actual or simulated actuation signal.

SR 3.6.6.5 d. ~~At least once per 10 years~~ In accordance with the Surveillance Frequency Control Program verify each spray nozzle is unobstructed. LA02

4.6.2.1.2 Each RHR spray train shall be demonstrated OPERABLE:

SR 3.6.6.6, SR 3.6.6.7 a. Per surveillance requirements 4.5.2.b.2 and 4.5.2.f.~~3~~; A03

SR 3.6.6.8 b. ~~At least once per 10 years~~ In accordance with the Surveillance Frequency Control Program verify each spray nozzle is unobstructed. LA02

ITS A01 ITS 3.6.6

EMERGENCY CORE COOLING SYSTEMS (ECCS)

SURVEILLANCE REQUIREMENTS (Continued)

Valve Number	Valve Function	Valve Position
a. FCV-63-1	RHR Suction from RWST	open
b. FCV-63-22	SIS Discharge to Common Piping	open

See ITS 3.5.2

SR 3.6.6.6 b. ~~At least once per 31 days~~ In accordance with the Surveillance Frequency Control Program by: LA02

1. Verify ECCS piping is full of water by venting the ECCS pump casings and accessible piping high points, and — See ITS 3.5.2

SR 3.6.6.6 2. Verify each ECCS manual, power operated and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, is in the correct position.

c. Deleted

d. At least once per 18 months perform a visual inspection of the containment sump and verify that the suction inlets are not restricted by debris and that the sump components (strainers, screens, etc.) show no evidence of structural distress or corrosion.

e. At least once per 18 months, by: — See ITS 3.5.2

1. Verifying that each automatic valve in the flow path that is not locked, sealed or otherwise secured in position, actuates to its correct position on an actual or simulated actuation signal.

2. Verifying that each ECCS pump starts automatically on an actual or simulated actuation signal.

SR 3.6.6.7 f. By verifying that each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head when tested in accordance with the Inservice Testing Program of Specification 4.0.5.

g. At least once per 18 months, verify the correct position of each mechanical stop for the following ECCS throttle valves: — See ITS 3.5.2

Charging Pump Injection Throttle Valves Valve Number	Safety Injection Cold Leg Throttle Valves Valve Number	Safety Injection Hot Leg Throttle Valves Valve Number
1. 63 - 582	1. 63 - 550	1. 63-542
2. 63 - 583	2. 63 - 552	2. 63-544
3. 63 - 584	3. 63 - 554	3. 63-546
4. 63 - 585	4. 63 - 556	4. 63-548

ITS

A01

ITS 3.6.6

CONTAINMENT SYSTEMS

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

CONTAINMENT SPRAY SUBSYSTEMS

LIMITING CONDITION FOR OPERATION

LCO 3.6.6

3.6.2.1 Two ~~independent~~ containment spray subsystems shall be OPERABLE ~~with each subsystem comprised of:~~

~~a. A Containment Spray train with:~~

~~1. One OPERABLE Containment Spray pump.~~

~~2. One OPERABLE Containment Spray heat exchanger.~~

~~3. An OPERABLE Containment Spray Pump flow path capable of taking suction from the refueling water storage tank and transferring suction to the containment sump, and~~

~~b. A RHR Spray train with:~~

~~1. One OPERABLE residual heat removal pump.~~

~~2. One OPERABLE residual heat removal heat exchanger, and~~

~~3. An OPERABLE residual heat removal pump flow path capable of taking suction from the containment sump and supplying flow to the spray header.~~

LA01

Applicability

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

ACTION:

ACTION A

With one containment spray subsystem inoperable, restore the inoperable sub-system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours, ~~restore the inoperable subsystem to OPERABLE status~~ within the next 48 hours or be in COLD SHUTDOWN within the following 30 hours.

ACTION B

A02

SURVEILLANCE REQUIREMENTS

4.6.2.1.1 Each Containment Spray train shall be demonstrated OPERABLE:

SR 3.6.6.1

a. ~~At least once per 31 days~~ In accordance with the Surveillance Frequency Control Program by verifying that each valve (manual, power operated or automatic) in the flow path that is not locked sealed, or otherwise secured in position, is in its correct position.

LA02

Applicability Note

* OPERABILITY of RHR Spray trains is not required in MODE 4.

ITS A01 ITS 3.6.6

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

SR 3.6.6.2 b. By verifying that each pump's developed head at the flow test point is greater than or equal to the required developed head when tested ~~pursuant to Specification 4.0.5~~. (in accordance with the Inservice Testing Program — A04)

SR 3.6.6.3, SR 3.6.6.4 c. ~~At least once per 18 months~~ by: (In accordance with the Surveillance Frequency Control Program — LA02)

SR 3.6.6.3 1. Verifying that each automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to its correct position on an actual or simulated actuation signal.

SR 3.6.6.4 2. Verifying that each spray pump starts automatically on an actual or simulated actuation signal.

SR 3.6.6.5 d. ~~At least once per 10 years~~ verify each spray nozzle is unobstructed. (In accordance with the Surveillance Frequency Control Program — LA02)

4.6.2.1.2 Each RHR spray train shall be demonstrated OPERABLE:

SR 3.6.6.6, SR 3.6.6.7 a. Per surveillance requirements 4.5.2.b.2 and 4.5.2.f.~~3~~; (A03)

SR 3.6.6.8 b. ~~At least once per 10 years~~ verify each spray nozzle is unobstructed. (In accordance with the Surveillance Frequency Control Program — LA02)

ITS

A01

ITS 3.6.6

EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

SR 3.6.6.6

b. ~~At least once per 31 days~~ In accordance with the Surveillance Frequency Control Program by:

LA02

1. Verify ECCS piping is full of water by venting the ECCS pump casings and accessible piping high points, and

See ITS 3.5.2

SR 3.6.6.6

2. Verify each ECCS manual, power operated and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, is in the correct position.

c. Deleted

d. At least once per 18 months perform a visual inspection of the containment sump and verify that the suction inlets are not restricted by debris and that the sump components (strainers, screens, etc.) show no evidence of structural distress or corrosion.

e. At least once per 18 months, by:

See ITS 3.5.2

1. Verifying that each automatic valve in the flow path that is not locked, sealed or otherwise secured in position, actuates to its correct position on an actual or simulated actuation signal.

2. Verifying that each ECCS pump starts automatically on an actual or simulated actuation signal.

SR 3.6.6.7

f. By verifying that each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head when tested in accordance with the Inservice Testing Program of Specification 4.0.5.

g. At least once per 18 months, verify the correct position of each mechanical stop for the following ECCS throttle valves:

See ITS 3.5.2

Charging Pump Injection Throttle Valves	Safety Injection Cold Leg Throttle Valves	Safety Injection Hot Leg Throttle Valves
Valve Number	Valve Number	Valve Number
1. 63 - 582	1. 63 - 550	1. 63-542
2. 63 - 583	2. 63 - 552	2. 63-544
3. 63 - 584	3. 63 - 554	3. 63-546
4. 63 - 585	4. 63 - 556	4. 63-548

DISCUSSION OF CHANGES
ITS 3.6.6, CONTAINMENT SPRAY 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 3.6.2.1 ACTION states with one containment spray subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours; restore the inoperable subsystem to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the next 30 hours. ITS 3.6.6 ACTION B requires the unit to be in MODE 3 within 6 hours and MODE 5 within 84 hours. ITS 3.6.6 does not contain the second phrase stating that the inoperable subsystem must be restored to OPERABLE status after the unit is in MODE 3. This changes the CTS by combining the time allowed for the restoration and the time to be in MODE 5 together into one Required Action to be in MODE 5 in 84 hours.

This change is acceptable because the technical requirements have not changed. Restoration to compliance with the LCO is always an available Required Action and it is the convention in the ITS to not state such "restore" options explicitly unless it is the only action or is required for clarity. This change is designated as administrative because it does not result in technical changes to the CTS.

A03 CTS 4.6.2.1.2.a requires, in part, that each RHR spray train to be demonstrated OPERABLE per CTS surveillance requirement 4.5.2.f.3. ITS SR 3.6.6.6 and SR 3.6.6.7 were based on CTS 4.5.2.f. This changes the CTS by using CTS 4.5.2.f instead of CTS 4.5.2.f.3.

CTS 4.5.2.f.3 was revised in Technical Specification Amendment 326 for Unit 1 and 319 for Unit 2. This change was approved by the NRC on January 28, 2010 (ADAMS Accession No. ML093310403). Therefore, this change is being made to address the fact that CTS 4.6.2.1.2 was not changed. This change is administrative since this change does not result in a technical change.

A04 CTS 4.6.2.1.1.b requires verification that the developed head of each containment spray train is greater than or equal to the required developed head when tested pursuant to Specification 4.0.5. ITS SR 3.6.6.2 requires verification that the developed head of each containment spray train pump is greater than or equal to the required developed head with a Frequency of in accordance with the Inservice Testing Program. This changes the CTS by stating containment spray train pump testing is performed at a Frequency that is in accordance with the Inservice Testing Program.

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DISCUSSION OF CHANGES
ITS 3.6.6, CONTAINMENT SPRAY SYSTEM

The purpose of CTS 4.6.2.1.1.b is to verify the developed head of the containment spray train pumps is within limit pursuant to Specification 4.0.5, which provides the requirements for the Inservice Testing Program. This change is acceptable, because the Frequency regarding the containment spray train pump testing remains the same. The inservice testing requirements of CTS 4.0.5 have been moved to the Inservice Testing Program contained in Section 5.5 of the ITS. 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 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.6.2.1 states that two independent containment spray subsystems shall be OPERABLE with each subsystem compromised of a Containment Spray train with one OPERABLE Containment Spray pump, one OPERABLE Containment Spray heat exchanger, and an OPERABLE Containment Spray Pump flow path capable of taking suction from the refueling water storage tank and transferring suction to the containment sump. Furthermore, it requires a RHR Spray train with one OPERABLE residual heat removal pump, one OPERABLE residual heat removal heat exchanger, and an OPERABLE residual heat removal pump flow path capable of taking suction from the containment sump and supplying flow to the spray header. ITS LCO 3.6.6 requires two containment spray subsystems to be OPERABLE. This changes the CTS by moving the detail that the train must be "independent," the details of what composes an OPERABLE containment spray subsystem 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 that two containment spray subsystem shall be OPERABLE. Also this changes 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 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 4.6.2.1.1.a requires verification at least once per 31 days that

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DISCUSSION OF CHANGES
ITS 3.6.6, CONTAINMENT SPRAY SYSTEM

each Containment Spray train manual, power operated, or automatic valve in the flow path that is not locked sealed or otherwise secured in position, is in its correct position. CTS 4.6.2.1.1.c.1 requires verification at least once per 18 months that each Containment Spray train automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to its correct position on an actual or simulated actuation signal. CTS 4.6.2.1.1.c.2 requires verification at least once per 18 months that each Containment Spray train pump starts automatically on an actual or simulated actuation signal. CTS 4.6.2.1.1.d requires verification at least once per 10 years that each Containment Spray train spray nozzle is unobstructed. CTS 4.6.2.1.2.b requires verification at least once per 10 years that each RHR spray train spray nozzle is unobstructed. CTS 4.5.2.b.2 requires verification at least once per 31 days that each ECCS (RHR spray is included) manual, power operated and automatic valve in the flow path that is not locked sealed, or otherwise secured in position, is in the correct position. ITS SR 3.6.6.1, SR 3.6.6.3, SR 3.6.6.4, SR 3.6.6.5, SR 3.6.6.6, and SR 3.6.6.8 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 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

1

3.6 CONTAINMENT SYSTEMS

3.6.6~~C~~ Containment Spray System ~~(Ice Condenser)~~

1

3.6.2.1 LCO 3.6.6~~C~~ Two containment spray ~~trains~~ subsystems shall be OPERABLE.

1 3

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

INSERT 1

4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A. One containment spray ~~train~~ subsystem inoperable.	A.1 Restore containment spray ~~train~~ to OPERABLE status.	72 hours
ACTION B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 84 hours

3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
4.6.2.1.1.a SR 3.6.6~~C~~.1	Verify each containment spray train manual, power operated, and automatic valve in the flow path 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 5

5

2 1

4 **INSERT 1**

Applicability Footnote *

----------NOTE----------
RHR spray trains are not required to be OPERABLE in MODE 4.

CTS

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY
4.6.2.1.1.b	SR 3.6.6~~C~~.2	Verify each containment spray train pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
4.6.2.1.1.c, 4.6.2.1.1.c.1	SR 3.6.6~~C~~.3	Verify each automatic containment spray train 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 ~~]~~
4.6.2.1.1.c, 4.6.2.1.1.c.2	SR 3.6.6~~C~~.4	Verify each containment spray train pump starts automatically on an actual or simulated actuation signal.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~
4.6.2.1.1.d	SR 3.6.6~~C~~.5	Verify each containment spray train spray nozzle is unobstructed.	~~[At first refueling]~~ ~~AND~~ ~~[10 years~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~

INSERT 2

6 **INSERT 2**

4.6.2.1.2.a, 4.5.2.b.2	SR 3.6.6.6	Verify each RHR spray train manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
4.6.2.1.2.a 4.5.2.f	SR 3.6.6.7	Verify each RHR spray train pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
4.6.2.1.2.b	SR 3.6.6.8	Verify each RHR spray train spray nozzle is unobstructed.	In accordance with the Surveillance Frequency Control Program

3.6 CONTAINMENT SYSTEMS

3.6.6~~C~~ Containment Spray System ~~(Ice Condenser)~~

3.6.2.1 LCO 3.6.6~~C~~ Two containment spray ~~trains~~ subsystems shall be OPERABLE.

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

INSERT 1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A. One containment spray ~~train~~ subsystem inoperable.	A.1 Restore containment spray ~~train~~ subsystem to OPERABLE status.	72 hours
ACTION B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND	6 hours
	B.2 Be in MODE 5.	84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
4.6.2.1.1.a SR 3.6.6~~C~~.1	Verify each containment spray train manual, power operated, and automatic valve in the flow path 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 ~~]~~

CTS

3.6.6

4 **INSERT 1**

Applicability Footnote *

----------NOTE----------
RHR spray trains are not required to be OPERABLE in MODE 4.

CTS

1

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
4.6.2.1.1.b	SR 3.6.6~~C~~.2	Verify each containment spray train pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program	1 2
4.6.2.1.1.c, 4.6.2.1.1.c.1	SR 3.6.6~~C~~.3	Verify each automatic containment spray train 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 ~~]~~	1 2 5 5
4.6.2.1.1.c, 4.6.2.1.1.c.2	SR 3.6.6~~C~~.4	Verify each containment spray train pump starts automatically on an actual or simulated actuation signal.	~~[[18] months~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	1 2 5 5
4.6.2.1.1.d	SR 3.6.6~~C~~.5	Verify each containment spray train spray nozzle is unobstructed.	~~[At first refueling]~~ ~~AND~~ ~~[10 years~~ ~~OR~~ In accordance with the Surveillance Frequency Control Program ~~]~~	1 2 5 5 INSERT 2 6

2 1

6 **INSERT 2**

4.6.2.1.2.a, 4.5.2.b.2	SR 3.6.6.6	Verify each RHR spray train manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, is in the correct position.	In accordance with the Surveillance Frequency Control Program
4.6.2.1.2.a 4.5.2.f	SR 3.6.6.7	Verify each RHR spray train pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
4.6.2.1.2.b	SR 3.6.6.8	Verify each RHR spray train spray nozzle is unobstructed.	In accordance with the Surveillance Frequency Control Program

JUSTIFICATION FOR DEVIATIONS
ITS 3.6.6, CONTAINMENT SPRAY SYSTEM

1. The type of Containment (Ice Condenser) and the Specification designator "C" are deleted since they are unnecessary (only one Containment Specification is used in the Sequoyah Nuclear Plant (SQN) ITS). This information is provided in NUREG-1431, Rev. 4.0, to assist in identifying the appropriate Specification to be used as a model for the plant specific ITS conversion, but serves no purpose in a plant specific implementation. In addition, the Atmospheric, Subatmospheric, and Dual Containment Specifications (ISTS 3.6.6A, ISTS 3.6.6B, ISTS 3.6.6D, and ISTS 3.6.5E) are not used and are not shown.

2. 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.

3. ISTS LCO 3.6.6C states that two containment spray trains shall be OPERABLE. ISTS 3.6.6C ACTION A requires with one containment spray train inoperable, to restore the containment spray train to OPERABLE status within 72 hours. ITS LCO 3.6.6 and 3.6.6 ACTION A are similar except that they require the subsystem to be OPERABLE and restored to OPERABLE status, respectively. This change is acceptable because it maintains current licensing basis that was previously approved in Amendment 69 for Unit 1 and Amendment 61 for Unit 2 (ADAMS Accession No. ML013270162). At SQN, there are two trains for each Containment Spray subsystem. One train is the Containment Spray and the other train is the RHR Spray.

4. ISTS LCO 3.6.6C states that two containment spray trains shall be OPERABLE. ITS LCO 3.6.6 contains a similar statement, but adds a Note to the Applicability stating that the RHR spray trains are not required to be OPERABLE in MODE 4. This change is acceptable because it maintains current licensing basis that was previously approved in Amendment 69 for Unit 1 and Amendment 61 for Unit 2 (ADAMS Accession No. ML013270162). These amendments approved not requiring the RHR Spray trains in MODE 4.

5. ISTS SR 3.6.6C.1, SR 3.6.6C.3, SR 3.6.6C.4 and SR 3.6.6C.5 provide 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 Frequencies for ITS SR 3.6.6.1, SR 3.6.6.3, SR 3.6.6.4, and SR 3.6.6.5 are "In accordance with the Surveillance Frequency Control Program."

6. New Surveillances (ITS SR 3.6.6.6, ITS 3.6.6.7, and ITS 3.6.6.8) have been added to provide testing for the RHR spray trains. ITS SR 3.6.6.6 requires verifying each RHR spray train manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position. ITS SR 3.6.6.7 requires verifying each RHR spray train pump's developed head at the flow test point is greater than or equal to the required developed head. ITS SR 3.6.6.8 requires verifying each RHR spray train spray nozzle is unobstructed. This change is acceptable because it maintains current licensing basis which was previously approved in Amendment 69 for Unit 1 and Amendment 61 for Unit 2 (Adams Accession No. ML013270162). These amendments approved the testing of the RHR spray trains in the Containment Spray Specification.

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

B 3.6 CONTAINMENT SYSTEMS

B 3.6.6~~C~~ Containment Spray System ~~(Ice Condenser)~~

BASES

BACKGROUND

The Containment Spray System provides containment atmosphere cooling to limit post accident pressure and temperature in containment to less than the design values. Reduction of containment pressure ~~and the iodine removal capability of the spray~~ reduces the release of fission product radioactivity from containment to the environment, in the event of a Design Basis Accident (DBA). The Containment Spray System is designed to meet the requirements of 10 CFR 50, Appendix A, GDC 38, "Containment Heat Removal," GDC 39, "Inspection of Containment Heat Removal Systems," GDC 40, "Testing of Containment Heat Removal Systems~~,~~" ~~GDC 41, "Containment Atmosphere Cleanup," GDC 42, "Inspection of Containment Atmosphere Cleanup Systems," and GDC 43, "Testing of Containment Atmosphere Cleanup Systems"~~ (Ref. 1)~~, or other documents that were appropriate at the time of licensing (identified on a unit specific basis)~~.

The Containment Spray System consists of two separate ~~trains~~ subsystems of equal capacity, each capable of meeting the system design basis spray coverage. Each train includes a containment spray pump, one containment spray heat exchanger, spray headers, nozzles, valves, and piping. Each train is powered from a separate Engineered Safety Feature (ESF) bus. The refueling water storage tank (RWST) supplies borated water to the Containment Spray System during the injection phase of operation. In the recirculation mode of operation, containment spray pump suction is transferred from the RWST to the containment recirculation sump(s).

The diversion of a portion of the recirculation flow from each train of the Residual Heat Removal (RHR) System to additional redundant spray headers completes the Containment Spray System heat removal capability. Each RHR train is capable of supplying spray coverage, if required, to supplement the Containment Spray System.

The Containment Spray ~~System~~ train and RHR ~~System~~ spray train provide a spray of cold or subcooled borated water into the upper ~~and lower~~ regions of containment ~~and in dead ended volumes~~ to limit the containment pressure and temperature during a DBA. The RWST solution temperature is an important factor in determining the heat removal capability of the Containment Spray System during the injection phase. In the recirculation mode of operation, heat is removed from the

5 **INSERT 1**

A containment spray subsystem contains one containment spray train and one RHR spray train.

BASES

BACKGROUND (continued)

containment sump water by the Containment Spray System ~~and RHR~~ heat exchangers. Each ~~train of the~~ Containment Spray ~~System, supplemented by a train of RHR spray,~~ provides adequate spray coverage to meet the system design requirements for containment heat removal.

~~The Spray Additive System injects a sodium hydroxide (NaOH) solution into the spray. The resulting alkaline pH of the spray enhances the ability of the spray to scavenge iodine fission products from the containment atmosphere. The NaOH added in the spray also ensures an alkaline pH for the solution recirculated in the containment sump. The alkaline pH of the containment sump water minimizes the evolution of iodine and the occurrence of chloride and caustic stress corrosion on mechanical systems and components exposed to the fluid.~~

The Containment Spray ~~System is~~ actuated either automatically by a containment ~~High-3~~ pressure signal or manually. An automatic actuation opens the containment spray pump discharge valves, starts the two containment spray pumps, and begins the injection phase. A manual actuation of the Containment Spray ~~System~~ requires the operator to actuate two separate switches on the main control board to begin the same sequence. ~~The injection phase continues until an RWST level Low-Low alarm is received.~~ The Low-Low alarm for the RWST ~~actuates valves to align the containment spray pump suction to the containment sump and/or~~ signals the operator to manually align the system to the recirculation mode. ~~The Containment Spray System in the recirculation mode maintains an equilibrium temperature between the containment atmosphere and the recirculated sump water.~~ Operation of the Containment Spray System in the recirculation mode is controlled by the operator in accordance with the emergency operation procedures.

The RHR spray ~~operation is~~ initiated manually, when required by the emergency operating procedures, after the Emergency Core Cooling System (ECCS) is operating in the recirculation mode. The RHR ~~spray~~s are available to supplement the Containment Spray ~~System~~, if required, in limiting containment pressure. This additional spray capacity would typically be used after the ice bed has been depleted and in the event that containment pressure rises above a predetermined limit. The Containment Spray System is an ESF system. It is designed to ensure that the heat removal capability required during the post accident period can be attained.

BASES

BACKGROUND (continued)

The operation of the Containment Spray System, together with the ice condenser, is adequate to assure pressure suppression during the initial blowdown of steam and water from a DBA. During the post blowdown period, the Air Return System (ARS) is automatically started. The ARS returns upper compartment air through the divider barrier to the lower compartment. This serves to ~~equalize pressures in containment and to~~ continue circulating heated air and steam through the ice condenser, where heat is removed by the remaining ice.

The Containment Spray System limits the temperature and pressure that could be expected following a DBA. Protection of containment integrity limits leakage of fission product radioactivity from containment to the environment.

APPLICABLE SAFETY ANALYSES

The limiting DBAs considered relative to containment OPERABILITY are the loss of coolant accident (LOCA) and the steam line break (SLB). The DBA LOCA and SLB are analyzed using computer codes designed to predict the resultant containment pressure and temperature transients. No two DBAs are assumed to occur simultaneously or consecutively. The postulated DBAs are analyzed, in regard to containment ESF systems, assuming the loss of one ESF bus, which is the worst case single active failure, resulting in one train of ~~the~~ Containment Spray ~~System, the~~ RHR ~~System~~, and ~~the ARS~~ being rendered inoperable (Ref. 2).

ICE

11.44

CSS-022

~~11.48~~

an ARS fan

The basis of the containment design temperature (327°F) is to ensure the OPERABILITY of safety related equipment inside containment (Ref. 3).

~~11.33~~

The DBA analyses show that the maximum peak containment pressure of ~~[44.1]~~ psig results from the LOCA analysis, and is calculated to be less than the containment design pressure. The maximum peak containment atmosphere temperature of ~~[385]~~°F results from the SLB analysis ~~and was calculated to exceed the containment design temperature [for a few seconds] during the DBA SLB. The basis of the containment design temperature, however, is to ensure the OPERABILITY of safety related equipment inside containment (Ref. 3). Thermal analyses showed that the time interval during which the containment atmosphere temperature exceed the containment design temperature was short enough that the equipment surface temperatures remained below the design temperature. Therefore, it is concluded that the calculated transient containment atmosphere temperatures are acceptable for the DBA SLB~~.

325.6

.

Therefore, the calculated peak containment atmosphere temperature is acceptable for the DBA SLB.

CSS-018

trains

The modeled Containment Spray ~~System~~ actuation from the containment analysis is based on a response time associated with exceeding the containment ~~High-3~~ pressure signal setpoint to achieving full flow through the containment spray nozzles. A delayed response time initiation

High - High

train

BASES

APPLICABLE SAFETY ANALYSES (continued)

provides conservative analyses of peak calculated containment temperature and pressure responses. The Containment Spray ~~System~~ total response time of ~~[45]~~ seconds is composed of signal delay, diesel generator startup, and system startup time to full flow through the containment spray train nozzles.

For certain aspects of transient accident analyses, maximizing the calculated containment pressure is not conservative. In particular, the ECCS cooling effectiveness during the core reflood phase of a LOCA analysis increases with increasing containment backpressure. For these calculations, the containment backpressure is calculated in a manner designed to conservatively minimize, rather than maximize, the calculated transient containment pressures in accordance with 10 CFR 50, Appendix K (Ref. 4).

Inadvertent actuation of the Containment Spray System is evaluated in the analysis, and the resultant reduction in containment pressure is calculated. The maximum calculated reduction in containment pressure resulted in a containment external pressure load of ~~[1.2]~~ psid, which is below the containment design external pressure load. 0.49

The Containment Spray System satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

During a DBA, one ~~train~~ of Containment Spray System is required to provide the heat removal capability assumed in the safety analyses. ~~Additionally, a minimum of one train of the Containment Spray System, with spray pH adjusted by the Spray Additive System, is required to scavenge iodine fission products from the containment atmosphere and ensure their retention in the containment sump water.~~ To ensure that these requirements are met, two containment spray ~~trains~~ must be OPERABLE with power from two safety related, independent power supplies. ~~Therefore, in the event of an accident, at least one train in each system operates.~~

INSERT 2

Each Containment Spray ~~System typically~~ includes a spray pump, headers, valves, heat ~~enhancers~~, nozzles, piping, instruments, and controls to ensure an OPERABLE flow path capable of taking suction from the RWST upon an ESF actuation signal and ~~automatically~~ transferring suction to the containment sump.

INSERT 3

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment and an increase in containment pressure and temperature requiring the operation of the Containment Spray System.

INSERT 4

5 **INSERT 2**

A containment spray subsystem shall be compromised of one containment spray train and one RHR spray train.

5 **INSERT 3**

Each RHR spray train includes an RHR pump, header, valves, heat exchanger, nozzles, piping, instruments, and controls to ensure an OPERABLE flow path capable of taking suction from the containment sump.

5 **INSERT 4**

Furthermore, as stated in the Applicability Note, the RHR spray trains are not required to be OPERABLE in MODE 4.

BASES

APPLICABILITY (continued)

In MODES 5 and 6, the probability and consequences of these events are reduced because of the pressure and temperature limitations of these MODES. Thus, the Containment Spray System is not required to be OPERABLE in MODE 5 or 6.

ACTIONS

A.1

With one containment spray ~~train~~ inoperable, the affected ~~train~~ must be restored to OPERABLE status within 72 hours. The components in this degraded condition are capable of providing 100% of the heat removal ~~and iodine removal~~ needs after an accident. The 72 hour Completion Time was developed taking into account the redundant heat removal ~~and iodine removal capabilities~~ afforded by the OPERABLE train and the low probability of a DBA occurring during this period.

B.1 and B.2

If the affected containment spray ~~train~~ cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 84 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems. The extended interval to reach MODE 5 allows additional time and is reasonable when considering that the driving force for a release of radioactive material from the Reactor Coolant System is reduced in MODE 3.

SURVEILLANCE REQUIREMENTS

SR 3.6.6~~C~~.1

Verifying the correct alignment of manual, power operated, and automatic valves, excluding check valves, in the Containment Spray ~~System~~ provides assurance that the proper flow path exists for Containment Spray ~~System~~ operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since they were verified in the correct position prior to being secured. This SR does not require any testing or valve manipulation. Rather, it involves verification that those valves outside containment and capable of potentially 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~~.

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

SR 3.6.6.2

Verifying that each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head ensures that spray 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. 5). Since the containment spray pumps cannot be tested with flow through the spray headers, they are tested on bypass flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the Inservice Testing Program.

SR 3.6.6.3 and SR 3.6.6.4

These SRs require verification that each automatic containment spray valve actuates to its correct position and each containment spray pump starts upon receipt of an actual or simulated containment spray 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 these Surveillances under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillances were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillances when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

~~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.~~
~~]~~

The surveillance of containment sump isolation valves is also required by SR 3.6.6.3. A single surveillance may be used to satisfy both requirements.

SR 3.6.6.5

With the containment spray train inlet valves closed and the containment spray header drained of any solution, low pressure air or smoke can be blown through test connections. This SR ensures that each spray nozzle is unobstructed and that spray coverage of the containment during an accident is not degraded. ~~[Because of the passive design of the nozzle, a test at [the first refueling and at] 10 year intervals is considered adequate to detect obstruction of the spray nozzles.~~

~~OR~~

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

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

REFERENCES

1. 10 CFR 50, Appendix A, GDC 38, GDC 39, GDC 40~~, GDC 41, GDC 42, and GDC 43~~.
2. U FSAR, Section ~~[~~6.2~~]~~.

INSERT 5

and

5 **INSERT 5**

SR 3.6.6.6

Verifying the correct alignment of manual, power operated, and automatic valves, excluding check valves, in the RHR spray train provides assurance that the proper flow path exists for system operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since they were verified in the correct position prior to locking, sealing, or securing. A valve is also allowed to be in the nonaccident position provided it can be aligned to the accident position within the time assumed in the accident analysis. This is acceptable since the RHR spray mode is manually initiated. 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 Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.6.6.7

Verifying that each RHR spray train pump's developed head at the flow test point is greater than or equal to the required developed head ensures that spray 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. 5). Since the RHR spray train pumps cannot be tested with flow through the spray headers, they are tested on bypass flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the Inservice Testing Program.

SR 3.6.6.8

With the RHR spray train inlet valves closed and the RHR spray header drained of any solution, low pressure air or smoke can be blown through test connections. This SR ensures that each RHR spray nozzle is unobstructed and that spray coverage of the containment during an accident is not degraded.

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

BASES

REFERENCES (continued)

3. 10 CFR 50.49.

4. 10 CFR 50, Appendix K.

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

B 3.6 CONTAINMENT SYSTEMS

B 3.6.6~~C~~ Containment Spray System ~~(Ice Condenser)~~

BASES

BACKGROUND

The Containment Spray System provides containment atmosphere cooling to limit post accident pressure and temperature in containment to less than the design values. Reduction of containment pressure ~~and the iodine removal capability of the spray~~ reduces the release of fission product radioactivity from containment to the environment, in the event of a Design Basis Accident (DBA). The Containment Spray System is designed to meet the requirements of 10 CFR 50, Appendix A, GDC 38, "Containment Heat Removal," GDC 39, "Inspection of Containment Heat Removal Systems," GDC 40, "Testing of Containment Heat Removal Systems~~,~~" ~~GDC 41, "Containment Atmosphere Cleanup," GDC 42, "Inspection of Containment Atmosphere Cleanup Systems," and GDC 43, "Testing of Containment Atmosphere Cleanup Systems"~~ (Ref. 1)~~, or other documents that were appropriate at the time of licensing (identified on a unit specific basis)~~.

The Containment Spray System consists of two separate ~~trains~~ of equal capacity, each capable of meeting the system design basis spray coverage. Each train includes a containment spray pump, one containment spray heat exchanger, spray headers, nozzles, valves, and piping. Each train is powered from a separate Engineered Safety Feature (ESF) bus. The refueling water storage tank (RWST) supplies borated water to the Containment Spray System during the injection phase of operation. In the recirculation mode of operation, containment spray pump suction is transferred from the RWST to the containment recirculation sump(s).

The diversion of a portion of the recirculation flow from each train of the Residual Heat Removal (RHR) System to additional redundant spray headers completes the Containment Spray System heat removal capability. Each RHR train is capable of supplying spray coverage, if required, to supplement the Containment Spray System.

The Containment Spray ~~System~~ and RHR ~~System~~ provide a spray of cold or subcooled borated water into the upper ~~and lower~~ region~~s~~ of containment ~~and in dead ended volumes~~ to limit the containment pressure and temperature during a DBA. The RWST solution temperature is an important factor in determining the heat removal capability of the Containment Spray System during the injection phase. In the recirculation mode of operation, heat is removed from the

5 **INSERT 1**

A containment spray subsystem contains one containment spray train and one RHR spray train.

BASES

BACKGROUND (continued)

containment sump water by the Containment Spray System ~~and RHR~~ heat exchangers. Each ~~train of the~~ Containment Spray ~~System, supplemented by a train of RHR spray,~~ provides adequate spray coverage to meet the system design requirements for containment heat removal.

~~The Spray Additive System injects a sodium hydroxide (NaOH) solution into the spray. The resulting alkaline pH of the spray enhances the ability of the spray to scavenge iodine fission products from the containment atmosphere. The NaOH added in the spray also ensures an alkaline pH for the solution recirculated in the containment sump. The alkaline pH of the containment sump water minimizes the evolution of iodine and the occurrence of chloride and caustic stress corrosion on mechanical systems and components exposed to the fluid.~~

The Containment Spray ~~System is~~ actuated either automatically by a containment ~~High-3~~ pressure signal or manually. An automatic actuation opens the containment spray pump discharge valves, starts the two containment spray pumps, and begins the injection phase. A manual actuation of the Containment Spray ~~System~~ requires the operator to actuate two separate switches on the main control board to begin the same sequence. ~~The injection phase continues until an RWST level Low-Low alarm is received.~~ The Low-Low alarm for the RWST ~~actuates valves to align the containment spray pump suction to the containment sump and/or~~ signals the operator to manually align the system to the recirculation mode. ~~The Containment Spray System in the recirculation mode maintains an equilibrium temperature between the containment atmosphere and the recirculated sump water.~~ Operation of the Containment Spray System in the recirculation mode is controlled by the operator in accordance with the emergency operation procedures.

The RHR spray ~~operation is~~ initiated manually, when required by the emergency operating procedures, after the Emergency Core Cooling System (ECCS) is operating in the recirculation mode. The RHR ~~spray~~s are available to supplement the Containment Spray ~~System~~, if required, in limiting containment pressure. This additional spray capacity would typically be used after the ice bed has been depleted and in the event that containment pressure rises above a predetermined limit. The Containment Spray System is an ESF system. It is designed to ensure that the heat removal capability required during the post accident period can be attained.

BASES

BACKGROUND (continued)

The operation of the Containment Spray System, together with the ice condenser, is adequate to assure pressure suppression during the initial blowdown of steam and water from a DBA. During the post blowdown period, the Air Return System (ARS) is automatically started. The ARS returns upper compartment air through the divider barrier to the lower compartment. This serves to ~~equalize pressures in containment and to~~ continue circulating heated air and steam through the ice condenser, where heat is removed by the remaining ice.

The Containment Spray System limits the temperature and pressure that could be expected following a DBA. Protection of containment integrity limits leakage of fission product radioactivity from containment to the environment.

APPLICABLE SAFETY ANALYSES

The limiting DBAs considered relative to containment OPERABILITY are the loss of coolant accident (LOCA) and the steam line break (SLB). The DBA LOCA and SLB are analyzed using computer codes designed to predict the resultant containment pressure and temperature transients. No two DBAs are assumed to occur simultaneously or consecutively. The postulated DBAs are analyzed, in regard to containment ESF systems, assuming the loss of one ESF bus, which is the worst case single active failure, resulting in one train of ~~the~~ Containment Spray ~~System, the~~ RHR ~~System~~, and ~~the ARS~~ being rendered inoperable (Ref. 2).

an ARS fan

ICE

11.44

CSS-022

11.48

The basis of the containment design temperature (327°F) is to ensure the OPERABILITY of safety related equipment inside containment (Ref. 3).

Therefore, the calculated peak containment atmosphere temperature is acceptable for the DBA SLB.

CSS-018

11.33

325.6

The DBA analyses show that the maximum peak containment pressure of ~~[44.1]~~ psig results from the LOCA analysis, and is calculated to be less than the containment design pressure. The maximum peak containment atmosphere temperature of ~~[385]~~°F results from the SLB analysis ~~and was calculated to exceed the containment design temperature [for a few seconds] during the DBA SLB. The basis of the containment design temperature, however, is to ensure the OPERABILITY of safety related equipment inside containment (Ref. 3). Thermal analyses showed that the time interval during which the containment atmosphere temperature exceed the containment design temperature was short enough that the equipment surface temperatures remained below the design temperature. Therefore, it is concluded that the calculated transient containment atmosphere temperatures are acceptable for the DBA SLB~~.

trains

The modeled Containment Spray ~~System~~ actuation from the containment analysis is based on a response time associated with exceeding the containment ~~High-3~~ pressure signal setpoint to achieving full flow through the containment spray nozzles. A delayed response time initiation

High - High

train

BASES

APPLICABLE SAFETY ANALYSES (continued)

provides conservative analyses of peak calculated containment temperature and pressure responses. The Containment Spray ~~System~~ total response time of ~~[45]~~ seconds is composed of signal delay, diesel generator startup, and system startup time to full flow through the containment spray train nozzles.

For certain aspects of transient accident analyses, maximizing the calculated containment pressure is not conservative. In particular, the ECCS cooling effectiveness during the core reflood phase of a LOCA analysis increases with increasing containment backpressure. For these calculations, the containment backpressure is calculated in a manner designed to conservatively minimize, rather than maximize, the calculated transient containment pressures in accordance with 10 CFR 50, Appendix K (Ref. 4).

Inadvertent actuation of the Containment Spray System is evaluated in the analysis, and the resultant reduction in containment pressure is calculated. The maximum calculated reduction in containment pressure resulted in a containment external pressure load of ~~[1.2]~~ psid, which is below the containment design external pressure load. 0.49

The Containment Spray System satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

During a DBA, one ~~train~~ of Containment Spray System is required to provide the heat removal capability assumed in the safety analyses. ~~Additionally, a minimum of one train of the Containment Spray System, with spray pH adjusted by the Spray Additive System, is required to scavenge iodine fission products from the containment atmosphere and ensure their retention in the containment sump water.~~ To ensure that these requirements are met, two containment spray ~~trains~~ must be OPERABLE with power from two safety related, independent power supplies. ~~Therefore, in the event of an accident, at least one train in each system operates.~~

INSERT 2

Each Containment Spray ~~System typically~~ includes a spray pump, headers, valves, heat ~~enhancers~~, nozzles, piping, instruments, and controls to ensure an OPERABLE flow path capable of taking suction from the RWST upon an ESF actuation signal and ~~automatically~~ manually transferring suction to the containment sump.

INSERT 3

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment and an increase in containment pressure and temperature requiring the operation of the Containment Spray System.

INSERT 4

5 **INSERT 2**

A containment spray subsystem shall be compromised of one containment spray train and one RHR spray train.

5 **INSERT 3**

Each RHR spray train includes an RHR pump, header, valves, heat exchanger, nozzles, piping, instruments, and controls to ensure an OPERABLE flow path capable of taking suction from the containment sump.

5 **INSERT 4**

Furthermore, as stated in the Applicability Note, the RHR spray trains are not required to be OPERABLE in MODE 4.

BASES

APPLICABILITY (continued)

In MODES 5 and 6, the probability and consequences of these events are reduced because of the pressure and temperature limitations of these MODES. Thus, the Containment Spray System is not required to be OPERABLE in MODE 5 or 6.

ACTIONS

A.1

With one containment spray ~~train~~ inoperable, the affected ~~train~~ must be restored to OPERABLE status within 72 hours. The components in this degraded condition are capable of providing 100% of the heat removal ~~and iodine removal~~ needs after an accident. The 72 hour Completion Time was developed taking into account the redundant heat removal ~~and iodine removal capabilities~~ afforded by the OPERABLE train and the low probability of a DBA occurring during this period.

B.1 and B.2

If the affected containment spray ~~train~~ cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 84 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems. The extended interval to reach MODE 5 allows additional time and is reasonable when considering that the driving force for a release of radioactive material from the Reactor Coolant System is reduced in MODE 3.

SURVEILLANCE REQUIREMENTS

SR 3.6.6~~C~~.1

Verifying the correct alignment of manual, power operated, and automatic valves, excluding check valves, in the Containment Spray ~~System~~ provides assurance that the proper flow path exists for Containment Spray ~~System~~ operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since they were verified in the correct position prior to being secured. This SR does not require any testing or valve manipulation. Rather, it involves verification that those valves outside containment and capable of potentially 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~~.

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

SR 3.6.6.2

Verifying that each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head ensures that spray 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. 5). Since the containment spray pumps cannot be tested with flow through the spray headers, they are tested on bypass flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the Inservice Testing Program.

SR 3.6.6.3 and SR 3.6.6.4

These SRs require verification that each automatic containment spray valve actuates to its correct position and each containment spray pump starts upon receipt of an actual or simulated containment spray 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 these Surveillances under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillances were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillances when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

~~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.~~
~~]~~

The surveillance of containment sump isolation valves is also required by SR 3.6.6.3. A single surveillance may be used to satisfy both requirements.

SR 3.6.6.5

With the containment spray train inlet valves closed and the containment spray header drained of any solution, low pressure air or smoke can be blown through test connections. This SR ensures that each spray nozzle is unobstructed and that spray coverage of the containment during an accident is not degraded. ~~[Because of the passive design of the nozzle, a test at [the first refueling and at] 10 year intervals is considered adequate to detect obstruction of the spray nozzles.~~

~~OR~~

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

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

REFERENCES

1. 10 CFR 50, Appendix A, GDC 38, GDC 39, GDC 40~~, GDC 41, GDC 42, and GDC 43~~.
2. U FSAR, Section ~~[~~6.2~~]~~.

INSERT 5

and

5 **INSERT 5**

SR 3.6.6.6

Verifying the correct alignment of manual, power operated, and automatic valves, excluding check valves, in the RHR spray train provides assurance that the proper flow path exists for system operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since they were verified in the correct position prior to locking, sealing, or securing. A valve is also allowed to be in the nonaccident position provided it can be aligned to the accident position within the time assumed in the accident analysis. This is acceptable since the RHR spray mode is manually initiated. 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 Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.6.6.7

Verifying that each RHR spray train pump's developed head at the flow test point is greater than or equal to the required developed head ensures that spray 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. 5). Since the RHR spray train pumps cannot be tested with flow through the spray headers, they are tested on bypass flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the Inservice Testing Program.

SR 3.6.6.8

With the RHR spray train inlet valves closed and the RHR spray header drained of any solution, low pressure air or smoke can be blown through test connections. This SR ensures that each RHR spray nozzle is unobstructed and that spray coverage of the containment during an accident is not degraded.

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

BASES

REFERENCES (continued)

3. 10 CFR 50.49.

4. 10 CFR 50, Appendix K.

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

JUSTIFICATION FOR DEVIATIONS
ITS 3.6.6 BASES, CONTAINMENT SPRAY SYSTEM

1. The type of Containment (Ice Condenser) and the Specification designator "C" are deleted since they are unnecessary (only one Containment Specification is used in the Sequoyah Nuclear Plant (SQN) ITS). This information is provided in NUREG-1431, Rev. 4, to assist in identifying the appropriate Specification to be used as a model for the plant specific ITS conversion, but serves no purpose in a plant specific implementation. In addition, the Atmospheric, Subatmospheric, and Dual Containment Specifications (ISTS B 3.6.6A, ISTS B 3.6.6B, ISTS B 3.6.6D, and ISTS B 3.6.1E) are not used and are not shown.

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

3. ISTS 3.6.6 Bases Background discusses the Spray Additive System. SQN does not have a Spray Additive System which injects a Sodium Hydroxide (NaOH) solution into the spray. Therefore, the information related to the Spray Additive System has been deleted.

4. The ISTS Bases 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.

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

6. ISTS SR 3.6.6C.1, SR 3.6.6.3, SR 3.6.6.4, and SR 3.6.6.5 Bases 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 descriptions which are being removed will be included in the Surveillance Frequency Control Program.

7. 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.

8. Editorial change made for enhanced clarity.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.6.6, CONTAINMENT SPRAY SYSTEM

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

Enclosure 2, Volume 11, Rev. 0, Page 327 of 724

ATTACHMENT 7

ITS 3.6.7, SHIELD BUILDING

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

ITS

A01

3.6.7

CONTAINMENT SYSTEMS

SHIELD BUILDING ~~STRUCTURAL INTEGRITY~~

LIMITING CONDITION FOR OPERATION

OPERABLE

LCO 3.6.7

3.6.1.7 The ~~structural integrity of the~~ shield building shall be ~~maintained at a level consistent with the acceptance criteria in Specification 4.6.1.7~~.

LA01

Applicability

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Add proposed ACTION A

ACTION A

~~With the structural integrity of the shield building not conforming to the above requirements, restore the structural integrity to within the limits prior to increasing the Reactor Coolant System temperature above 200°F.~~

L01

A02

ACTION B

Add proposed ACTION B

CET003

2

SURVEILLANCE REQUIREMENTS

SR 3.6.1.1

SR 3.6.7.~~3~~

4.6.1.7 The structural integrity of the shield building shall be determined during the shutdown for each Type A containment leakage rate test (~~Specification 4.6.1.1.c~~) by a visual inspection of the exposed accessible interior and exterior surfaces of the shield building ~~and verifying no apparent changes in appearance of the concrete surfaces or other abnormal degradation~~.

LA02

~~31 days~~

Add proposed SR 3.6.7.1 ~~at a Frequency of 12 hours~~

M01

Add proposed SR 3.6.7.2 ~~at a Frequency of 31 days~~

In accordance with the Surveillance Frequency Control Program

LA03

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 3.6.7.4~~

d. ~~At least once per 18 months~~ by:

~~INSERT 1~~

~~L02~~

See ITS 3.6.10

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 5 inches Water Gauge while operating the filter train at a flow rate of 4000 cfm ± 10%.

CET003

2. Verifying that the filter train starts on a Phase A containment isolation Test Signal.

3. Verify the operation of the filter cooling bypass valves.

See ITS 3.6.10

~~SR 3.6.7.4~~

4. Verifying that each system produces a negative pressure of greater than or equal to 0.5 inches W. G. in the annulus within 1 minute after a start signal.

See ITS 3.6.10

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 4000 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 4000 cfm ± 10%.

3.6.7

INSERT 1

L02

CET003

~~on a STAGGERED TEST BASIS for each Emergency Gas Treatment System train~~

In accordance with the Surveillance Frequency Control Program

LA03

ITS

A01

3.6.7

SHIELD BUILDING INTEGRITY

1.30 SHIELD BUILDING INTEGRITY shall exist when:

See ITS Chapter 1.0

LCO 3.6.7 Note

a. The door in each access opening is closed except when the access opening is being used for normal transit entry and exit.

b. The emergency gas treatment system is OPERABLE.

See ITS 3.6.10

NA

c. ~~The sealing mechanism associated with each penetration (e.g., welds, bellows or 0-rings) is OPERABLE.~~

LA04

SHUTDOWN MARGIN

1.31 SHUTDOWN MARGIN shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming all full length rod cluster assemblies (shutdown and control) are fully inserted except for the single rod cluster assembly of highest reactivity worth which is assumed to be fully withdrawn.

SITE BOUNDARY

1.32 The SITE BOUNDARY shall be that line beyond which the land is not owned, leased, or otherwise controlled by the licensee.

SOLIDIFICATION

See ITS Chapter 1.0

1.33 Deleted

SOURCE CHECK

1.34 Deleted

STAGGERED TEST BASIS

1.35 A STAGGERED TEST BASIS shall consist of:

a. A test schedule for n systems, subsystems, trains or other designated components obtained by dividing the specified test interval into n equal subintervals,

b. The testing of one system, subsystem, train or other designated component at the beginning of each subinterval.

THERMAL POWER

1.36 THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

CONTAINMENT SYSTEMS

SHIELD BUILDING ~~STRUCTURAL INTEGRITY~~

LIMITING CONDITION FOR OPERATION

OPERABLE

LA01

LCO 3.6.7

3.6.1.7 The ~~structural integrity of the~~ shield building shall be ~~maintained at a level consistent with the acceptance criteria in Specification 4.6.1.7~~.

Applicability

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION.

ACTION A

Add proposed ACTION A

~~With the structural integrity of the shield building not conforming to the above requirements, restore the structural integrity to within the limits prior to increasing the Reactor Coolant System temperature above 200°F.~~

LA01

A02

ACTION B

Add proposed ACTION B

CET003

2

SR 3.6.7.~~3~~

SURVEILLANCE REQUIREMENTS

SR 3.6.1.1

4.6.1.7 The structural integrity of the shield building shall be determined during the shutdown for each Type A containment leakage rate test (~~Specification 4.6.1.1.c~~) by a visual inspection of the exposed accessible interior and exterior surfaces of the shield building ~~and verifying no apparent changes in appearance of the concrete surfaces or other abnormal degradation~~.

LA02

~~31 days~~

Add proposed SR 3.6.7.1 ~~at a Frequency of 12 hours~~

Add proposed SR 3.6.7.2 ~~at a Frequency of 31 days~~

M01

In accordance with the Surveillance Frequency Control Program

LA03

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 3.6.7.4~~

d. ~~At least once per 18 months~~ by:

~~INSERT 1~~

~~LA03~~

See ITS 3.6.10

~~LA~~

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 5 inches Water Gauge while operating the filter train at a flow rate of 4000 cfm + 10%.

See ITS 3.6.10

CET003

2. Verifying that the filter train starts on a Phase A containment isolation Test Signal.

3. Verify the operation of the filter cooling bypass valves.

~~SR 3.6.7.4~~

4. Verifying that each system produces a negative pressure of greater than or equal to 0.5 inches W.G. in the annulus within 1 minute after a start signal.

See ITS 3.6.10

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 4000 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 4000 cfm + 10%.

3.6.7

INSERT 1

L02

CET003

~~on a STAGGERED TEST BASIS for each Emergency Gas Treatment System train~~

In accordance with the Surveillance Frequency Control Program

LA03

ITS

A01

3.6.7

DEFINITIONS

RATED THERMAL POWER (RTP)

1.27 RATED THERMAL POWER (RTP) shall be a total reactor core heat transfer rate to the reactor coolant of 3455 MWt.

REACTOR TRIP SYSTEM (RTS) RESPONSE TIME

1.28 The REACTOR TRIP SYSTEM RESPONSE TIME shall be the time interval from when the monitored parameter exceeds its (RTS) trip setpoint at the channel sensor until loss of stationary gripper coil voltage. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and the methodology for verification have been previously reviewed and approved by NRC.

See ITS Chapter 1.0

REPORTABLE EVENT

1.29 DELETED

SHIELD BUILDING INTEGRITY

1.30 SHIELD BUILDING INTEGRITY shall exist when:

See ITS Chapter 1.0

LCO 3.6.7 Note

a. The door in each access opening is closed except when the access opening is being used for normal transit entry and exit.

b. The emergency gas treatment system is OPERABLE.

See ITS 3.6.10

NA

c. ~~The sealing mechanism associated with each penetration (e.g., welds, bellows or O-rings) is OPERABLE.~~

LA04

SHUTDOWN MARGIN

1.31 SHUTDOWN MARGIN shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming all full length rod cluster assemblies (shutdown and control) are fully inserted except for the single rod cluster assembly of highest reactivity worth which is assumed to be fully withdrawn.

See ITS Chapter 1.0

SITE BOUNDARY

1.32 The SITE BOUNDARY shall be that line beyond which the land is not owned, leased, or otherwise controlled by the licensee.

DISCUSSION OF CHANGES
ITS 3.6.7, SHIELD BUILDING

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.

CET003

A02 CTS 3.6.1.7 does not provide an ACTION to take if the shield building is inoperable while in MODE 1, 2, 3, or 4; it only includes a requirement that the shield building be restored to OPERABLE status prior to increasing Reactor Coolant System temperature above 200°F (i.e., MODE 4). Therefore, entry into CTS 3.0.3 is required if CTS 3.6.1.7 is not met while in MODE 1, 2, 3, or 4. CTS 3.0.3 requires action to be initiated within 1 hour to prepare for a shutdown and requires the unit to be in MODE 3 within 7 hours and MODE 5 within 37 hours. When the shield building is ~~inoperable and~~ not restored to an OPERABLE status within ~~the specified Completion Time (see DOC L01)~~, ITS 3.6.7 ACTION B requires the unit be in MODE 3 within 6 hours and MODE 5 within 36 hours. This changes the CTS by stating the ACTIONS within the Specification rather than deferring to CTS 3.0.3. In addition, it deletes the Action to restore the LCO prior to entering MODE 4.

ITS 3.6.7 ACTION A requires restoring the shield building to OPERABLE status within 1 hour.

1 hour

The purpose of CTS 3.0.3 is to place the unit outside the MODE of Applicability within a reasonable amount of time in a controlled manner. CTS 3.6.1.7 is silent on these actions, deferring to CTS 3.0.3 for the actions. This change is acceptable because the ACTIONS specified in ITS 3.6.7 adopt ISTS structure for placing the unit outside the MODE of Applicability without changing the time specified to enter MODE 3 and MODE 5. In addition, deletion of the current Action of CTS 3.6.1.7 is acceptable because CTS 3.0.4 (ITS LCO 3.0.4) already precludes entering the MODE of Applicability when the LCO is not met. Therefore, it is not necessary to include these requirements as specific actions in ITS 3.6.7. This change is designated as administrative, because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M01 ITS SR 3.6.7.1 requires verification that ~~annulus negative pressure is greater than 5 inches water gauge every 12 hours. ITS SR 3.6.7.2 requires verification that~~ the ~~shield building~~ access door ~~in each access opening~~ is closed every 31 days. CTS 3.6.1.7 does not contain ~~these~~ Surveillance Requirement~~s~~. This changes the CTS by adding new Surveillance Requirements ~~to verify annulus negative pressure is within limits and~~ to verify the ~~shield building~~ access door ~~in each access opening~~ is closed. (See DOC LA03 for moving the ~~"12 hour" and~~ "31 day" ~~Frequencies for these Surveillance Requirements~~ to the Surveillance Frequency Control Program.)

annulus

this

a

annulus

Frequency for this Surveillance Requirement

CET003

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DISCUSSION OF CHANGES
ITS 3.6.7, SHIELD BUILDING

The shield building surrounds the containment vessel and forms an annulus between the containment vessel and the inner wall of the shield building. This annular space collects containment leakage that may occur following a loss of coolant accident. A negative pressure is maintained in the annulus between the shield building and the steel containment vessel by the Emergency Gas Treatment System (EGTS). The release of radioactive contaminants to the environment is controlled via filters in the EGTS trains. The purpose of CTS 3.6.1.7 is to ensure the shield building is OPERABLE in MODES 1, 2, 3, and 4 to ensure the release of radioactive material from the containment atmosphere is restricted to the leakage paths assumed in the accident analysis. Since ~~shield building~~ access door position ~~and annulus pressure are~~ is integral to shield building OPERABILITY, ITS 3.6.7 adds a specific Surveillance Requirement (ITS SR 3.6.7.1) ~~to verify every 12 hours that annulus negative pressure is within the limit assumed in the containment analysis. Additionally, a specific Surveillance Requirement (ITS SR 3.6.7.2) is added~~ to verify every 31 days that the door ~~in each access opening~~ is closed, so that the shield building boundary is not breached at any time when the shield building boundary is required. This change is designated as more restrictive because ~~new~~ a Surveillance Requirements ~~have~~ has been added to ensure the shield building OPERABILITY is maintained.

Air Cleanup Subsystem
CSS-041
is
the annulus
CET003
annulus access
a
has

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.6.1.7 requires that the structural integrity of the shield building be maintained at a level consistent with the acceptance criteria in CTS 4.6.1.7. CTS 4.6.1.7 requires the structural integrity of the shield building to be determined by a visual inspection of the exposed shield building interior and exterior surfaces and verifying no apparent changes in concrete surface appearance or other abnormal degradation. ITS LCO 3.6.7 requires the shield building to be OPERABLE. This changes the CTS by moving the detail of what constitutes shield building OPERABILITY 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. The ITS retains the requirements that the shield building be OPERABLE. Also, this changes 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 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.

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DISCUSSION OF CHANGES
ITS 3.6.7, SHIELD BUILDING

LA02 *(Type 4 – Removal of LCO, SR, or other TS Requirements to the TRM, UFSAR, ODCM, NQAP, CLRT Program, IST Program, or ISI Program)* CTS 4.6.1.7 requires the structural integrity of the shield building to be determined by a visual inspection of the exposed shield building interior and exterior surfaces and verifying no apparent changes in concrete surface appearance or other abnormal degradation. ITS SR 3.6.7.3 includes the shield building structural integrity visual inspection verification of exposed interior and exterior surfaces, but does not include the details of what the inspection entails. This changes the CTS by moving the details of the shield building inspection to the TS Bases.

The removal of these details, which are related to methods of surveillance test performance, 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 requirements for verifying integrity of the shield building. Also, this changes 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 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 methods of surveillance test performance is being removed from the Technical Specifications.

LA03 *(Type 5 – Removal of SR Frequency to the Surveillance Frequency Control Program)* CTS 4.6.1.8.d.4 requires verification that each Emergency Gas Treatment System produces a negative pressure within limits in the annulus within 1 minute after a start signal. ITS SR 3.6.7.4 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 change of the requirement to perform the Surveillances ON A STAGGERED TEST BASIS is discussed in DOC L02). Additionally, ITS SR 3.6.7.1 has been added to verify the annulus negative pressure is within limits every 12 hours, and ITS SR 3.6.7.2 has been added to verify the shield building access door in each access opening is closed every 31 days. (See DOC M01 for the discussion on adding these SRs.) The "12 hour" and "31 day" Frequencies for these Surveillances have been relocated 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

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DISCUSSION OF CHANGES
ITS 3.6.7, SHIELD BUILDING

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.

Frequency is

CET003

LA04 *(Type 2 – Removing Descriptions of System Operation)* CTS 1.30 states, in part, "SHIELD BUILDING INTEGRITY shall exist when: c. The sealing mechanism associated with each penetration (e.g., welds, bellows, or 0-rings) is OPERABLE. ITS 3.6.7 states "The shield building shall be OPERABLE." This changes the CTS by moving the reference to penetration sealing mechanism requirements to the Bases.

The removal of these details, which are related to system operation, 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 for the shield building to be OPERABLE and the relocated material describes aspects of OPERABILITY. In addition, the ITS retains the requirement to perform a shield building annulus drawdown test, which would provide verification that the penetration sealing mechanisms are 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 operation is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

Not used

L01 ~~*(Category 4 – Relaxation of Required Action)* CTS 3.6.1.7 does not state what action to take if the shield building is inoperable while in MODE 1, 2, 3, or 4; it only includes a requirement that the shield building be restored to OPERABLE status prior to increasing Reactor Coolant System temperature above 200°F (i.e., MODE 4). Therefore, entry into CTS 3.0.3 is required, if CTS 3.6.1.7 is not met in MODE 1, 2, 3, or 4. CTS 3.0.3 allows 1 hour to prepare for a shutdown and requires the unit to be in MODE 3 within 7 hours and MODE 5 within 37 hours. ITS 3.6.7 ACTION A provides 24 hours to restore the shield building to OPERABLE status prior to requiring a unit shutdown. This changes the CTS by providing an explicit ACTION to allow time to restore an inoperable shield building to OPERABLE status prior to requiring a unit shutdown and changes the time from 1 hour (as provided in CTS 3.0.3) to 24 hours. See DOC A02 for including the ACTIONS within the Specification to shut down the unit upon failure to restore shield building OPERABILITY, rather than deferring to CTS 3.0.3.~~

CET003

~~The purpose of CTS 3.6.1.7 is to maintain the shield building OPERABLE. Therefore, when the shield building is not OPERABLE, CTS 3.0.3 results in placing the unit in a condition in which the shield building is not required. 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~~

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