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SOUTHERN COMPANY
Energy to Serve Your World℠

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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Edwin I. Hatch Nuclear Plant
Technical Specifications Revision to Allow Fuel Movement with
Refueling Interlocks Inoperable

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.90, Southern Nuclear Operating Company (SNC) proposes to revise the Plant Hatch Units 1 and 2 Technical Specifications (TS) to Operating License DPF-57 and NPF-5, respectively.

The proposed revision is to the Refueling Limiting Condition for Operation, section 3.9.1. Briefly, alternate actions are proposed which will allow in-vessel fuel movements with the refueling interlocks inoperable. The new actions will require that all control rods be fully inserted and that a control rod withdrawal block remain effective until the in-vessel fuel movements are terminated, or until the refuel interlocks are once again operable.

The proposed change is consistent with Technical Specification Task Force (TSTF) change traveler 225, revision 2.

Enclosure 1 provides a description and justification of the proposed change. Enclosure 2 contains the 10 CFR 50.92 evaluation and the justification for the categorical exclusion from performing an environmental assessment. Enclosure 3 provides the marked-up TS and Bases pages. Enclosure 4 provides the clean typed TS and Bases pages.

In accordance with the requirements of 10 CFR 50.91, a copy of this letter and all applicable enclosures will be sent to the designated state official of the Environmental Protection Division of the Georgia Department of Natural Resources.

A001

Mr. H. L. Sumner states he is a Vice President of the Southern Nuclear Operating Company and is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the statements set forth in this letter are true.

This letter contains no NRC commitments. If you have any questions, please advise.

Sincerely,

H. L. Sumner, Jr.

Sworn to and subscribed before me this 2nd *day of* September, *2003.*

Notary Public

My commission expires: April 28, 2007

HLS/OCV/sdl

Enclosures:
1. Description and Justification for Change
2. No Significant Hazards Evaluation
3. Marked-up Technical Specifications and Bases Pages
4. Published Technical Specifications and Bases Pages

cc: Southern Nuclear Operating Company
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U. S. Nuclear Regulatory Commission
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Mr. S. D. Bloom, NRR Project Manager – Hatch
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State of Georgia
Mr. L. C. Barret, Commissioner – Department of Natural Resources

Enclosure 1
Edwin I. Hatch Nuclear Plant
Technical Specifications Revision to Allow Fuel Movement with Inoperable Refueling Interlocks

Description and Justification for Change

This is a proposed change to the Plant Hatch Units 1 and 2 Technical Specifications section 3.9.1 concerning the refueling interlocks. Specifically, an alternate Required Action is being proposed if the refueling interlocks become inoperable. This new ACTION will safely permit continued fuel movement provided:

a) a continuous rod withdrawal block is inserted to replace the conditional rod block provided by the interlocks and,
b) all the control rods in the core are verified to be fully inserted.

Additionally, the frequency of performing the Channel Functional Test on each of the required refueling equipment is being changed from 7 days to 31 days.

These changes are consistent with industry/TSTF-225, Revision 2, and are already allowed by the BWR/6 Standard Technical Specifications LCO 3.9.1.

The refueling interlocks act as backup to procedures to prevent inadvertent criticalities during in-vessel fuel movements. The interlocks circuitry senses the conditions of the refueling equipment and the withdrawal of the control rods. Depending on these conditions, the interlocks actuate to prevent the operation of the refueling equipment or the control rods.

There are three types of refueling interlocks:

1) those that prevent control rod motion by causing rod blocks,

2) those that prevent the refueling platform from traveling over the core and,

3) those that prevent hoist operation.

Briefly, the refueling interlocks will not allow fuel to be moved in or near the core unless all control rods are fully inserted, and they prevent the operation of loaded refueling equipment over the core when any control rod is withdrawn. The interlocks also prevent the withdrawal of any control rod when fuel is loaded on refueling equipment and operating over the core.

The refueling interlocks permit fuel movement to proceed without the need to have a control rod block in effect. Accordingly, the Hatch Technical Specifications do not allow refueling to continue if the refueling interlocks are inoperable, even though there is an alternate action (fully insert all control rods and ensure a rod block is in effect) which will provide the same level of safety.

Therefore, the proposed change adds required actions to provide an alternate method for ensuring the reactor remains shutdown during the refueling process if the refueling interlocks become inoperable.

The proposed ACTIONs would function as follows:

- LCO ACTION 3.9.1.A.1 will require the suspension of fuel movements if a refueling interlock is inoperable. This remains unchanged.

- Proposed ACTION A.2.1 will state that, as an alternative to the suspension of fuel movements, a control rod block must be placed in effect.

- Proposed ACTION A.2.2 will require verification that all control rods are indeed fully inserted. This is in addition to the requirements to periodically verify the position of the control rods already in effect via Surveillance Requirement (SR) 3.9.3.1.

ACTIONs A.2.1 and A.2.2 will therefore also ensure that unacceptable operations are blocked (e.g., loading fuel into a cell with a withdrawn control rod).

The change allows Plant Hatch to continue to safely perform fuel movements in the vessel should the interlocks become inoperable for any reason, whether it be due to an administrative declaration (because the surveillance is overdue) or due to a hardware problem.

As pointed out in TSTF-225, these Required Actions have previously been approved for the Perry Nuclear Plant. A similar TS has also been granted to the Pilgrim station.

The proposed change also changes the frequency of SR 3.9.1.1, Channel Functional Test on the refueling interlocks, from 7 days to 31 days.

This change will permit Plant Hatch to not administratively declare the refueling interlocks inoperable after 7 days, when they are still functional. The SR currently requires the channel functional test to be performed every 7 days during in-vessel fuel movement using equipment associated with the refueling interlocks. This includes testing the all-rods-in, refuel platform position, and the refuel grapple full-up position interlocks, among others. To meet the SR, the test must be performed within the 7 day period prior to in-vessel fuel movements and every 7 days thereafter as long as fuel movement continues.

The changes made to the Required Actions will permit a complete offload, shuffle, or fuel load, without the need to halt refueling activities solely for the performance of these tests. Without the relaxation in the SR frequency, however, the operator would be required to administratively declare the interlocks inoperable (even with the additional Required Actions) due to the SR being overdue, although the interlocks would still be capable of performing their safety function.

A refueling period may last longer than 7 days. Performance of the surveillance during fuel movement causes a disruption in the continuity of fuel movement operations. Thus, this change reduces the risk associated with the halting and recommencing of fuel movement activities by eliminating the discontinuity.

This reduction in surveillance frequency is consistent with the Bases for SR 3.9.1.1 which states that the SR frequency was based on engineering judgment and was considered adequate in view of other indications of refueling status and the associated input status available to the operators. This Bases justification is valid for a 31 day frequency as well. Furthermore, the proposed SR frequency is consistent with the channel functional test frequency for the control rod blocks in mode 1 as provided in LCO 3.3.2.1, (184 days for the Rod Block Monitor and 92 days for the Rod Worth Minimizer).

Enclosure 2
Edwin I. Hatch Nuclear Plant
Technical Specifications Revision to Allow Fuel Movement with Inoperable Refueling Interlocks

No Significant Hazards Evaluation and Environmental Assessment

Proposed Change

An alternate Required Action is being provided in LCO 3.9.1 if the refueling interlocks become inoperable. Currently, in-vessel fuel movement must be suspended if the refueling interlocks are inoperable. This ACTION is being preserved, but an alternative action is proposed which will allow continued fuel movement provided:

a) that a continuous rod block is inserted to replace the conditional rod block provided by the interlocks, and
b) that all control rods in the core are verified to be fully inserted.

Additionally, the frequency of performing a functional test on each of the required refueling interlocks is reduced from 7 to 31 days.

10 CFR 50.92 Evaluation

In 10 CFR 50.92(c), the Nuclear Regulatory Commission (NRC) provides the following standards to be followed in determining the existence of a significant hazards consideration:

...a proposed amendment to an operating license for a facility licensed under 50.21(b) or 50.22, or for a testing facility involves no significant hazards consideration, if operation of the facility in accordance with the proposed amendment would not: (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) Involve a significant reduction in the margin of safety.

Southern Nuclear Operating Company (SNC) has reviewed the proposed amendment request and determined that its adoption does not involve a significant hazards consideration based upon the following discussion:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

The proposed change provides additional actions for an inoperable required refueling equipment interlock and reduces the frequency for performing the channel functional test from 7 to 31 days. The actions taken when a refueling interlock is inoperable are not initiators to any previously evaluated accident. Also, the time between Surveillances is not an initiator to any accident previously evaluated. Consequently, the probability of occurrence of a previously evaluated event is not increased.

If a refueling accident were to occur while taking the new proposed ACTIONs, the consequences of the event would not be increased since all control rods will be fully inserted. The reduced frequency of the surveillance does not alter the requirement for the equipment to be OPERABLE. As a result, the consequences of any accident previously evaluated are not significantly altered. Therefore, this proposed change does not involve a significant increase in the probability or the consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

The proposed change provides additional actions for inoperable refueling interlocks and reduces the frequency for performing the Channel Functional Test from 7 to 31 days. The proposed change does not involve a physical alteration of the plant (no new or different type of equipment is being installed). Also, no new modes of operation are being introduced. Therefore, the change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in the margin of safety?

The proposed change provides additional actions for an inoperable required refueling equipment interlock and reduces the frequency for performing the Channel Functional Test from 7 to 31 days. The proposed actions provide a level of safety equivalent to the existing actions.

The reduced frequency does not affect the requirement that the equipment be operable. Furthermore, it is likely that operators would notice a failure of the interlocks via the indications available to them.

For the above reasons, the change does not involve a significant reduction in the margin of safety.

Environmental Assessment

10 CFR 51.22(c) (9) provides criteria for the categorical exclusion from performing an environmental assessment. A proposed amendment to an operating license for a facility requires no environmental assessment if operation of the facility in accordance with the proposed license amendment will not:

1. Involve a significant hazards consideration;

2. Result in a significant change in the types, or a significant increase in the amounts of any effluents that may be released off-site, or,

3. Result in a significant increase in individual or cumulative occupational radiation exposure.

Southern Nuclear has evaluated the proposed changes and determined that the changes do not involve (1) a significant hazards consideration, (2) a significant change in the types or significant increase in the amounts of any effluents that may be released off-site, or (3) a significant increase in the individual or cumulative occupational exposure. Accordingly, the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c) (9), and an environmental assessment of the proposed changes is not required.

Enclosure 3

Edwin I. Hatch Nuclear Plant

Technical Specifications Revision to Allow Fuel Movement with Inoperable Refueling Interlocks

Marked-up Technical Specifications and Bases pages

3.9 REFUELING OPERATIONS

3.9.1 Refueling Equipment Interlocks

LCO 3.9.1 The refueling equipment interlocks shall be OPERABLE.

APPLICABILITY: During in-vessel fuel movement with equipment associated with the interlocks.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required refueling equipment interlocks inoperable.	A.1 Suspend in-vessel fuel movement with equipment associated with the inoperable interlock(s).	Immediately

add INSERT ①

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Perform CHANNEL FUNCTIONAL TEST on each of the following required refueling equipment interlock inputs: a. All-rods-in, b. Refuel platform position, c. Refuel platform fuel grapple, fuel loaded, d. Refuel platform fuel grapple full-up position, e. Refuel platform frame-mounted hoist, fuel loaded, f. Refuel platform trolley-mounted hoist, fuel loaded, and g. Service platform hoist, fuel loaded.	7 days 31

3.9 REFUELING OPERATIONS

3.9.1 Refueling Equipment Interlocks

LCO 3.9.1 The refueling equipment interlocks shall be OPERABLE.

APPLICABILITY: During in-vessel fuel movement with equipment associated with the interlocks.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required refueling equipment interlocks inoperable.	A.1 Suspend in-vessel fuel movement with equipment associated with the inoperable interlock(s).	Immediately

add INSERT ①

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Perform CHANNEL FUNCTIONAL TEST on each of the following required refueling equipment interlock inputs: a. All-rods-in, b. Refuel platform position, c. Refuel platform fuel grapple, fuel loaded, d. Refuel platform fuel grapple full-up position, e. Refuel platform frame-mounted hoist, fuel loaded, f. Refuel platform trolley-mounted hoist, fuel loaded, and g. Service platform hoist, fuel loaded.	7 days 31

INSERT 1

		OR	
	A.2.1	Insert a control rod withdrawal block.	Immediately
		AND	
	A.2.2	Verify all control rods are fully inserted.	Immediately

BASES (continued)

APPLICABILITY

In MODE 5, a prompt reactivity excursion could cause fuel damage and subsequent release of radioactive material to the environment. The refueling equipment interlocks protect against prompt reactivity excursions during MODE 5. The interlocks are required to be OPERABLE during in-vessel fuel movement with refueling equipment associated with the interlocks.

In MODES 1, 2, 3, and 4, the reactor pressure vessel head is on, and CORE ALTERATIONS are not possible. Therefore, the refueling interlocks are not required to be OPERABLE in these MODES.

ACTIONS

A.1 ← A.2.1, and A.2.2

add INSERT B1

With one or more of the required refueling equipment interlocks inoperable, the unit must be placed in a condition in which the LCO does not apply. In-vessel fuel movement with the affected refueling equipment must be immediately suspended. This action ensures that operations are not performed with equipment that would potentially not be blocked from unacceptable operations (e.g., loading fuel into a cell with a control rod withdrawn). Suspension of in-vessel fuel movement shall not preclude completion of movement of a component to a safe position.

add INSERT B2 →

SURVEILLANCE REQUIREMENTS

SR 3.9.1.1

Performance of a CHANNEL FUNCTIONAL TEST demonstrates each required refueling equipment interlock will function properly when a simulated or actual signal indicative of a required condition is injected into the logic. The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is tested.

31 The 7 day Frequency is based on engineering judgment and is considered adequate in view of other indications of refueling interlocks and their associated input status that are available to unit operations personnel.

(continued)

BASES (continued)

APPLICABILITY

In MODE 5, a prompt reactivity excursion could cause fuel damage and subsequent release of radioactive material to the environment. The refueling equipment interlocks protect against prompt reactivity excursions during MODE 5. The interlocks are required to be OPERABLE during in-vessel fuel movement with refueling equipment associated with the interlocks.

In MODES 1, 2, 3, and 4, the reactor pressure vessel head is on, and CORE ALTERATIONS are not possible. Therefore, the refueling interlocks are not required to be OPERABLE in these MODES.

ACTIONS

A.1 ← A.2.1, and A.2.2

add INSERT B1

With one or more of the required refueling equipment interlocks inoperable, the unit must be placed in a condition in which the LCO does not apply. In-vessel fuel movement with the affected refueling equipment must be immediately suspended. This action ensures that operations are not performed with equipment that would potentially not be blocked from unacceptable operations (e.g., loading fuel into a cell with a control rod withdrawn). Suspension of in-vessel fuel movement shall not preclude completion of movement of a component to a safe position.

add INSERT B2

SURVEILLANCE REQUIREMENTS

SR 3.9.1.1

Performance of a CHANNEL FUNCTIONAL TEST demonstrates each required refueling equipment interlock will function properly when a simulated or actual signal indicative of a required condition is injected into the logic. The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is tested.

31

The 7 day Frequency is based on engineering judgment and is considered adequate in view of other indications of refueling interlocks and their associated input status that are available to unit operations personnel.

(continued)

INSERT B1

...(Required Action A.1)or the interlocks are not needed (Required Action A.2).

INSERT B2

Alternatively, Required Actions A.2.1 and A.2.2 will permit continued fuel movement with the interlocks inoperable if a control rod withdrawal block is inserted, and all control rods are subsequently verified to be fully inserted. Required Action A.2.1 (rod block) ensures no control rods can be withdrawn. The withdrawal block utilized must ensure that if rod withdrawal is requested, the rod will not respond (i.e., it will remain inserted). Required Action A.2.2 is performed after placing the rod withdrawal in effect, and provides a verification that all control rods are fully inserted. This verification that all control rods are fully inserted is in addition to the periodic verifications required by SR 3.9.3.1. Like Required Action A.1, Required Actions A.2.1 and A.2.2 ensure unacceptable operations are blocked (e.g. loading fuel into a cell with a control rod withdrawn.

The alternate ACTIONS, as given by A.2.1 and A.2.2, provide a level of protection which is, at least, equivalent to the refueling interlocks.

One use for the A.2 Required Actions is to permit performance of SR 3.9.1.1 once, prior to fuel movement, without the need for subsequent performance if the fuel movement period extends longer than the 31 day frequency of the SR. This permits continued fuel movement under the protection of the continuous rod block inserted by the Required Actions.

Enclosure 4

Edwin I. Hatch Nuclear Plant

Technical Specifications Revision to Allow Fuel Movement with Inoperable Refueling Interlocks

Clean Typed Technical Specifications and Bases pages

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3.9 REFUELING OPERATIONS

3.9.1 Refueling Equipment Interlocks

LCO 3.9.1 The refueling equipment interlocks shall be OPERABLE.

APPLICABILITY: During in-vessel fuel movement with equipment associated with the interlocks.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required refueling equipment interlocks inoperable.	A.1 Suspend in-vessel fuel movement with equipment associated with the inoperable interlock(s).	Immediately
	OR	
	A.2.1 Insert a control rod withdrawal block.	Immediately
	AND	
	A.2.2 Verify all control rods are fully inserted.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Perform CHANNEL FUNCTIONAL TEST on each of the following required refueling equipment interlock inputs: a. All-rods-in, b. Refuel platform position, c. Refuel platform fuel grapple, fuel loaded, d. Refuel platform fuel grapple full-up position, e. Refuel platform frame-mounted hoist, fuel loaded, f. Refuel platform trolley-mounted hoist, fuel loaded, and g. Service platform hoist, fuel loaded.	31 days

3.9 REFUELING OPERATIONS

3.9.2 Refuel Position One-Rod-Out Interlock

LCO 3.9.2 The refuel position one-rod-out interlock shall be OPERABLE.

APPLICABILITY: MODE 5 with the reactor mode switch in the refuel position and any control rod withdrawn.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Refuel position one-rod-out interlock inoperable.	A.1	Suspend control rod withdrawal.	Immediately
	AND		
	A.2	Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Verify reactor mode switch locked in refuel position.	12 hours
SR 3.9.2.2	----------NOTE---------- Not required to be performed until 1 hour after any control rod is withdrawn. ---------- Perform CHANNEL FUNCTIONAL TEST.	7 days

3.9 REFUELING OPERATIONS

3.9.3 Control Rod Position

LCO 3.9.3 All control rods shall be fully inserted.

APPLICABILITY: When loading fuel assemblies into the core.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more control rods not fully inserted.	A.1 Suspend loading fuel assemblies into the core.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Verify all control rods are fully inserted.	12 hours

3.9 REFUELING OPERATIONS

3.9.4 Control Rod Position Indication

LCO 3.9.4 The control rod full-in position indication channel for each control rod shall be OPERABLE.

APPLICABILITY: MODE 5.

ACTIONS

---NOTE---
Separate Condition entry is allowed for each required channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required control rod position indication channels inoperable.	A.1.1 Suspend in-vessel fuel movement. AND	Immediately
	A.1.2 Suspend control rod withdrawal. AND	Immediately
	A.1.3 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies. OR	Immediately
	A.2.1 Initiate action to fully insert the control rod associated with the inoperable position indicator. AND	Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 Initiate action to disarm the control rod drive associated with the fully inserted control rod.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.4.1	Verify the required channel has no full-in indication on each control rod that is not full-in.	Each time the control rod is withdrawn from the full-in position

3.9 REFUELING OPERATIONS

3.9.5 Control Rod OPERABILITY - Refueling

LCO 3.9.5 Each withdrawn control rod shall be OPERABLE.

APPLICABILITY: MODE 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more withdrawn control rods inoperable.	A.1 Initiate action to fully insert inoperable withdrawn control rods.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	----------NOTE---------- Not required to be performed until 7 days after the control rod is withdrawn. ---------- Insert each withdrawn control rod at least one notch.	7 days
SR 3.9.5.2	Verify each withdrawn control rod scram accumulator pressure is ≥ 940 psig.	7 days

3.9 REFUELING OPERATIONS

3.9.6 Reactor Pressure Vessel (RPV) Water Level

LCO 3.9.6 RPV water level shall be ≥ 23 ft above the top of the irradiated fuel assemblies seated within the RPV.

APPLICABILITY: During movement of irradiated fuel assemblies within the RPV,
During movement of new fuel assemblies or handling of control rods within the RPV, when irradiated fuel assemblies are seated within the RPV.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RPV water level not within limit.	A.1 Suspend movement of fuel assemblies and handling of control rods within the RPV.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify RPV water level is ≥ 23 ft above the top of the irradiated fuel assemblies seated within the RPV.	24 hours

3.9 REFUELING OPERATIONS

3.9.7 Residual Heat Removal (RHR) - High Water Level

LCO 3.9.7 One RHR shutdown cooling subsystem shall be OPERABLE and in operation.

---NOTE---
The required RHR shutdown cooling subsystem may be removed from operation for up to 2 hours per 8 hour period.

APPLICABILITY: MODE 5 with irradiated fuel in the reactor pressure vessel (RPV) and the water level ≥ 22 ft 1/8 inches above the top of the RPV flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required RHR shutdown cooling subsystem inoperable.	A.1 Verify an alternate method of decay heat removal is available.	1 hour AND Once per 24 hours thereafter
B. Required Action and associated Completion Time of Condition A not met.	B.1 Suspend loading irradiated fuel assemblies into the RPV. AND B.2 Initiate action to restore secondary containment to OPERABLE status. AND	Immediately Immediately (continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3	Initiate action to restore required standby gas treatment subsystem(s) to OPERABLE status.	Immediately
	AND		
	B.4	Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1	Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter
	AND		
	C.2	Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.7.1	Verify one RHR shutdown cooling subsystem is operating.	12 hours

3.9 REFUELING OPERATIONS

3.9.8 Residual Heat Removal (RHR) - Low Water Level

LCO 3.9.8 Two RHR shutdown cooling subsystems shall be OPERABLE, and one RHR shutdown cooling subsystem shall be in operation.

---NOTE---
The required operating shutdown cooling subsystem may be removed from operation for up to 2 hours per 8 hour period.

APPLICABILITY: MODE 5 with irradiated fuel in the reactor pressure vessel (RPV) and the water level < 22 ft 1/8 inches above the top of the RPV flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two required RHR shutdown cooling subsystems inoperable.	A.1 Verify an alternate method of decay heat removal is available for each inoperable required RHR shutdown cooling subsystem.	1 hour AND Once per 24 hours thereafter
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to restore secondary containment to OPERABLE status. AND B.2 Initiate action to restore required standby gas treatment subsystem(s) to OPERABLE status. AND	Immediately Immediately (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1 Verify reactor coolant circulation by an alternate method. AND C.2 Monitor reactor coolant temperature.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.8.1	Verify one RHR shutdown cooling subsystem is operating.	12 hours

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(continued)

3.9 REFUELING OPERATIONS

3.9.1 Refueling Equipment Interlocks

LCO 3.9.1 The refueling equipment interlocks shall be OPERABLE.

APPLICABILITY: During in-vessel fuel movement with equipment associated with the interlocks.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required refueling equipment interlocks inoperable.	A.1 Suspend in-vessel fuel movement with equipment associated with the inoperable interlock(s).	Immediately
	OR	
	A.2.1 Insert a control rod withdrawal block.	Immediately
	AND	
	A.2.2 Verify all control rods are fully inserted.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Perform CHANNEL FUNCTIONAL TEST on each of the following required refueling equipment interlock inputs: a. All-rods-in, b. Refuel platform position, c. Refuel platform fuel grapple, fuel loaded, d. Refuel platform fuel grapple full-up position, e. Refuel platform frame-mounted hoist, fuel loaded, f. Refuel platform trolley-mounted hoist, fuel loaded, and g. Service platform hoist, fuel loaded.	31 days

3.9 REFUELING OPERATIONS

3.9.2 Refuel Position One-Rod-Out Interlock

LCO 3.9.2 The refuel position one-rod-out interlock shall be OPERABLE.

APPLICABILITY: MODE 5 with the reactor mode switch in the refuel position and any control rod withdrawn.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Refuel position one-rod-out interlock inoperable.	A.1 Suspend control rod withdrawal. AND	Immediately
	A.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Verify reactor mode switch locked in refuel position.	12 hours
SR 3.9.2.2	----------NOTE---------- Not required to be performed until 1 hour after any control rod is withdrawn. ---------- Perform CHANNEL FUNCTIONAL TEST.	7 days

3.9 REFUELING OPERATIONS

3.9.3 Control Rod Position

LCO 3.9.3 All control rods shall be fully inserted.

APPLICABILITY: When loading fuel assemblies into the core.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more control rods not fully inserted.	A.1 Suspend loading fuel assemblies into the core.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Verify all control rods are fully inserted.	12 hours

3.9 REFUELING OPERATIONS

3.9.4 Control Rod Position Indication

LCO 3.9.4 The control rod full-in position indication channel for each control rod shall be OPERABLE.

APPLICABILITY: MODE 5.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each required channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required control rod position indication channels inoperable.	A.1.1 Suspend in-vessel fuel movement. AND	Immediately
	A.1.2 Suspend control rod withdrawal. AND	Immediately
	A.1.3 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies. OR	Immediately
	A.2.1 Initiate action to fully insert the control rod associated with the inoperable position indicator. AND	Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 Initiate action to disarm the control rod drive associated with the fully inserted control rod.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.4.1	Verify the required channel has no full-in indication on each control rod that is not full-in.	Each time the control rod is withdrawn from the full-in position

3.9 REFUELING OPERATIONS

3.9.5 Control Rod OPERABILITY - Refueling

LCO 3.9.5 Each withdrawn control rod shall be OPERABLE.

APPLICABILITY: MODE 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more withdrawn control rods inoperable.	A.1 Initiate action to fully insert inoperable withdrawn control rods.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	----------NOTE---------- Not required to be performed until 7 days after the control rod is withdrawn. ---------- Insert each withdrawn control rod at least one notch.	7 days
SR 3.9.5.2	Verify each withdrawn control rod scram accumulator pressure is ≥ 940 psig.	7 days

3.9 REFUELING OPERATIONS

3.9.6 Reactor Pressure Vessel (RPV) Water Level

LCO 3.9.6 RPV water level shall be ≥ 23 ft above the top of the irradiated fuel assemblies seated within the RPV.

APPLICABILITY: During movement of irradiated fuel assemblies within the RPV,
During movement of new fuel assemblies or handling of control rods within the RPV, when irradiated fuel assemblies are seated within the RPV.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RPV water level not within limit.	A.1 Suspend movement of fuel assemblies and handling of control rods within the RPV.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify RPV water level is ≥ 23 ft above the top of the irradiated fuel assemblies seated within the RPV.	24 hours

3.9 REFUELING OPERATIONS

3.9.7 Residual Heat Removal (RHR) - High Water Level

LCO 3.9.7 One RHR shutdown cooling subsystem shall be OPERABLE and in operation.

---NOTE---
The required RHR shutdown cooling subsystem may be removed from operation for up to 2 hours per 8 hour period.

APPLICABILITY: MODE 5 with irradiated fuel in the reactor pressure vessel (RPV) and the water level ≥ 22 ft 1/8 inches above the top of the RPV flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required RHR shutdown cooling subsystem inoperable.	A.1 Verify an alternate method of decay heat removal is available.	1 hour AND Once per 24 hours thereafter
B. Required Action and associated Completion Time of Condition A not met.	B.1 Suspend loading irradiated fuel assemblies into the RPV. AND B.2 Initiate action to restore secondary containment to OPERABLE status. AND	Immediately Immediately (continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3	Initiate action to restore required standby gas treatment subsystem(s) to OPERABLE status.	Immediately
	AND		
	B.4	Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1	Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter
	AND		
	C.2	Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.7.1	Verify one RHR shutdown cooling subsystem is operating.	12 hours

3.9 REFUELING OPERATIONS

3.9.8 Residual Heat Removal (RHR) - Low Water Level

LCO 3.9.8 Two RHR shutdown cooling subsystems shall be OPERABLE, and one RHR shutdown cooling subsystem shall be in operation.

---NOTE---
The required operating shutdown cooling subsystem may be removed from operation for up to 2 hours per 8 hour period.

APPLICABILITY: MODE 5 with irradiated fuel in the reactor pressure vessel (RPV) and the water level < 22 ft 1/8 inches above the top of the RPV flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two required RHR shutdown cooling subsystems inoperable.	A.1 Verify an alternate method of decay heat removal is available for each inoperable required RHR shutdown cooling subsystem.	1 hour AND Once per 24 hours thereafter
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to restore secondary containment to OPERABLE status. AND B.2 Initiate action to restore required standby gas treatment subsystem(s) to OPERABLE status. AND	Immediately Immediately (continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3	Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.	Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1	Verify reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation AND Once per 12 hours thereafter
	AND		
	C.2	Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.8.1	Verify one RHR shutdown cooling subsystem is operating.	12 hours

BASES (continued)

APPLICABILITY

In MODE 5, a prompt reactivity excursion could cause fuel damage and subsequent release of radioactive material to the environment. The refueling equipment interlocks protect against prompt reactivity excursions during MODE 5. The interlocks are required to be OPERABLE during in-vessel fuel movement with refueling equipment associated with the interlocks.

In MODES 1, 2, 3, and 4, the reactor pressure vessel head is on, and CORE ALTERATIONS are not possible. Therefore, the refueling interlocks are not required to be OPERABLE in these MODES.

ACTIONS

A.1, A.2.1, and A.2.2

With one or more of the required refueling equipment interlocks inoperable, the unit must be placed in a condition in which the LCO does not apply (Required Action A.1) or the interlocks are not needed (Required Action A.2). In-vessel fuel movement with the affected refueling equipment must be immediately suspended. This action ensures that operations are not performed with equipment that would potentially not be blocked from unacceptable operations (e.g., loading fuel into a cell with a control rod withdrawn). Suspension of in-vessel fuel movement shall not preclude completion of movement of a component to a safe position.

Alternatively, Required Actions A.2.1 and A.2.2 will permit continued fuel movement with the interlocks inoperable if a control rod withdrawal block is inserted, and all control rods are subsequently verified to be fully inserted. Required Action A.2.1 (rod block) ensures no control rods can be withdrawn. The withdrawal block utilized must ensure that if rod withdrawal is requested, the rod will not respond (i.e., it will remain inserted). Required Action A.2.2 is performed after placing the rod withdrawal in effect, and provides verification that all control rods are fully inserted. This verification that all control rods are fully inserted is in addition to the periodic verifications required by SR 3.9.3.1. Like Required Action A.1, Required Actions A.2.1 and A.2.2 ensure unacceptable operations are blocked (e.g., loading fuel into a cell with a control rod withdrawn).

The alternate actions as given by A.2.1 and A.2.2 provide a level of protection which is at least equivalent to the refueling interlocks.

One use for the A.2 Required Actions is to permit performance of SR 3.9.1.1 once, prior to fuel movement, without the need for subsequent performance if the fuel movement period extends longer

(continued)

BASES

ACTIONS

A.1, A.2.1, and A.2.2 (continued)

than the 31 day Frequency of the SR. This permits continued fuel movement under the protection of the continuous rod block inserted by the Required Actions.

SURVEILLANCE REQUIREMENTS

SR 3.9.1.1

Performance of a CHANNEL FUNCTIONAL TEST demonstrates each required refueling equipment interlock will function properly when a simulated or actual signal indicative of a required condition is injected into the logic. The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is tested.

The 31 day Frequency is based on engineering judgment and is considered adequate in view of other indications of refueling interlocks and their associated input status that are available to unit operations personnel.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 26.
2. FSAR, Section 7.6.3.
3. FSAR, Section 14.3.3.3.
4. FSAR, Section 14.3.3.4.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES (continued)

APPLICABILITY

In MODE 5, a prompt reactivity excursion could cause fuel damage and subsequent release of radioactive material to the environment. The refueling equipment interlocks protect against prompt reactivity excursions during MODE 5. The interlocks are required to be OPERABLE during in-vessel fuel movement with refueling equipment associated with the interlocks.

In MODES 1, 2, 3, and 4, the reactor pressure vessel head is on, and CORE ALTERATIONS are not possible. Therefore, the refueling interlocks are not required to be OPERABLE in these MODES.

ACTIONS

A.1, A.2.1, and A.2.2

With one or more of the required refueling equipment interlocks inoperable, the unit must be placed in a condition in which the LCO does not apply (Required Action A.1) or the interlocks are not needed (Required Action A.2). In-vessel fuel movement with the affected refueling equipment must be immediately suspended. This action ensures that operations are not performed with equipment that would potentially not be blocked from unacceptable operations (e.g., loading fuel into a cell with a control rod withdrawn). Suspension of in-vessel fuel movement shall not preclude completion of movement of a component to a safe position.

Alternatively, Required Actions A.2.1 and A.2.2 will permit continued fuel movement with the interlocks inoperable if a control rod withdrawal block is inserted, and all control rods are subsequently verified to be fully inserted. Required Action A.2.1 (rod block) ensures no control rods can be withdrawn. The withdrawal block utilized must ensure that if rod withdrawal is requested, the rod will not respond (i.e., it will remain inserted). Required Action A.2.2 is performed after placing the rod withdrawal in effect, and provides verification that all control rods are fully inserted. This verification that all control rods are fully inserted is in addition to the periodic verifications required by SR 3.9.3.1. Like Required Action A.1, Required Actions A.2.1 and A.2.2 ensure unacceptable operations are blocked (e.g., loading fuel into a cell with a control rod withdrawn).

The alternate actions as given by A.2.1 and A.2.2 provide a level of protection which is at least equivalent to the refueling interlocks.

One use for the A.2 Required Actions is to permit performance of SR 3.9.1.1 once, prior to fuel movement, without the need for subsequent performance if the fuel movement period extends longer

(continued)

BASES

ACTIONS

A.1, A.2.1, and A.2.2 (continued)

than the 31 day Frequency of the SR. This permits continued fuel movement under the protection of the continuous rod block inserted by the Required Actions.

SURVEILLANCE REQUIREMENTS

SR 3.9.1.1

Performance of a CHANNEL FUNCTIONAL TEST demonstrates each required refueling equipment interlock will function properly when a simulated or actual signal indicative of a required condition is injected into the logic. The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is tested.

The 31 day Frequency is based on engineering judgment and is considered adequate in view of other indications of refueling interlocks and their associated input status that are available to unit operations personnel.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 26.
2. FSAR, Section 7.6.1.
3. FSAR, Section 15.1.13.
4. FSAR, Section 15.1.14.
5. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.