

Technical Specification
Changes

Single Control Rod Withdrawal - Refueling
3.10.10

3.10 SPECIAL OPERATIONS

3.10.10 Single Control Rod Withdrawal - Refueling

LCO 3.10.10 The requirements applicable during CORE ALTERATIONS of LCO 3.3.6.1, "Primary Containment and Drywell Isolation Instrumentation"; LCO 3.3.6.2, "Secondary Containment Isolation Instrumentation"; LCO 3.3.7.1, "Control Room Ventilation System Instrumentation"; LCO 3.6.1.2, "Primary Containment Air Locks"; LCO 3.6.1.3, "Primary Containment Isolation Valves"; LCO 3.6.4.1, "Secondary Containment"; LCO 3.6.4.2, "Secondary Containment Isolation Dampers (SCIDs)"; LCO 3.6.4.3, "Standby Gas Treatment (SGT) System"; LCO 3.7.3, "Control Room Ventilation System"; and LCO 3.7.4, "Control Room Air Conditioning (AC) System" may be suspended in MODE 5 with a single control rod withdrawn from a core cell containing one or more fuel assemblies, provided the following requirements are met:

- a. All other control rods remain fully inserted; and
- b. No other CORE ALTERATIONS are in progress.

APPLICABILITY: MODE 5 with a control rod withdrawn from a core cell containing one or more fuel assemblies.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each requirement of the LCO.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above requirements not met.	A.1 Suspend CORE ALTERATIONS except for control rod insertion.	Immediately
	<u>AND</u>	
	A.2 Initiate action to fully insert all control rods.	Immediately

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SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.10.10.1 Verify all control rods other than the control rod being withdrawn, are fully inserted.	24 hours
SR 3.10.10.2 Verify no other CORE ALTERATIONS are in progress.	24 hours

Technical Specification Bases
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B 3.10 SPECIAL OPERATIONS

B 3.10.10 Single Control Rod Withdrawal - Refueling

BASES

BACKGROUND

The purpose of this Special Operations LCO is to permit the withdrawal of a single control rod for testing in MODE 5 without imposing the requirements for establishing the secondary containment and main control room boundaries as normally required during CORE ALTERATIONS. During refueling operations, no more than one control rod is permitted to be withdrawn from a core cell containing one or more fuel assemblies. This restriction is enforced by the refuel position one-rod-out interlock which will not allow the withdrawal of a second control rod.

In MODE 5, movement of a control rod is defined as a CORE ALTERATION. Many systems and functions are normally required during CORE ALTERATIONS. These include requirements on secondary containment OPERABILITY, secondary containment penetrations and associated automatic isolation instrumentation, secondary containment bypass leakage path penetrations and associated automatic isolation instrumentation, the Standby Gas Treatment System (SGTS), and the main control room ventilation, air conditioning, and associated automatic isolation instrumentation. These requirements are provided to protect the public and the main control room personnel from the release of radioactive material in the event of a fuel handling accident. In addition, there are a number of requirements that apply in MODE 5 with a control rod withdrawn. These include requirements on shutdown margin, source range neutron monitoring, Reactor Protection System (RPS) instrumentation, RPS power monitoring, control rod OPERABILITY, and OPERABILITY of the refuel position one-rod-out interlock. These requirements are provided to preclude an inadvertent criticality from the withdrawal of multiple control rods and cause automatic insertion of the control rods in the event of an inadvertent criticality event.

However, there are circumstances while in MODE 5 that present the need to withdraw a single control rod for various tests (e.g., friction tests, scram timing, drive venting, and coupling integrity checks). These single control rod withdrawals are normally accomplished by selecting the refuel position for the reactor mode switch. With the noted reactivity controls in place, the requirements related to controlling radioactive releases need not be imposed. This Special Operations LCO provides

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BASES

BACKGROUND
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added assurance that the appropriate controls are being met to allow a single control rod withdrawal in MODE 5 without requiring compliance with the requirements for the secondary containment and main control room boundaries.

APPLICABLE
SAFETY ANALYSES

With the reactor mode switch in the refuel position, the analyses for control rod withdrawal during refueling are applicable and, provided the assumptions of these analyses are satisfied, these analyses will bound the consequences of an accident. Explicit safety analyses in the USAR (Ref. 1) demonstrate that the functioning of the refueling interlocks and adequate SDM will preclude unacceptable reactivity excursions.

Refueling interlocks restrict the movement of control rods to reinforce operational procedures that prevent the reactor from becoming critical. These interlocks prevent the withdrawal of more than one control rod. Under these conditions, since only one control rod can be withdrawn, the core will always be shut down even with the highest worth control rod withdrawn if adequate SDM exists.

The control rod scram function provides backup protection in the event normal refueling procedures and the refueling interlocks, together with the specified SDM, fail to prevent inadvertent criticality during refueling.

Because of these multiple levels of controls to ensure that an inadvertent criticality cannot occur, the requirements associated with establishing the secondary containment and main control room boundaries may be relaxed.

As described in LCO 3.0.7, compliance with Special Operations LCOs is optional, and therefore, no criteria of the NRC Policy Statement apply. Special Operations LCOs provide flexibility to perform certain operations by appropriately modifying requirements of other LCOs. A discussion of the criteria satisfied for the other LCOs is provided in their respective Bases.

LCO

As described in LCO 3.0.7, compliance with this Special Operations LCO is optional. Withdrawal of a control rod in MODE 5 under the controls of the one-rod-out interlock can be performed in accordance with the normal MODE 5 LCOs

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BASES

LCO •
(continued) (e.g., LCO 3.9.2, "Refuel Position One-Rod-Out Interlock," LCO 3.9.3, "Control Rod Position," and LCO 3.9.5, "Control Rod OPERABILITY - Refueling," etc.) without meeting this Special Operations LCO or its ACTIONS. However, if a single control rod withdrawal is desired in MODE 5 without establishing the secondary containment and main control room boundaries, this Special Operations LCO must be applied. "Withdrawal" in this application includes the actual withdrawal of the control rod as well as maintaining the control rod in a position other than the full-in position, and reinserting the control rod. The refueling interlocks of LCO 3.9.2 will ensure that only one control rod can be withdrawn at one time.

To back up the refueling interlocks (LCO 3.9.2), this Special Operations LCO requires all other control rods to remain fully inserted and prohibits the performance of any other CORE ALTERATIONS.

APPLICABILITY Control rod withdrawals are adequately controlled in MODE 5 by existing LCOs. However, these controls require the secondary containment and main control room boundaries to be established. In MODE 5, control rod withdrawal without establishing the secondary containment and main control room boundaries is only allowed if performed in accordance with this Special Operations LCO and is limited to one control rod at a time. For these conditions, the one-rod-out interlock (LCO 3.9.2), control rod position indication (LCO 3.9.4, "Control Rod Position Indication"), full insertion requirements for all other control rods, and scram functions (LCO 3.3.1.1, "Reaction Protection System (RPS) Instrumentation," and LCO 3.9.5, "Control Rod OPERABILITY - Refueling") minimize the potential for reactivity excursions, precluding the need to establish the secondary containment and main control room boundaries.

ACTIONS A Note has been provided to modify the ACTIONS related to a single control rod withdrawal while in MODE 5. Section 1.3, Completion Times, specifies once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition discovered to be inoperable or not within limits, will not result in separate entry into the Condition. Section 1.3 also specifies that

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BASES

ACTIONS
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Required Actions of the Condition continue to apply for each additional failure, with Completion Times based on initial entry into the Condition. However, the Required Actions for each requirement of the LCO not met provide appropriate compensatory measures for separate requirements that are not met. As such, a Note has been provided that allows separate Condition entry for each requirement of the LCO.

A.1 and A.2

If one or more of the requirements specified in this Special Operations LCO are not met, all CORE ALTERATIONS except control rod insertion, if in progress, must be immediately suspended in accordance with Required Action A.1, and actions must be initiated immediately to fully insert all control rods in accordance with Required Action A.2. This will preclude potential mechanisms that could lead to criticality. Suspension of CORE ALTERATIONS shall not preclude the completion of movement of a component to a safe condition and actions to fully insert all insertable control rods must continue until all control rods are fully inserted.

SURVEILLANCE
REQUIREMENTSSR 3.10.10.1 and SR 3.10.10.2

Verification that all the control rods, other than the control rod withdrawn for testing, are fully inserted is required to ensure the SDM is within limits. Verification that no other CORE ALTERATIONS are being made is required to ensure the assumptions of the safety analyses are satisfied.

Periodic verification of the administrative controls established by this Special Operations LCO is prudent to preclude the possibility of an inadvertent criticality. The 24 hour Frequency is acceptable, given the administrative controls on control rod withdrawals, the protection afforded by the LCOs involved, and hardware interlocks that preclude additional control rod withdrawals.

REFERENCES

1. USAR, Section 15.4.1.1.
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