

3.7 PLANT SYSTEMS

3.7.4 Main Control Room Environmental Control (MCREC) System

LCO 3.7.4 Two MCREC subsystems shall be OPERABLE.

-----NOTE-----

The main control room boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, and 3,  
During movement of irradiated fuel assemblies in the secondary containment,  
During CORE ALTERATIONS,  
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MCREC subsystem inoperable.	A.1 Restore MCREC subsystem to OPERABLE status.	7 days
B. Two MCREC subsystems inoperable due to inoperable control room boundary in MODE 1, 2, or 3.	B.1 Restore control room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.</p>	<p>-----NOTE-----                      LCO 3.0.3 is not applicable.                      -----</p>	
	<p>D.1 Place OPERABLE MCREC subsystem in pressurization mode.</p>	<p>Immediately</p>
	<p><u>OR</u></p>	
	<p>D.2.1 Suspend movement of irradiated fuel assemblies in the secondary containment.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
<p>D.2.2 Suspend CORE ALTERATIONS.</p>	<p>Immediately</p>	
<p><u>AND</u></p>		
<p>D.2.3 Initiate action to suspend OPDRVs.</p>	<p>Immediately</p>	
<p>E. Two MCREC subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.</p>	<p>E.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

(continued)

**ACTIONS (continued)**

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Two MCREC subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.</p>	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p>	
	<p>F.1 Suspend movement of irradiated fuel assemblies in the secondary containment.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>F.2 Suspend CORE ALTERATIONS.</p>	<p>Immediately</p>
<p><u>AND</u></p>		
<p>F.3 Initiate action to suspend OPDRVs.</p>	<p>Immediately</p>	

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE	FREQUENCY
<p>SR 3.7.4.1 Operate each MCREC subsystem <math>\geq</math> 15 minutes.</p>	<p>31 days</p>
<p>SR 3.7.4.2 Perform required MCREC filter testing in accordance with the Ventilation Filter Testing Program (VFTP).</p>	<p>In accordance with the VFTP</p>
<p>SR 3.7.4.3 Verify each MCREC subsystem actuates on an actual or simulated initiation signal.</p>	<p>18 months</p>

(continued)

BASES

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LCO  
(continued)

- d. One AHU fan is OPERABLE, and either operating or having its control switch in "Standby" with OPERABLE automatic start capability.

OPERABILITY of two MCREC subsystems entails satisfying the requirements listed above for each subsystem and, in addition, satisfying other limitations on AHU fan OPERABILITY. For both MCREC subsystems to be OPERABLE, the two required AHU fans must be independently powered; i.e., one fan via 1R24-S002 and one fan via 1R24-S003. (Note that AHU C is treated as powered from 1R24-S002 or S003, depending upon the source of power for 1R24-S029.) Furthermore, with one of the two required AHU fans inoperable (i.e., not independently powered, or not operating or capable of automatic start), one MCREC subsystem shall be declared inoperable. However, the inoperability may be assigned to either MCREC subsystem. OPERABILITY details for various configurations are outlined in the Technical Requirements Manual (TRM) (Ref. 8), Section 2.0.

In addition, the control room boundary must be maintained, including the integrity of the walls, floors, ceilings, ductwork, and access doors, such that the pressurization limit of SR 3.7.4.4 can be met.

The LCO is modified by a Note allowing the main control room boundary to be opened intermittently under administrative controls. 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, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the main control room. This individual will have a method to rapidly close the opening when a need for main control room isolation is indicated.

Each of the main control room exhaust fan ducts is equipped with only one isolation damper (1Z41-F018A/B). During normal system operation, the dampers are maintained closed. However, when an exhaust fan is operated and its associated damper is opened, a single failure could prevent isolation of that penetration and adversely impact main control room habitability. Consequently, when a MCREC system exhaust fan (1Z41-C012A/B) is operated or its associated damper (1Z41-F018A/B) is opened, one of the two MCREC subsystems must be declared inoperable. Optional allowances for inoperable subsystems do not preclude changing the declared

(continued)

BASES

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LCO  
(continued)

inoperable subsystem to best accommodate other plant circumstances; e.g., inoperable diesel generators, Safety Function Determination Program. However, in these instances, the Condition for one inoperable MCREC subsystem shall not be evaluated for Completion Time extensions, in accordance with Section 1.3.

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APPLICABILITY

In MODES 1, 2, and 3, the MCREC System must be OPERABLE to control operator exposure during and following a DBA, since the DBA could lead to a fission product release.

In MODES 4 and 5, the probability and consequences of a DBA are reduced because of the pressure and temperature limitations in these MODES. Therefore, maintaining the MCREC System OPERABLE is not required in MODE 4 or 5, except for the following situations under which significant radioactive releases can be postulated:

- a. During movement of irradiated fuel assemblies in the secondary containment. Moving irradiated fuel assemblies in the secondary containment may also occur in MODES 1, 2, and 3;
  - b. During CORE ALTERATIONS; and
  - c. During operations with potential for draining the reactor vessel (OPDRVs).
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ACTIONS

A.1

With one MCREC subsystem inoperable, the inoperable MCREC subsystem must be restored to OPERABLE status within 7 days. With the unit in this condition, the remaining OPERABLE MCREC subsystem is adequate to perform control room radiation protection. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in reduced MCREC System capability. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and that the remaining subsystem can provide the required capabilities.

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BASES

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ACTIONS  
(continued)

B.1

If the main control room boundary is inoperable in MODE 1, 2, or 3, the MCREC trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE main control room boundary within 24 hours. During the period that the main control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) will be utilized to provide physical security and to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the main control room boundary.

C.1 and C.2

In MODE 1, 2, or 3, if the inoperable MCREC subsystem or control room boundary cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE that minimizes risk. To achieve this status, the unit must be placed in at least MODE 3 within 12 hours and in MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1, D.2.1, D.2.2, and D.2.3

The Required Actions of Condition D are modified by a Note indicating that LCO 3.0.3 does not apply. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.

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BASES

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ACTIONS

D.1, D.2.1, D.2.2, and D.2.3 (continued)

During movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs, if the inoperable MCREC subsystem cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE MCREC subsystem may be placed in the pressurization mode. This action ensures that the remaining subsystem is OPERABLE, that no failures that would prevent automatic actuation have occurred, and that any active failure will be readily detected.

An alternative to Required Action D.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk.

If applicable, CORE ALTERATIONS and movement of irradiated fuel assemblies in the secondary containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, action must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and the subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

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BASES

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BASES

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ACTIONS

E.1

If both MCREC subsystems are inoperable in MODE 1, 2, or 3 for reasons other than an inoperable control room boundary (i.e., Condition B), the MCREC System 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.

F.1, F.2, and F.3

The Required Actions of Condition F are modified by a Note indicating that LCO 3.0.3 does not apply. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations.

Therefore, inability to suspend movement of irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.

During movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs, with two MCREC subsystems inoperable, action must be taken immediately to suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk.

If applicable, CORE ALTERATIONS and movement of irradiated fuel assemblies in the secondary containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. If applicable, action must be initiated immediately to suspend OPDVRs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

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SURVEILLANCE  
REQUIREMENTS

SR 3.7.4.1

This SR verifies that a subsystem in a standby mode starts on demand and continues to operate. Standby systems should be checked periodically to ensure that they start and function properly. As the environmental and normal

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3.7 PLANT SYSTEMS

3.7.4 Main Control Room Environmental Control (MCREC) System

LCO 3.7.4 Two MCREC subsystems shall be OPERABLE.

-----NOTE-----

The main control room boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, and 3,  
During movement of irradiated fuel assemblies in the secondary containment,  
During CORE ALTERATIONS,  
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MCREC subsystem inoperable.	A.1 Restore MCREC subsystem to OPERABLE status.	7 days
B. Two MCREC subsystems inoperable due to inoperable control room boundary in MODE 1, 2, or 3.	B.1 Restore control room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME	
<p>D. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.</p>	<p>-----NOTE-----                      LCO 3.0.3 is not applicable.                      -----</p>		
	<p>D.1 Place OPERABLE MCREC subsystem in pressurization mode.</p>	Immediately	
	<p><u>OR</u></p>		
	<p>D.2.1 Suspend movement of irradiated fuel assemblies in the secondary containment.</p>	Immediately	
	<p><u>AND</u></p>		
<p>E. Two MCREC subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.</p>	<p>D.2.2 Suspend CORE ALTERATIONS.</p>	Immediately	
	<p><u>AND</u></p>		
	<p>D.2.3 Initiate action to suspend OPDRVs.</p>	Immediately	
<p>E.1 Enter LCO 3.0.3.</p>	Immediately		

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Two MCREC subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.</p>	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p>	
	<p>F.1 Suspend movement of irradiated fuel assemblies in the secondary containment.</p>	<p>Immediately</p>
	<p><u>AND</u> F.2 Suspend CORE ALTERATIONS.</p>	<p>Immediately</p>
	<p><u>AND</u> F.3 Initiate action to suspend OPDRVs.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.4.1 Operate each MCREC subsystem <math>\geq</math> 15 minutes.</p>	<p>31 days</p>
<p>SR 3.7.4.2 Perform required MCREC filter testing in accordance with the Ventilation Filter Testing Program (VFTP).</p>	<p>In accordance with the VFTP</p>
<p>SR 3.7.4.3 Verify each MCREC subsystem actuates on an actual or simulated initiation signal.</p>	<p>18 months</p>

(continued)

BASES

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LCO  
(continued)

- d. One AHU fan is OPERABLE, and either operating or having its control switch in "Standby" with OPERABLE automatic start capability.

OPERABILITY of two MCREC subsystems entails satisfying the requirements listed above for each subsystem and, in addition, satisfying other limitations on AHU fan OPERABILITY. For both MCREC subsystems to be OPERABLE, the two required AHU fans must be independently powered; i.e., one fan via 1R24-S002 and one fan via 1R24-S003. (Note that AHU C is treated as powered from 1R24-S002 or S003, depending upon the source of power for 1R24-S029.) Furthermore, with one of the two required AHU fans inoperable (i.e., not independently powered, or not operating or capable of automatic start), one MCREC subsystem shall be declared inoperable. However, the inoperability may be assigned to either MCREC subsystem. OPERABILITY details for various configurations are outlined in the Technical Requirements Manual (TRM) (Ref. 8), Section 2.0.

In addition, the control room boundary must be maintained, including the integrity of the walls, floors, ceilings, ductwork, and access doors, such that the pressurization limit of SR 3.7.4.4 can be met.

The LCO is modified by a Note allowing the main control room boundary to be opened intermittently under administrative controls. 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, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the main control room. This individual will have a method to rapidly close the opening when a need for main control room isolation is indicated.

Each of the main control room exhaust fan ducts is equipped with only one isolation damper (1Z41-F018A/B). During normal system operation, the dampers are maintained closed. However, when an exhaust fan is operated and its associated damper is opened, a single failure could prevent isolation of that penetration and adversely impact main control room habitability. Consequently, when a MCREC system exhaust fan (1Z41-C012A/B) is operated or its associated damper (1Z41-F018A/B) is opened, one of the two MCREC subsystems must be declared inoperable. Optional allowances for inoperable subsystems do not preclude changing the declared

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BASES

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LCO  
(continued)                    inoperable subsystem to best accommodate other plant circumstances; e.g., inoperable diesel generators, Safety Function Determination Program. However, in these instances, the Condition for one inoperable MCREC subsystem shall not be evaluated for Completion Time extensions, in accordance with Section 1.3.

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APPLICABILITY                In MODES 1, 2, and 3, the MCREC System must be OPERABLE to control operator exposure during and following a DBA, since the DBA could lead to a fission product release.

In MODES 4 and 5, the probability and consequences of a DBA are reduced because of the pressure and temperature limitations in these MODES. Therefore, maintaining the MCREC System OPERABLE is not required in MODE 4 or 5, except for the following situations under which significant radioactive releases can be postulated:

- a. During movement of irradiated fuel assemblies in the secondary containment. Moving irradiated fuel assemblies in the secondary containment may also occur in MODES 1, 2, and 3;
- b. During CORE ALTERATIONS; and
- c. During operations with potential for draining the reactor vessel (OPDRVs).

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ACTIONS                      A.1

With one MCREC subsystem inoperable, the inoperable MCREC subsystem must be restored to OPERABLE status within 7 days. With the unit in this condition, the remaining OPERABLE MCREC subsystem is adequate to perform control room radiation protection. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in reduced MCREC System capability. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and that the remaining subsystem can provide the required capabilities.

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(continued)

BASES

ACTIONS  
(continued)

B.1

If the main control room boundary is inoperable in MODE 1, 2, or 3, MCREC trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE main control room boundary within 24 hours. During the period that the main control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) will be utilized to provide physical security and to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the main control room boundary.

C.1 and C.2

In MODE 1, 2, or 3, if the inoperable MCREC subsystem or control room boundary cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE that minimizes risk. To achieve this status, the unit must be placed in at least MODE 3 within 12 hours and in MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1, D.2.1, D.2.2, and D.2.3

The Required Actions of Condition D are modified by a Note indicating that LCO 3.0.3 does not apply. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.

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BASES

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ACTIONS

D.1, D.2.1, D.2.2, and D.2.3 (continued) |

During movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs, if the inoperable MCREC subsystem cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE MCREC subsystem may be placed in the pressurization mode. This action ensures that the remaining subsystem is OPERABLE, that no failures that would prevent automatic actuation have occurred, and that any active failure will be readily detected.

An alternative to Required Action D.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk. |

If applicable, CORE ALTERATIONS and movement of irradiated fuel assemblies in the secondary containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, action must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and the subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

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BASES

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BASES

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ACTIONS  
(continued)

E.1

If both MCREC subsystems are inoperable in MODE 1, 2, or 3 for reasons other than an inoperable control room boundary (i.e., Condition B), the MCREC System 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.

F.1, F.2, and F.3

The Required Actions of Condition F are modified by a Note indicating that LCO 3.0.3 does not apply. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations.

Therefore, inability to suspend movement of irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.

During movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs, with two MCREC subsystems inoperable, action must be taken immediately to suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk.

If applicable, CORE ALTERATIONS and movement of irradiated fuel assemblies in the secondary containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. If applicable, action must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

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SURVEILLANCE  
REQUIREMENTS

SR 3.7.4.1

This SR verifies that a subsystem in a standby mode starts on demand and continues to operate. Standby systems should be checked periodically to ensure that they start and function properly. As the environmental and normal

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