

Refueling Equipment Interlocks  
3.9.1

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

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, and  c. Refuel platform main hoist, fuel loaded.	7 days 14

9704150241 970409  
PDR ADOCK 05000440  
P PDR

Refuel Position One-Rod-Out Interlock  
3.9.2

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.9.2.2 -----NOTE----- Not required to be performed until 1 hour after any control rod is withdrawn. -----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	<p>14 7 days</p>

Refueling Equipment Interlocks  
B 3.9.1

BASES (continued)

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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 only 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 installed, and no fuel loading activities are possible. Therefore, the refueling equipment interlocks are not required to be OPERABLE in these MODES.

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ACTIONS

A.1

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that would potentially not be blocked from unacceptable operations (e.g., loading fuel into a cell with a control rod withdrawn).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.

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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.

(14)

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

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(continued)

Refuel Position One-Rod-Out Interlock  
B 3.9.2

BASES

ACTIONS

A.1 and A.2 (continued)

fuel assemblies. Action must continue until all such control rods are fully inserted. Control rods in core cells containing no fuel assemblies do not affect the reactivity of the core and, therefore, do not have to be inserted.

SURVEILLANCE  
REQUIREMENTS

SR 3.9.2.1

Proper functioning of the refuel position one-rod-out interlock requires the reactor mode switch to be in refuel. During control rod withdrawal in MODE 5, improper positioning of the reactor mode switch could, in some instances, allow improper bypassing of required interlocks. Therefore, this Surveillance imposes an additional level of assurance that the refuel position one-rod-out interlock will be OPERABLE when required. By "locking" the reactor mode switch in the proper position (i.e., removing the reactor mode switch key from the console while the reactor mode switch is positioned in refuel), an additional administrative control is in place to preclude operator errors from resulting in unanalyzed operation.

The Frequency of 12 hours is sufficient in view of other administrative controls utilized during refueling operations to ensure safe operation.

SR 3.9.2.2

Performance of a CHANNEL FUNCTIONAL TEST on each channel demonstrates the associated refuel position one-rod-out 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 ~~2~~ day (14) Frequency is considered adequate because of demonstrated circuit reliability, procedural controls on control rod withdrawals, and indications available in the control room to alert the operator of control rods not fully inserted. To perform the required testing, the applicable condition must be entered (i.e., a control rod must be withdrawn from its full-in position). Therefore, this SR has been modified

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