NEXTera ENERGY SEABROOK

December 30, 2009

Docket No. 50-443
SBK-L-09269

U. S. Nuclear Regulatory Commission
Attn.: Document Control Desk
Washington, DC 20555-0001

Seabrook Station
Submittal of Changes to the Seabrook Station Technical Specification Bases

NextEra Energy Seabrook, LLC submits the enclosed changes to the Seabrook Station Technical Specification Bases. The changes were made in accordance with Technical Specification 6.7.6.j., "Technical Specification (TS) Bases Control Program." Please update the Technical Specification Bases in accordance with Enclosure 1.

Should you have any questions concerning this submittal, please contact me at (603) 773-7745.

Sincerely,

NextEra Energy Seabrook, LLC

Michael O'Keefe

Michael O'Keefe
Licensing Manager

cc: S. J. Collins, NRC Region I Administrator
D. Egan, NRC Project Manager, Project Directorate I-2
W. J. Raymond, NRC Senior Resident Inspector

A001
NRR

Enclosure 1 to SBK-L-09269

Change Instructions for
Seabrook Station Technical Specification Bases
(Sheet 1 of 2)

REMOVE	INSERT
Page B 3/4 0-4	Page B 3/4 0-4
Page B 3/4 4-5	Page B 3/4 4-5
Page B 3/4 5-1	Page B 3/4 5-1
Page B 3/4 5-1a	Page B 3/4 5-1a
Page B 3/4 5-2	Page B 3/4 5-2
Page B 3/4 5-2a	Page B 3/4 5-2a
Page B 3/4 5-3	Page B 3/4 5-3
Page B 3/4 5-4	Page B 3/4 5-4
Page B 3/4 5-5	Page B 3/4 5-5
Page B 3/4 6-3	Page B 3/4 6-3
Page B 3/4 6-3a	Page B 3/4 6-3a
Page B 3/4 6-3b	Page B 3/4 6-3b
Page B 3/4 6-4	Page B 3/4 6-4
Page B 3/4 7-12	Page B 3/4 7-12
Page B 3/4 7-13	Page B 3/4 7-13
Page B 3/4 7-14	Page B 3/4 7-14
Page B 3/4 7-15	Page B 3/4 7-15
-----------	Page B 3/4 7-16
-----------	Page B 3/4 7-17
-----------	Page B 3/4 7-18

Change Instructions for
Seabrook Station Technical Specification Bases
(Sheet 2 of 2)

REMOVE	INSERT
-----------	Page B 3/4 7-19
-----------	Page B 3/4 7-20
-----------	Page B 3/4 7-21
----------	Page B 3/4 7-22
Page B 3/4 8-4	Page B 3/4 8-4
Page B 3/4 8-5	Page B 3/4 8-5
Page B 3/4 9-3	Page B 3/4 9-3
Page B 3/4 9-4	Page B 3/4 9-4
Page B 3/4 9-5	Page B 3/4 9-5

Enclosure 2 to SBK-L-09269

Specification 4.0.1 establishes the requirement that surveillances must be met during the OPERATIONAL MODES or other conditions for which the requirements of the Limiting Conditions for Operation apply unless otherwise stated in an individual Surveillance Requirement. The purpose of this specification is to ensure that surveillances are performed to verify the OPERABILITY of systems and components and that parameters are within specified limits to ensure safe operation of the facility when the plant is in a MODE or other specified condition for which the associated Limiting Conditions for Operation are applicable. Failure to meet a Surveillance within the specified surveillance interval, in accordance with Specification 4.0.2, constitutes a failure to meet a Limiting Condition for Operation. Surveillances may be performed by means of any series of sequential, overlapping, or total steps provided the entire Surveillance is performed within the specified frequency. Additionally, the definitions related to instrument testing (e.g., CHANNEL CALIBRATION) specify that these tests are performed by means of any series of sequential, overlapping, or total steps.

Systems and components are assumed to be OPERABLE when the associated Surveillance Requirements have been met. Nothing in this Specification, however, is to be construed as implying that systems or components are OPERABLE when either:

a. The systems or components are known to be inoperable, although still meeting the Surveillance Requirements or

b. The requirements of the Surveillance(s) are known to be not met between required Surveillance performances.

Surveillance requirements do not have to be performed when the facility is in an OPERATIONAL MODE or other specified conditions for which the requirements of the associated Limiting Condition for Operation do not apply unless otherwise specified. The Surveillance Requirements associated with a Special Test Exception are only applicable when the Special Test Exception is used as an allowable exception to the requirements of a Specification.

Unplanned events may satisfy the requirements (including applicable acceptance criteria) for a given Surveillance Requirement. In this case, the unplanned event may be credited as fulfilling the performance of the Surveillance Requirement. This allowance includes those Surveillance Requirement(s) whose performance is normally precluded in a given MODE or other specified condition.

Surveillance Requirements, including Surveillances invoked by ACTION requirements, do not have to be performed on inoperable equipment because the ACTIONS define the remedial measures that apply. Surveillances have to be met and performed in accordance with Specification 4.0.2, prior to returning equipment to OPERABLE status.

Upon completion of maintenance, appropriate post maintenance testing is required to declare equipment OPERABLE. This includes ensuring applicable Surveillances are not failed and their most recent performance is in accordance with Specification 4.0.2. Post maintenance testing may not be possible in the current MODE or other specified conditions in the Applicability due to the necessary unit parameters not having been established. In these situations, the equipment may be considered OPERABLE provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This

3/4.4.5 STEAM GENERATORS (SG) TUBE INTEGRITY (Continued)

rupture of a SG tube that relieves to the lower pressure secondary system. The analysis assumes that contaminated fluid is released to the atmosphere through the main steam safety valves or the atmospheric steam dump valves.

The analysis for design basis accidents and transients other than a SGTR assume the SG tubes retain their structural integrity (i.e., they are assumed not to rupture). In these analyses, the steam discharge to the atmosphere is based on the total primary-to secondary leakage from all SGs of 1 gallon per minute and 500 gallons per day from any one SG or is assumed to increase to these values as a result of accident induced conditions. For accidents that do not involve fuel damage, the primary coolant activity level of DOSE EQUIVALENT I-131 is assumed to be equal to the LCO 3.4.8, "RCS Specific Activity," limits. For accidents that assume fuel damage, the primary coolant activity is a function of the amount of activity released from the damaged fuel. The dose consequences of these events are within the limits of GDC 19 (Ref. 2), 10 CFR 50.67 (Ref. 3), or the NRC approved licensing basis (e.g., a small fraction of these limits).

Steam generator tube integrity satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

The LCO requires that SG tube integrity be maintained. The LCO also requires that all SG tubes that satisfy the repair criteria be plugged in accordance with the Steam Generator Program.

During a SG inspection, any inspected tube that satisfies the Steam Generator Program repair criteria is removed from service by plugging. If a tube was determined to satisfy the repair criteria but was not plugged, the tube may still have tube integrity.

In the context of this Specification, a SG tube is defined as the entire length of the tube, including the tube wall, between the tube-to-tubesheet weld at the tube inlet and the tube-to-tubesheet weld at the tube outlet. For refueling outage 13 and the subsequent inspection cycle, TS 6.7.6.k specifies a one-time alternate repair criterion for the portion of the tube below 13.1 inches from the top of the tubesheet. The tube-to-tubesheet weld is not considered part of the tube.

A SG tube has tube integrity when it satisfies the SG performance criteria. The SG performance criteria are defined in Specification 6.7.6.k, "Steam Generator (SG) Program," and describe acceptable SG tube performance. The Steam Generator Program also provides the evaluation process for determining conformance with the SG performance criteria. There are three SG performance criteria: structural integrity, accident-induced leakage, and operational leakage. Failure to meet any one of these criteria is considered failure to meet the LCO.

3/4.5.1 ACCUMULATORS

The OPERABILITY of each Reactor Coolant System (RCS) accumulator ensures that a sufficient volume of borated water will be immediately forced into the reactor core through each of the cold legs in the event the RCS pressure falls below the pressure of the accumulators. This initial surge of water into the core provides the initial cooling mechanism during large RCS pipe ruptures.

The limits on accumulator volume, boron concentration, and pressure ensure that the assumptions used for accumulator injection in the safety analysis are met.

In MODES 1 and 2, the accumulator power-operated isolation valves are considered to be "operating bypasses" in the context of IEEE Std. 279-1971, which requires that bypasses of a protective function be removed automatically whenever permissive conditions are not met. In MODES 1, 2, 3, and in MODE 4 within 12 hours of entry into MODE 3 from 4, the accumulator isolation valves are open with their power removed whenever pressurizer pressure is greater than 1000 psig. In addition, as these accumulator isolation valves fail to meet single-failure criteria, removal of power to the valves is required.

The limits for operation with an accumulator inoperable for any reason except an isolation valve closed minimizes the time exposure of the plant to a LOCA event occurring concurrent with failure of an additional accumulator which may result in unacceptable peak cladding temperatures. If a closed isolation valve cannot be immediately opened, the full capability of one accumulator is not available and prompt action is required to place the reactor in a mode where this capability is not required.

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS

The OPERABILITY of two independent ECCS subsystems ensures that sufficient emergency core cooling capability will be available in the event of a LOCA assuming the loss of one subsystem through any single-failure consideration. Either subsystem operating in conjunction with the accumulators is capable of supplying sufficient core cooling to limit the peak cladding temperatures within acceptable limits for all postulated break sizes ranging from the double-ended break of the largest RCS cold-leg pipe downward. In addition, each ECCS subsystem provides long-term core cooling capability in the recirculation mode during the accident recovery period.

Operability of the ECCS flow paths is contingent on the ability of the encapsulations surrounding the containment sump isolation valves (CBS-V8 and CBS-V14) to perform their design functions. During the recirculation phase of an accident, any postulated leakage resulting from the failure of the valves or piping will be contained within the encapsulations, preserving the water inventory needed to support ECCS operation during recirculation. Consequently, maintaining the encapsulations intact with leakage within allowable limits is necessary to ensure operability of the ECCS flow paths. Although designed to withstand containment pressure, the encapsulations do not function as a containment boundary, but rather prevent the release of radioactive fluid and gasses to the environment.

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS (Continued)

Each operable RHR subsystem must remain aligned to provide injection into all four RCS cold legs to meet the assumptions in the ECCS analysis. Isolating RHR flow to any RCS cold leg in MODES 1, 2, or 3 would render both trains of ECCS inoperable, placing the plant in a condition outside design bases.

A Note prohibits the application of LCO 3.0.4.b to an inoperable ECCS high head subsystem when entering MODE 4. There is an increased risk associated with entering MODE 4 from MODE 5 with an inoperable ECCS high head subsystem. The provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

With the RCS temperature below 350°F, the ECCS operational requirements are reduced. Only one OPERABLE ECCS subsystem is acceptable without single failure consideration during MODE 4 operation on the basis of the stable reactivity condition of the reactor and the limited core cooling requirements, as well as the reduced probability of occurrence of a Design Basis Accident (DBA). It is understood in these reductions in operational requirements that certain automatic safety injection (SI) actuation is not available. In this MODE, sufficient time exists for manual actuation of the required ECCS to mitigate the consequences of a DBA. LCO Condition d. requires that an OPERABLE flow path must be capable of taking suction from the refueling water storage tank upon being manually realigned and transferring suction to the containment sump during the recirculation phase of operation. Thus, LCO Condition d. allows for the manual realignment of the OPERABLE ECCS subsystem to support the ECCS mode of operation.

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS (Continued)

This allowance recognizes that components which comprise the OPERABLE ECCS subsystem such as RHR pumps and heat exchangers may be aligned in other modes of operation to support plant evolutions, e.g., decay heat removal operation. Therefore, in this case, the RHR train is considered OPERABLE during alignment and operation for decay heat removal, if capable of manually being realigned (remote or local) to the ECCS mode of operation and not otherwise inoperable.

The limitation for a maximum of one centrifugal charging pump to be OPERABLE and the Surveillance Requirement to verify all charging pumps and safety injection pumps except the required OPERABLE charging pump to be inoperable in MODES 4 and 5 and in MODE 6 with the reactor vessel head on and the vessel head closure bolts not fully detensioned provides assurance that a mass addition pressure transient can be relieved by the operation of a single PORV or RHR suction relief valve.

When the RCS has a vent area equal to or greater than 18 square inches, or the RCS is in a reduced inventory condition, i.e., whenever reactor vessel water level is lower than 36 inches below the reactor vessel flange, one Safety Injection pump may be made OPERABLE when in MODE 5 or MODE 6 with the reactor vessel head on and the vessel head closure bolts not fully detensioned. When operating in this configuration, cold overpressure protection is provided by either the mechanical vent opening in the RCS boundary, equal to or greater than 18 square inches, or the additional void volume existing when operating in a reduced inventory condition. Either configuration is required to be present prior to making the SI pump OPERABLE. This required RCS vent area or reduced inventory condition and the cold overpressure protection surveillance requirements to verify the presence of the RCS vent area or verify that the reactor vessel water level is lower than 36 inches below the reactor vessel flange provides assurance that a mass addition transient can be mitigated and that adequate cold overpressure protection is provided.

The Surveillance Requirements provided to ensure OPERABILITY of each component ensure that at a minimum, the assumptions used in the safety analyses are met and that subsystem OPERABILITY is maintained. Verifying the correct alignment of manual, power-operated, and automatic valves provides assurance that the proper flow paths exist for operation of ECCS under accident conditions. This verification includes only those valves in the direct flow paths through safety-related equipment whose position is critical to the proper functioning of the safety-related equipment. Vents, drains, sampling connections, instrument taps, etc., that are not directly in the flow path and are not critical to proper functioning of the safety-related equipment are excluded from this surveillance requirement. This surveillance does not apply to valves that are locked, sealed, or otherwise secured in position because these valves are verified in their correct position prior to locking, sealing, or securing. Also, this requirement does not apply to valves that cannot be inadvertently misaligned, such as check valves.

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS (Continued)

An automatic valve may be aligned in other than its accident position provided (1) the valve receives an automatic signal to re-position to its required position in the event of an accident, and (2) the valve is otherwise operable (stroke time within limits, motive force available to re-position the valve, control circuitry energized, and mechanically capable of re-positioning).

With the exception of the operating centrifugal charging pump, the ECCS pumps are normally in a standby, non-operating mode. As such, flow path piping has the potential to develop voids and pockets of entrained gases. Maintaining the piping from the refueling water storage tank (RWST) and from the ECCS recirculation sump to the RCS full of water (by verifying at the accessible ECCS piping high points and pump casings, excluding the operating centrifugal charging pump) ensures that the system will perform properly, injecting its full capacity into the RCS upon demand. This will also prevent water hammer, pump cavitation, and pumping of non-condensable gas (e.g., air, nitrogen, or hydrogen) into the reactor vessel following a safety injection (SI) signal or during shutdown cooling. The 31 day Frequency takes into consideration the gradual nature of gas accumulation in the ECCS piping and the procedural controls governing system operation.

It should be noted that Surveillance Requirement 4.5.2b.1 Bases also

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS (Continued)

conditions the Surveillance Requirement by stating that verification is to be performed at the "accessible" ECCS piping high points and pump casing, excluding the operating centrifugal charging pump. Thus, the Bases recognizes that certain "impracticalities," i.e., physical accessibility issues or the operating centrifugal charging pump (only) under dynamic conditions, may preclude verification at certain points and as such provides relief. However, such relief cannot be taken at the expense of possible system inoperability because of lack of periodic verification. Such relief can only be taken if there is reasonable assurance that the collection of gasses or void formation is of no significant concern at the points not to be verified periodically within the stipulated surveillance interval (i.e., every 31 days). Furthermore, because of regulatory requirements, even if reasonable assurance can be justified for not requiring verification at a particular high point, such verification must be performed if the high point is accessible. "Inaccessibility" cannot be used as a mere convenience.

ECCS piping high points may be considered inaccessible if any of the following criteria are met:

a) The high point is located inside the bioshield in containment while the reactor is critical (Modes 1 & 2), since this area can contain lethal radiation fields during reactor operation. During those situations when the reactor is not critical, other conditions where gaining access poses a safety or radiological hazard (e.g., high system temperature, high radiological conditions) may prohibit verification by UT/venting.

b) The high point is located in an area where gaining access poses a safety or radiological hazard, e.g.:

- Installation/removal of temporary ladders within containment or other areas where stay times (heat stress / high radiation levels) or other factors must be kept to minimums.

Note: The safety or radiological concern should be documented for further evaluation by the responsible organization(s).

c) High points within heat exchanger tubes.

The phrase "full of water" is subjective particularly since most system fluid streams do contain a certain amount of non-condensable gasses. ECCS piping may be considered "full of water" if there is reasonable assurance that the content of the non-condensable gas within the system (including the aggregate amount of non-condensable gasses in all ECCS piping) and at a particular point will not be of significance to impair the ECCS system from performing

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS (Continued)

properly by injecting its full capacity into the RCS upon demand. Consideration must be given to water hammer, pump cavitation or pumping of non-condensable gas into the reactor vessel following a safety injection (SI) signal or during shutdown cooling.

Other Considerations:

I. Venting causing ECCS Inoperability – opening a vent valve in an ECCS flowpath that will result in both trains of an ECCS sub-system becoming inoperable during the period in which the vent is open such that it cannot be restored during a design basis accident. However, verification can be made by other means e.g., UT.

II. No makeup water source for venting – in the situation where a high point exists between two closed valves and opening a valve to align a water source will result in ECCS inoperability, it is not possible to verify the system is full since there is no source of water to discharge from the vent. Venting at these locations may in fact induce gasses into the system via "gas stripping" as the fluid is depressurized. However, verification can be made by other means e.g., UT.

III. High-pressure fluid within system piping – a vent in a high-pressure system is inaccessible if manipulating the valve can cause personnel safety concerns. However, verification can be made by other means e.g., ultrasonic testing (UT).

IV. The TS Bases states, in part, that "With the exception of the operating centrifugal charging pump, the ECCS pumps are normally in a standby, non-operating mode. As such, flow path piping has the potential to develop voids and pockets of entrained gases." When RHR is in its shutdown cooling mode the potential for development of voids and pockets of entrained gases in flow path piping is, practically, of no concern. Observation of normal operating parameters/indications of the operating RHR train is sufficient verification that the piping in the flow path is full of water. However, these portions of piping in the RHR train that are stagnant and which are used for ECCS purposes would still require verification by other means (e.g., UT, venting) to ensure the stagnant piping is full of water.

V. If an ECCS high point that is normally monitored becomes inaccessible due to a change in conditions, such as elevated radiation levels, an evaluation may be used as an interim measure to provide reasonable assurance that the ECCS remains operable. When the high point becomes accessible, verification that the piping is full of water must be performed.

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS (Continued)

VI. Should activities (e.g., maintenance) or events (e.g., flow interruption, depressurization, system leakage) occur that could cause gasses to come out of solution or be introduced into ECCS piping then it may be prudent to verify the ECCS piping as being full at those potentially affected high points including those high points that are not normally verified, if deemed appropriate.

VII. A void detected by UT would require further investigation to determine its size and source, and the void must either be refilled by purging/venting or evaluated to determine impact on continued ECCS OPERABILITY.

Surveillance Requirements for throttle valve position stops and flow balance testing provide assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) provide the proper flow split between injection points in accordance with the assumptions used in the ECCS-LOCA analyses, and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses.

Verifying that the RHR system suction valve interlock is OPERABLE ensures that the RCS will not pressurize the RHR system beyond its design pressure. The value specified in the surveillance requirement ensures that the valves cannot be opened unless the RCS pressure is less than 440 psig. Due to bistable reset design, and the instrument uncertainty, the valves could be open above the interlock setpoint, but below the reset pressure. To ensure that the RHR system design pressure will not be exceeded, the actual interlock setpoint takes into consideration RHR suction relief valve settings and allowable tolerance, bistable deadband, total instrument channel uncertainty associated with the interlock, and available operating margin (differential pressure operating limit) for reactor coolant pump operation to ensure shutdown cooling can be transitioned to RHR. This results in the actual setpoint and reset values being below the value specified in the surveillance requirement. The actual interlock setpoint and reset values, in addition to separate administrative controls, will ensure that the RHR suction isolation valves cannot be opened from the main control room when the RCS pressure could cause the RHR system design pressure to be exceeded.

3/4.5.4 REFUELING WATER STORAGE TANK

The OPERABILITY of the refueling water storage tank (RWST) as part of the ECCS ensures that a sufficient supply of borated water is available for injection by the ECCS in the event of a LOCA. The limits on RWST minimum volume and boron concentration ensure that: (1) sufficient water is available within containment to permit recirculation cooling flow to the core and (2) the reactor will remain subcritical in the cold

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 CONTAINMENT SPRAY SYSTEM

The OPERABILITY of the Containment Spray System ensures that containment depressurization and cooling capability will be available in the event of a LOCA. The pressure reduction and resultant lower containment leakage rate are consistent with the assumptions used in the safety analyses.

The two independent Containment Spray Systems provide post-accident cooling of the containment atmosphere. The Containment Spray Systems also provide a mechanism for removing iodine from the containment atmosphere, and, therefore, the time requirements for restoring an inoperable Spray System to OPERABLE status have been maintained consistent with those assigned other inoperable ESF equipment.

The Containment Building Spray System suction and discharge piping must be maintained full of water to ensure system operability. The piping may be considered full of water, even with some gas voids present, if an evaluation concludes that the system remains capable of performing its specified safety function.

Verifying the correct alignment of manual, power-operated, and automatic valves provides assurance that the proper flow paths exist for operation of the Containment Spray System under accident conditions. This verification includes only those valves in the direct flow paths through safety-related equipment whose position is critical to the proper functioning of the safety-related equipment. Vents, drains, sampling connections, instrument taps, etc., that are not directly in the flow path and are not critical to proper functioning of the safety-related equipment are excluded from this surveillance requirement. This surveillance does not apply to valves that are locked, sealed, or otherwise secured in position because these valves are verified in their correct position prior to locking, sealing, or securing. Also, this requirement does not apply to valves that cannot be inadvertently misaligned, such as check valves.

An automatic valve may be aligned in other than its accident position provided (1) the valve receives an automatic signal to re-position to its required position in the event of an accident, and (2) the valve is otherwise operable (stroke time within limits, motive force available to re-position the valve, control circuitry energized, and mechanically capable of re-positioning).

3/4.6.2.2 SPRAY ADDITIVE SYSTEM

The OPERABILITY of the Spray Additive System ensures that sufficient NaOH is added to the containment spray in the event of a LOCA. The limits on NaOH volume and concentration ensure a pH value of between 8.5 and 11.0 for the solution recirculated within containment after a LOCA. This pH band minimizes the evolution of iodine and

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.2 SPRAY ADDITIVE SYSTEM (Continued)

minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components. The contained solution volume limit includes an allowance for solution not usable because of tank discharge line location or other physical characteristics. These assumptions are consistent with the iodine removal efficiency assumed in the safety analyses.

The Spray Additive Tank System piping must be maintained full of water to ensure system operability. The piping may be considered full of water, even with some gas voids present, if an evaluation concludes that the system remains capable of performing its specified safety function.

Verifying the correct alignment of manual, power-operated, and automatic valves provides assurance that the proper flow paths exist for operation of the Spray Additive System under accident conditions. This verification includes only those valves in the direct flow paths through safety-related equipment whose position is critical to the proper functioning of the safety-related equipment. Vents, drains, sampling connections, instrument taps, etc., that are not directly in the flow path and are not critical to proper functioning of the safety-related equipment are excluded from this surveillance requirement. This surveillance does not apply to valves that are locked, sealed, or otherwise secured in position because these valves are verified in their correct position prior to locking, sealing, or securing. Also, this requirement does not apply to valves that cannot be inadvertently misaligned, such as check valves.

An automatic valve may be aligned in other than its accident position provided (1) the valve receives an automatic signal to re-position to its required position in the event of an accident, and (2) the valve is otherwise operable (stroke time within limits, motive force available to re-position the valve, control circuitry energized, and mechanically capable of re-positioning).

3/4.6.3 CONTAINMENT ISOLATION VALVES

The OPERABILITY of the containment isolation valves (CIV) ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment and is consistent with the requirements of General Design Criteria 54 through 57 of Appendix A to 10 CFR Part 50. Containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA.

3/4.6.3 CONTAINMENT ISOLATION VALVES (Continued)

Normally closed containment isolation barriers are considered operable when their applicable surveillance requirements are met and:

1. Manual valves are locked in the closed position,
2. Automatic valves are de-activated and locked in the closed position,
3. Blind flanges are in place, and
4. Closed systems are intact.

When these containment isolation barriers are administratively placed in a condition in which no mechanical movement needs to occur for the components to perform their intended function, the barriers are considered passive components. This provision does not apply to power-operated valves that are de-activated for maintenance or tagging purposes; those conditions are addressed below.

Closing, deactivating, and securing an operable, fail closed, automatic CIV to isolate a containment penetration to comply with the action of TS 3.6.3 because the redundant CIV is inoperable does not necessitate declaring the valve inoperable provided:

a. The CIV is operable and the valve will revert to an operable active isolation device upon restoration of power or the opening air supply, and

b. No maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit that would require a surveillance test to demonstrate operability of the CIV, and

c. If the CIV is a dual function valve that renders a TS-required system or component inoperable while deactivated and closed, entry into and compliance with the actions for the inoperable TS-required system or component is necessary.

Closing, deactivating, and securing an operable, fail closed, automatic CIV so that it may serve as an isolation boundary for a clearance order does not necessitate declaring the valve inoperable provided:

a. The CIV is operable and the valve will revert to an operable active isolation device upon restoration of power or the opening air supply, and

b. No maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit that would require a surveillance test to demonstrate operability of the CIV, and

c. If the CIV is a dual function valve that renders a TS-required system or component inoperable while deactivated and closed, entry into and compliance with the actions for the inoperable TS-required system or component is necessary.

3/4.6.3 CONTAINMENT ISOLATION VALVES (Continued)

In addition, a fail closed containment isolation valve that is closed, deactivated, and secured for purposes other than those discussed above may also be considered operable provided the stipulations in items a, b, and c above are met.

The opening of locked or sealed closed containment isolation valves on an intermittent basis under administrative control includes the following considerations: (1) stationing an operator, who is in constant communication with control room, at the valve controls, (2) instructing this operator to close these valves in an accident situation, and (3) assuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside the containment.

In the event that one containment isolation valve becomes inoperable, the valve must be restored to an operable status within four hours or the affected penetration must be isolated. Additionally, if the penetration is open, the second isolation barrier in the penetration (either another containment isolation valve or the associated closed system within containment) must remain operable. The operability of the closed system is established by its governing Technical Specification. For example, the SG U-tubes would comprise an operable closed system functioning as a containment barrier if tube leakage was within the leakage limitations of T.S. 3.4.6.2. For the hydrogen analyzer portion of the Combustible Gas Control system, the system outside of containment is qualified as an additional containment isolation barrier.

The method of isolating a penetration with an inoperable containment isolation valve must include the use of an isolation barrier that cannot be adversely affected by a single active failure. Barriers that meet this criterion include: (1) a deactivated automatic valves secured in the isolation position, (2) a closed manual valve, and (3) a blind flange. Closed systems within containment do not meet the isolation criterion because they are vulnerable to failures. Isolating a penetration with a deactivated automatic valve may be accomplished using either the inoperable valve, if it can be verified to be fully closed, or the operable automatic valve. Manual valves and blind flanges used to isolate a penetration must be within the penetration's ASME class boundary and qualified to ASME Class 2.

3/4.6.4 COMBUSTIBLE GAS CONTROL

The Hydrogen Mixing Systems are provided to ensure adequate mixing of the containment atmosphere following a LOCA. This mixing action will prevent localized accumulations of hydrogen from exceeding the flammable limit.

3/4.7.4 SERVICE WATER SYSTEM/ULTIMATE HEAT SINK (Continued)

Verifying the correct alignment of manual, power-operated, and automatic valves provides assurance that the proper flow paths exist for operation of the Service Water System under accident conditions. This verification includes only those valves in the direct flow paths through safety-related equipment whose position is critical to the proper functioning of the safety-related equipment. Vents, drains, sampling connections, instrument taps, etc., that are not directly in the flow path and are not critical to proper functioning of the safety-related equipment are excluded from this surveillance requirement. This surveillance does not apply to valves that are locked, sealed, or otherwise secured in position because these valves are verified in their correct position prior to locking, sealing, or securing. Also, this requirement does not apply to valves that cannot be inadvertently misaligned, such as check valves.

An automatic valve may be aligned in other than its accident position provided (1) the valve receives an automatic signal to re-position to its required position in the event of an accident, and (2) the valve is otherwise operable (stroke time within limits, motive force available to re-position the valve, control circuitry energized, and mechanically capable of re-positioning).

3/4.7.5 (THIS SPECIFICATION NUMBER IS NOT USED)

3/4.7.6 CONTROL ROOM SUBSYSTEMS

CONTROL ROOM EMERGENCY MAKEUP AIR AND FILTRATION SYSTEM (CREMAFS)

BACKGROUND

The control room emergency makeup air and filtration system (CREMAFS) provides a protected environment from which occupants can control the unit following an uncontrolled release of radioactivity or smoke.

The CREMAFS consists of two independent, redundant trains that recirculate and filter the air in the control room envelope (CRE) and a CRE boundary that limits the inleakage of unfiltered air. Each CREMAFS train consists of a prefilter, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and a fan. Ductwork, valves or dampers, doors, barriers, and instrumentation also form part of the system. A second bank of HEPA filters follows the adsorber section to collect carbon fines and provides backup in case of failure of the main HEPA filter bank.

3/4.7.6 CONTROL ROOM SUBSYSTEMS (Continued)

The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit during normal and accident conditions. This area encompasses the control room, computer room, technical support center, office, conference room and library, emergency storage room, HVAC equipment room, kitchen, and sanitary facilities. The CRE is protected during normal operation, natural events, and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CRE. The OPERABILITY of the CRE boundary must be maintained to ensure that the inleakage of unfiltered air into the CRE will not exceed the inleakage assumed in the licensing basis analysis of design basis accident (DBA) consequences to CRE occupants. The CRE and its boundary are defined in the Control Room Envelope Habitability Program.

The CREMAFS is an emergency system, parts of which may also operate during normal unit operations in the standby mode of operation. Upon receipt of the actuating signal(s), the normal makeup air fans are automatically tripped and their associated discharge dampers close. Both redundant emergency cleanup fans and their associated discharge dampers are automatically actuated. Makeup air is transported to the control room via piping and backdraft dampers configured in parallel, which bypass the normal makeup air fans and dampers. The prefilters remove any large particles in the air to prevent excessive loading of the HEPA filters and charcoal adsorbers. Continuous operation of each train for at least 10 hours per month, with the heaters on, reduces moisture buildup on the HEPA filters and adsorbers. The heaters are important to the effectiveness of the charcoal adsorbers.

Actuation of the CREMAFS places the system in the emergency mode of operation. Actuation of the system to the emergency mode of operation trips the normal makeup air fans and closes their associated discharge dampers, trips the control room exhaust fan and closes the exhaust dampers, actuates the emergency cleanup fans and aligns the system for recirculation of the air within the CRE through the redundant trains of HEPA and the charcoal filters. The emergency mode also initiates pressurization and filtered ventilation of the air supply to the CRE.

3/4.7.6 CONTROL ROOM SUBSYSTEMS (Continued)

Makeup air is drawn from both remote air intakes and delivered to the control room complex by two fully redundant emergency filtration system fans. One hundred percent of the makeup air passes through the prefilter and heater and a HEPA-Carbon-HEPA filter configuration in either or both emergency filter units prior to discharging into the control room HVAC equipment room. In addition, approximately 2 percent of the total control room complex recirculation air flow, (i.e., including the air conditioning system flow rate) is drawn through the HEPA-Carbon-HEPA filter configuration in either or both emergency filter units. Pressurization of the CRE minimizes infiltration of unfiltered air through the CRE boundary from all the surrounding areas adjacent to the CRE boundary. Radiation and smoke detectors in each remote air intake continuously monitor the air entering the CRE. High radiation in either remote air intake initiates operation of the CREMAF in the emergency mode of operation. Upon receipt of a smoke alarm from either remote air intake, the operators will manually initiate operation of the CREMAFS in the emergency mode of operation.

A single CREMAFS train operating at a pressurization flow rate of up to 600 cfm will pressurize the CRE to about 0.125 inches water gauge relative to external areas adjacent to the CRE boundary. The CREMAFS operation in maintaining the CRE habitable is discussed in the UFSAR, Section 6.4 (Ref. 1).

The CREMAFS is designed in accordance with Seismic Category I requirements.

The CREMAFS is designed to maintain a habitable environment in the CRE for 30 days of continuous occupancy after a Design Basis Accident (DBA) without exceeding a 5 rem total effective dose equivalent (TEDE).

APPLICABLE SAFETY ANALYSES

The CREMAFS components are arranged in redundant, safety related ventilation trains. The location of components and ducting within the CRE ensures an adequate supply of filtered air to all areas requiring access. The CREMAFS provides airborne radiological protection for the CRE occupants, as demonstrated by the CRE occupant dose analyses for the most limiting design basis accident fission product release presented in the FSAR, Chapter 15 (Ref. 2).

The CREMAFS provides protection from smoke to the CRE occupants. The evaluation of a smoke challenge demonstrates that it will not result in the inability of the CRE occupants to control the reactor either from the control room or from the remote shutdown panels (Ref. 4).

3/4.7.6 CONTROL ROOM SUBSYSTEMS (Continued)

The analysis of hazardous chemical releases found that no significant quantity of toxic gases is stored at any industrial facility in the vicinity of the site. Further, chemical shipments on the nearby highways and chemicals stored on site do not present an undue risk to control room habitability (Ref. 3). As a result, toxic gas protection is not required for the CRE.

The worst case single active failure of a component of the CREMAFS, assuming a loss of offsite power, does not impair the ability of the system to perform its design function.

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

LCO

Two independent and redundant CREMAFS trains are required to be OPERABLE to ensure that at least one is available if a single active failure disables the other train. Total system failure, such as from a loss of both ventilation trains or from an inoperable CRE boundary, could result in exceeding a dose of 5 rem TEDE to the CRE occupants in the event of a large radioactive release.

Each CREMAFS train is considered OPERABLE when the individual components necessary to limit CRE occupant exposure are OPERABLE. A CREMAFS train is OPERABLE when the associated:

a. Fan is OPERABLE,

b. HEPA filters and charcoal adsorbers are not excessively restricting flow, and are capable of performing their filtration functions, and

c. Heater, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

During normal and emergency operation, both remote air intakes are aligned to deliver air to the control room. Repositioning either remote intake manual isolation valve (1-CBA-V9 or 2-CBA-V9) will render both trains of the control room emergency makeup air and filtration system inoperable unless makeup airflows are determined to remain within acceptable values. During an abnormal plant condition, such as smoke or other potentially harmful material entering an intake, one remote intake may be closed after placing the system in the filter recirculation mode without affecting system operability.

3/4.7.6 CONTROL ROOM SUBSYSTEMS (Continued)

In order for the CREMAFS trains to be considered OPERABLE, the CRE boundary must be maintained such that the CRE occupant dose from a large radioactive release does not exceed the calculated dose in the licensing basis consequence analyses for DBAs, and that CRE occupants are protected from smoke. Maintaining the CRE boundary also includes ensuring that the total size of all openings in the boundary is kept below the design bases limit.

The LCO is modified by a Note allowing the CRE boundary to be opened intermittently under administrative controls. This Note only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings that exceed the allowable opening size, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with the operators in the CRE. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for CRE isolation is indicated.

APPLICABILITY

In MODES 1, 2, 3, 4, 5, and 6, and during movement of irradiated fuel assemblies, the CREMAFS must be OPERABLE to ensure that the CRE will remain habitable during and following a DBA.

During movement of irradiated fuel assemblies, the CREMAFS must be OPERABLE to cope with the release from a fuel handling accident.

ACTIONS

a.

When one CREMAFS train is inoperable, for reasons other than an inoperable CRE boundary, action must be taken to restore OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CREMAFS train is adequate to perform the CRE occupant protection function. However, the overall reliability is reduced because a failure in the OPERABLE CREMAFS train could result in loss of CREMAFS function. The 7-day Completion Time is based on the low probability of a DBA occurring during this time period, and ability of the remaining train to provide the required capability.

3/4.7.6 CONTROL ROOM SUBSYSTEMS (Continued)

b.1, b.2, and b.3

If the unfiltered inleakage of potentially contaminated air past the CRE boundary and into the CRE can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to 5 rem TEDE), or inadequate protection of CRE occupants from smoke, the CRE boundary is inoperable. Actions must be taken to restore an OPERABLE CRE boundary within 90 days.

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. A survey of offsite and onsite chemicals identified no hazardous chemicals that present a hazard to control room habitability. Therefore, the mitigating action for chemical hazards is to verify that the chemical hazards analyses are current and require no toxic protection for the CRE occupants. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 90 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. In addition, the 90-day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

In MODE 1, 2, 3, or 4, if the inoperable CREMAFS train or the CRE boundary cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a MODE that minimizes accident risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

c.

If both CREMAFS trains are inoperable in MODE 1, 2, 3, or 4 for reasons other than an inoperable CRE boundary (i.e., Action b.), the CREMAFS may not be capable of performing the intended function and the unit is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

3/4.7.6 CONTROL ROOM SUBSYSTEMS (Continued)

d.

In MODE 5 or 6, or during movement of irradiated fuel assemblies, if the inoperable CREMAFS train cannot be restored to OPERABLE status within the required Completion Time, action must be taken to immediately place the OPERABLE CREMAFS train in the emergency mode of operation. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure would be readily detected.

An alternative to placing the OPERABLE CREMAFS train in the emergency mode of operation is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the CRE. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel to a safe position.

e.

In MODE 5 or 6, or during movement of irradiated fuel assemblies, with two CREMAFS trains inoperable or with the CREMAFS train required to be in the emergency mode of operation not capable of being powered from an OPERABLE emergency power source, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the CRE. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel to a safe position.

f.

In MODE 5 or 6, or during movement of irradiated fuel assemblies, with one or both CREMAFS trains inoperable due to an inoperable CRE boundary, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the CRE. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel to a safe position.

3/4.7.6 CONTROL ROOM SUBSYSTEMS (Continued)

SURVEILLANCE REQUIREMENTS

SR 4.7.6.1

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions on this system are not too severe, testing each train once every month provides an adequate check of this system. Monthly heater operations dry out any moisture accumulated in the charcoal from humidity in the ambient air. Systems with heaters must be operated for ≥10 continuous hours with the heaters energized. The 31-day Frequency is based on the reliability of the equipment and the two-train redundancy.

SRs also periodically test the performance of the HEPA filter, charcoal adsorber efficiency, minimum flow rate, and the physical properties of the activated charcoal.

The SRs verify that each CREMAFS train starts and operates on test actuation signals. The Frequency of 18 months is based on industry operating experience and is consistent with the typical refueling cycle.

SR 4.7.6.2

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the Control Room Envelope Habitability Program.

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than 5 rem TEDE and the CRE occupants are protected from smoke. This SR verifies that the unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Action b. must be entered. Action b.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3 (Ref. 5), which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 6). These compensatory measures may also be used as mitigating actions as required by Action b.2. Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

3/4.7.6 CONTROL ROOM SUBSYSTEMS (Continued)

REFERENCES

1. FSAR, Section 6.4
2. FSAR, Chapter 15
3. FSAR, Section 6.4.4.2
4. FSAR, Section 6.4
5. Regulatory Guide 1.196
6. NEI 99-03, "Control Room Habitability Assessment"

AIR CONDITIONING

The OPERABILITY of the safety-related Control Room Air Conditioning Subsystem ensures that the allowable temperature for continuous-duty rating for the equipment and instrumentation cooled by this system is not exceeded. The safety-related Control Room Air Conditioning Subsystem consists of two independent and redundant trains that provide cooling of recirculated control room air. The design basis of the safety-related Control Room Air Conditioning Subsystem is to maintain the control room temperature for 30 days of continued occupancy. The safety-related chillers are designed to operate in conditions down to the design basis winter temperature. When the chiller units unload due to insufficient heat load on the system, each Control Room air Conditioning Subsystem remains operable. Surveillance to demonstrate OPERABILITY will verify each subsystem has the capability to maintain the control room area temperature less than the limiting equipment qualification temperature. The operational surveillance will be performed on a quarterly basis, requiring each safety-related Control Room Air Conditioning Subsystem to operate over a twenty-four hour period. This will ensure the safety related subsystem can remove the heat load based on daily cyclic outdoor air temperature.

The Control Room Air Conditioning fans are necessary to support both the operation of the Control Room Emergency Makeup Air and Filtration and the Control Room Air Conditioning Subsystems.

3/4.7.7 SNUBBERS

All snubbers are required OPERABLE to ensure that the structural integrity of the Reactor Coolant System and all other safety-related systems is maintained during and following a seismic or other event initiating dynamic loads.

Snubbers are classified and grouped by design and manufacturer but not by size. For example, mechanical snubbers utilizing the same design features of the 2-kip, 10-kip and 100-kip capacity manufactured by Company "A" are of the same type. The same design mechanical snubbers manufactured by Company "B" for the purposes of this Technical Specification would be of a different type, as would hydraulic snubbers from either manufacturer.

A list of individual snubbers with detailed information of snubber location and size and of system affected shall be available at the plant in accordance with Section 50.71(c) of 10 CFR Part 50. The accessibility of each snubber shall be determined and approved by the Station Operation Review Committee (SORC). The determination shall be based upon the existing radiation levels and the expected time to perform a visual inspection in each snubber location as well as other factors associated with accessibility during plant operations (e.g., temperature, atmosphere, location, etc.), and the recommendations of Regulatory Guides 8.8 and 8.10. The addition or deletion of any hydraulic or mechanical snubber shall be made in accordance with Section 50.59 of 10 CFR Part 50.

Surveillance to demonstrate OPERABILITY is by performance of the requirements of an approved inservice inspection program.

Permanent or other exemptions from the surveillance program for individual snubbers may be granted by the Commission if a justifiable basis for exemption is presented and, if applicable, snubber life destructive testing was performed to qualify the snubbers for the applicable design conditions at either the completion of their fabrication or at a subsequent date. Snubbers so exempted shall be listed in the list of individual snubbers indicating the extent of the exemptions.

The service life of a snubber is established via manufacturer input and information through consideration of the snubber service conditions and associated installation and maintenance records (newly installed snubbers, seal replaced, spring replaced, in high radiation area, in high temperature area, etc.). The requirement to monitor the snubber service life is included to ensure that the snubbers periodically undergo a performance evaluation in view of their age and operating conditions. These records will provide statistical bases for future consideration of snubber service life.

3/4.7.8 SEALED SOURCE CONTAMINATION

The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(a)(3) limits for plutonium. This limitation will ensure that leakage from Byproduct, Source, and Special Nuclear Material sources will not exceed allowable intake values.

Sealed sources are classified into three groups according to their use, with Surveillance Requirements commensurate with the probability of damage to a source in that group. Those sources which are frequently handled are required to be tested more often than those which are not. Sealed sources which are continuously enclosed within a shielded mechanism (i.e., sealed sources within radiation monitoring or boron measuring devices) are considered to be stored and need not be tested unless they are removed from the shielded mechanism.

3/4.7.9 (THIS SPECIFICATION NUMBER IS NOT USED.)

3/4.7.10 (THIS SPECIFICATION NUMBER IS NOT USED.)

3/4.8.1 AC SOURCES (Continued)

LIMITING CONDITION FOR OPERATION (LCO) (continued)

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

The term, "verify," as used in this context means to administratively check by examining logs or other information to determine if certain components are out of service for maintenance or other reasons. It does not mean to perform the Surveillance Requirements needed to demonstrate the OPERABILITY of the component.

a. ACTION a. is to ensure a highly reliable power source remains with one offsite circuit inoperable, it is necessary to verify the OPERABILITY of the remaining required offsite circuit on a more frequent basis, i.e., within 1 hour of discovery and at least once every 8 hours thereafter. However, if a second required circuit fails Surveillance Requirement (SR) 4.8.1.1.1a, the second offsite circuit is inoperable, and ACTION e., for two offsite circuits inoperable, would have to be entered.

According to Regulatory Guide 1.93 (Ref. 6), operation may continue with one offsite power source inoperable for a period that should not exceed 72 hours. With one offsite circuit inoperable, the reliability of the offsite system is degraded, and the potential for a loss of offsite power is increased, with attendant potential for a challenge to the unit safety systems. In this condition, however, the remaining OPERABLE offsite circuit and EDGs are adequate to supply electrical power to the onsite Class 1E Distribution System.

The 72-hour allowed outage time (AOT) takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

---

b. When one EDG is inoperable it is necessary to verify the availability of the offsite circuits on a more frequent basis to ensure a highly reliable power source remains. Since the required ACTION only specifies "perform," a failure of SR 4.8.1.1.1a acceptance criteria does not result in onsite Class 1E a required ACTION being not met. However, if a circuit fails to pass SR 4.8.1.1.1a, it is inoperable. Upon offsite circuit inoperability, additional conditions and required ACTIONs must then be entered.

ACTION b. requires performance of ACTION d., which is intended to provide assurance that a loss of offsite power, during the period that a EDG is inoperable, does not result in a complete loss of safety function of critical features/systems. While in this condition (one EDG inoperable), the remaining OPERABLE EDG and offsite circuits are adequate to supply electrical power to the Distribution System. Refer to ACTION d. basis for further discussion.

ACTION b. also requires starting the remaining EDG per SR 4.8.1.1.2a.5) within 24 hours to demonstrate OPERABILITY. Starting the operable EDG does not include operating the unit under load. With one EDG inoperable, operating the one remaining operable EDG in parallel with offsite power for test purposes is not prudent. Operating the EDG under load could increase its vulnerability to failure if offsite power is disturbed or lost. The associated * footnote provides an allowance to avoid unnecessary testing of the remaining EDG to verify OPERABLITY. If the remaining EDG has been successfully operated within the last 24 hours, if currently operating or if it can be determined that the cause of the inoperable EDG does not exist on the OPERABLE EDG, SR 4.8.1.1.2a.5) does not have to be performed. If the cause of inoperability exists on the remaining EDG, the remaining EDG would be declared inoperable upon discovery and ACTION f. would be entered for two EDGs inoperable. Once the failure is repaired, the common cause failure no longer exists, and ACTION f. is satisfied.

3/4.8.1 AC SOURCES (Continued)

LIMITING CONDITION FOR OPERATION (LCO) (continued)

If the cause of the initial inoperable EDG cannot be confirmed not to exist on the remaining EDG(s), performance of SR 4.8.1.1.2a.5) suffices to provide assurance of continued OPERABILITY of the remaining EDG while the common cause possibility is evaluated under the corrective action program.

In the event the inoperable EDG is restored to OPERABLE status prior to completing the actions required in ACTION b., the plant corrective action program will continue to evaluate the common cause possibility. This continued evaluation, however, is no longer under the 24 hour constraint imposed while in ACTION b.

According to Generic Letter 84-15 (Ref. 7), 24 hours is a reasonable time to confirm that the OPERABLE EDG is not affected by the same problem as the inoperable EDG.

According to Regulatory Guide 1.93 (Ref. 6), operation may continue with one onsite power source inoperable for a period that should not exceed 72 hours. The remaining OPERABLE EDG and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. The 72-hour AOT takes into account the capacity and capability of the remaining AC sources, a reasonable time for evaluation and repairs, and the low probability of a DBA occurring during this period.

The requirement for restoring the EDG to OPERABLE status within 72 hours may be extended to 14 days to perform either extended preplanned maintenance (both preventive and corrective) or extended unplanned corrective maintenance work. Prior to exceeding the 72-hour AOT the SEPS must be available in accordance with Technical Requirement (TR) 31. When applying this AOT extension, the risk impact of this activity is managed through Seabrook Station's programs and procedures in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.182, "Assessing and Managing Risks Before Maintenance Activities at Nuclear Power Plants" (Ref. 14).

During normal operation, with both EDGs Operable, SEPS availability is demonstrated by performance of the periodic surveillance requirements specified in TR 31.

When an EDG is inoperable and the SEPS is relied upon as a backup power source, an operational readiness status check of the SEPS must be performed in addition to the periodic surveillances. The operational readiness status check is considered a just-in-time check to ensure continued SEPS availability. The operational readiness status check is specified in TR 31 and consists of: (1) verifying the SEPS is operationally ready for automatic start and energization of the selected emergency bus; (2) verifying 24-hour onsite fuel supply; and (3) verifying alignment to the selected 4160 volt emergency bus and associated 480 volt bus. In addition, the operational readiness status check must continue to be performed at least once every 72 hours following the initial SEPS availability verification. Should the SEPS become unavailable during the 14-day AOT and cannot be restored to available status, the EDG AOT reverts back to 72 hours. The 72 hours begins with the discovery of the SEPS unavailability, not to exceed a total of 14 days from the time the EDG initially become inoperable.

The extended 14-day AOT is based on the Probabilistic Risk Analysis (PRA) evaluation to perform on-line maintenance of the EDGs when the SEPS is available. The results of the PRA evaluation demonstrate that the SEPS is capable of mitigating the dominant core damage sequences and provides a significant overall risk reduction for station operation. Additionally, the remaining OPERABLE EDG and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. Furthermore, should a loss of offsite power occur and both EDGs are unable to energize their respective emergency bus, the SEPS alone is adequate to supply electrical power to effect a safe shutdown of the unit.

3/4.9.5 (THIS SPECIFICATION NUMBER IS NOT USED.)

3/4.9.6 (THIS SPECIFICATION NUMBER IS NOT USED.)

3/4.9.7 (THIS SPECIFICATION NUMBER IS NOT USED.)

3/4.9.8 RESIDUAL HEAT REMOVAL AND COOLANT CIRCULATION

The requirement that at least one residual heat removal (RHR) loop be in operation ensures that: (1) sufficient cooling capacity is available to remove decay heat and maintain the water in the reactor vessel below 140°F as required during the REFUELING MODE, and (2) sufficient coolant circulation is maintained through the core to minimize the effect of a boron dilution incident and prevent boron stratification.

The requirement to have two RHR loops OPERABLE when there is less than 23 feet of water above the reactor vessel flange ensures that a single failure of the operating RHR loop will not result in a complete loss of residual heat removal capability. However, only one RHR loop is required for decay heat removal with water level at least 23 feet above the reactor vessel flange and the upper internals removed from the reactor vessel. The large volume of water above the flange provides backup decay heat removal capability.

When installed in the reactor vessel, the upper internals provide a flow restriction between the core region and the refueling cavity. Consequently, following a loss of RHR cooling, heating of the water in the core would proceed faster than heating of the refueling cavity water, and core boiling could occur in a relatively short period of time. As a result, administrative controls implement compensatory measures to reduce the risk of core boiling should a loss of RHR cooling occur. These administrative controls ensure that the second train of RHR, although not required by the TS to be operable, will be functional within approximately one-half the time to core boiling following a loss of the operable RHR train.

Closure of the Equipment Hatch containment penetration using the Containment Outage Door may satisfy the containment closure requirement of the action statements for Technical Specifications 3.9.8.1 and 3.9.8.2, when the Containment Outage Door is being used during the movement of non-recently irradiated fuel assemblies within containment in lieu of the Containment Equipment Hatch.

3/4.9.9 (THIS SPECIFICATION NUMBER IS NOT USED.)

3/4.9.10 and 3/4.9.11 WATER LEVEL - REACTOR VESSEL and STORAGE POOL

The restrictions on minimum water level ensure that sufficient water depth is available to remove 99% of the assumed 10% iodine gap activity released from the rupture of an irradiated fuel assembly. The minimum water depth is consistent with the assumptions of the safety analysis. Suspending fuel movement or crane operation does not preclude moving a component to a safe location.

3/4.9.12 FUEL STORAGE BUILDING EMERGENCY AIR CLEANING SYSTEM

The limitations on the Fuel Storage Building Emergency Air Cleaning System ensure that all radioactive material released from an irradiated fuel assembly will be filtered through the HEPA filters and charcoal adsorber prior to discharge to the atmosphere. Operation of the system with the heaters operating for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The OPERABILITY of this system and the resulting iodine removal capacity are consistent with the assumptions of the safety analyses. ANSI N510-1980 will be used as a procedural guide for surveillance testing. Suspending fuel movement or crane operation does not preclude moving a component to a safe location.

One train of the Fuel Storage Building Emergency Air Cleaning System must be in operation during fuel movement. This requirement, however, does not apply to movement of a spent fuel cask containing irradiated fuel in preparation for transfer to dry storage. Movement of fuel after it has been inserted into a spent fuel cask and unlatched from the lifting tool is no longer a consideration with regard to this specification.

3/4.9.13 SPENT FUEL ASSEMBLY STORAGE

Restrictions on placement of fuel assemblies of certain enrichments within the Spent Fuel Pool is dictated by Figure 3.9-1. These restrictions ensure that the K_{eff} of the Spent Fuel Pool will always remain less than 0.95 assuming the pool to be flooded with unborated water. The restrictions delineated in Figure 3.9-1 and the action statement are consistent with the criticality safety analysis performed for the Spent Fuel Pool as documented in the FSAR.

3/4.9.14 NEW FUEL ASSEMBLY STORAGE

Restrictions on placement of fuel assemblies of certain enrichments within the New Fuel Storage Vault is dictated by Specification 3/4.9.14. These restrictions ensure that the K_{eff} of the New Fuel Storage Vault will always remain less than 0.95 assuming the area to be flooded with unborated water. In addition, these restrictions ensure that the K_{eff} of the New Fuel Storage Vault will always remain less than 0.98 when aqueous foam moderation is assumed. The restrictions delineated in Specification 3/4.9.14 and the action statement are consistent with the criticality safety analysis performed for the New Fuel Storage Vault as documented in the FSAR.