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**DTE Energy**



10 CFR 50.90

January 15, 2008  
NRC-08-0001

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

Reference: Fermi 2  
Docket No. 50-341  
License No. NPF-43

Subject: Application for Technical Specification Change Regarding  
Revision of Control Rod Notch Surveillance Test Frequency  
and a Clarification of a Frequency Example Using the  
Consolidated Line Item Improvement Process

In accordance with the provisions of 10 CFR 50.90, Detroit Edison is submitting a request for an amendment to the Technical Specifications (TS) for Fermi 2.

The proposed amendment would: (1) Revise the TS Surveillance Requirement (SR) frequency in TS 3.1.3, "Control Rod OPERABILITY" and (2) revise Example 1.4-3 in Section 1.4 "Frequency" to clarify the applicability of the 1.25 surveillance test interval extension.

Enclosure 1 provides a description of the proposed change, the requested confirmation of applicability, and plant-specific verifications. Enclosure 2 provides the existing TS pages marked up to show the proposed change. Enclosure 3 provides revised (clean) TS pages. Enclosure 4 provides a summary of the regulatory commitments made in this submittal. Enclosure 5 provides marked up TS Bases pages to show the associated changes.

Due to a position indication problem with control rod 50-31, power reduction is currently required every 7 days to perform the surveillance. Therefore, Detroit

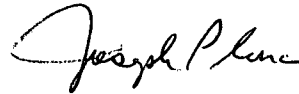
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Edison requests approval of the proposed License Amendment by April 30, 2008 with the amendment being implemented within 60 days.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated Michigan State Official.

If you should have any questions regarding this submittal, please contact Mr. Ronald W. Gaston, Manager, Nuclear Licensing at (734) 586-5197.

Sincerely,

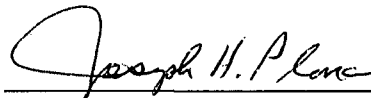


Enclosures:

1. Description and Assessment
2. Proposed Technical Specification Change
3. Revised Technical Specification Pages
4. Regulatory Commitments
5. Proposed Technical Specification Bases Changes

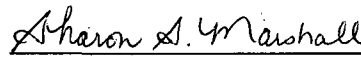
cc: NRC Project Manager  
NRC Resident Office  
Reactor Projects Chief, Branch 4, Region III  
Regional Administrator, Region III  
Supervisor, Electric Operators,  
Michigan Public Service Commission

I, Joseph H. Plona, do hereby affirm that the foregoing statements are based on facts and circumstances which are true and accurate to the best of my knowledge and belief.



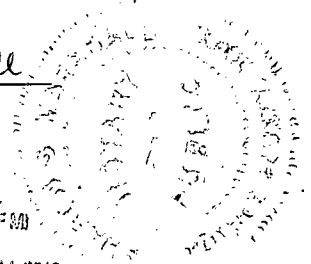
JOSEPH H. PLONA  
Site Vice President – Nuclear Generation

On this 15 day of January, 2008 before me personally appeared Joseph H. Plona, being first duly sworn and says that he executed the foregoing as his free act and deed.



Notary Public

SHARON S. MARSHALL  
NOTARY PUBLIC, STATE OF MD  
COUNTY OF MONROE  
MY COMMISSION EXPIRES Jun 14, 2013  
ACTING IN COUNTY OF *Monroe*



**ENCLOSURE 1 TO  
NRC-08-0001**

**DESCRIPTION AND ASSESSMENT**

## **1.0 DESCRIPTION**

The proposed amendment would: (1) Revise the Technical Specifications (TS) Surveillance Requirement (SR) 3.1.3.2 frequency in TS 3.1.3, "Control Rod OPERABILITY," and (2) revise Example 1.4-3 in Section 1.4 "Frequency" to clarify the applicability of the 1.25 surveillance test interval extension.

The changes are consistent with NRC approved Industry/Technical Specification Task Force (TSTF) Standard TS (STS) change TSTF-475, Revision 1. The Federal Register notice published on November 13, 2007, announced the availability of this TS improvement through the consolidated line item improvement process (CLIP).

## **2.0 ASSESSMENT**

### **2.1 Applicability of Published Safety Evaluation**

Detroit Edison has reviewed the safety evaluation dated November 13, 2007, as part of the CLIP. This review included a review of the NRC staff's evaluation, as well as the supporting information provided to support TSTF-475, Revision 1. Detroit Edison has concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC staff are applicable to Fermi 2 and justify this amendment for the incorporation of the changes to the Fermi 2 TS.

Fermi 2 is a BWR/4 plant; therefore, the other change in TSTF-475, Revision 1, to clarify the SRM TS action for inserting control rods is not applicable. This clarification is already included in the Fermi 2 TS.

### **2.2 Optional Changes and Variations**

Detroit Edison is not proposing any variations or deviations from the TS changes described in the modified TSTF-475, Revision 1, or the NRC staff's model safety evaluation dated November 13, 2007.

The surveillance number changes shown in TSTF-475, Revision 1, TS Bases marked-up pages for re-numbered Section B 3.1.3.3 are not appropriate and will not be adopted.

## **3.0 REGULATORY ANALYSIS**

### **3.1 No Significant Hazards Consideration Determination**

Detroit Edison has reviewed the proposed no significant hazards consideration determination (NSHCD) published in the Federal Register as part of the CLIP. Detroit Edison has concluded

that the proposed NSHCD presented in the Federal Register notice is applicable to Fermi 2 and is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

### **3.2 Verification and Commitments**

As discussed in the notice of availability published in the Federal Register on November 13, 2007 for this TS improvement, Detroit Edison verifies the applicability of TSTF-475 to Fermi 2, and commits to establishing Bases for TS as proposed in TSTF-475, Revision 1.

These changes are based on TSTF change traveler TSTF-475, Revision 1, that proposes revisions to the Standard TS (STS) by: (1) Revising the frequency of SR 3.1.3.2, notch testing of fully withdrawn control rods, from "7 days after the control rod is withdrawn and THERMAL POWER is greater than the Low Power Set Point (LPSP) of the Rod Worth Minimizer (RWM)" to "31 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RWM," and (2) revising Example 1.4-3 in Section 1.4 "Frequency" to clarify that the 1.25 surveillance test interval extension in SR 3.0.2 is applicable to time periods discussed in NOTES in the "SURVEILLANCE" column in addition to the time periods in the "FREQUENCY" column.

### **4.0 ENVIRONMENTAL EVALUATION**

Detroit Edison has reviewed the environmental evaluation included in the model safety evaluation dated November 13, 2007, as part of the CLIIP. Detroit Edison has concluded that the staff's findings presented in that evaluation are applicable to Fermi 2 and the evaluation is hereby incorporated by reference for this application.

**ENCLOSURE 2 TO  
NRC-08-0001**

**PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP)**

**Pages 1.4-4, 1.4-5,  
3.1-8, 3.1-10, 3.1-11 and 3.1-14**

1.4 Frequency

EXAMPLES

EXAMPLE 1.4-2 (continued)

"Thereafter" indicates future performances must be established per SR 3.0.2, but only after a specified condition is first met (i.e., the "once" performance in this example). If reactor power decreases to < 25% RTP, the measurement of both intervals stops. New intervals start upon reactor power reaching 25% RTP.

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>-----NOTE-----                      Not required to be performed until                      12 hours after <math>\geq</math> 25% RTP.                      -----</p> <p>Perform channel adjustment.</p>	<p>7 days</p>

The interval continues whether or not the unit operation is < 25% RTP between performances.

As the Note modifies the required performance of the Surveillance, it is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is < 25% RTP, this Note allows 12 hours after power reaches  $\geq$  25% RTP to perform the Surveillance. The Surveillance is still considered to be within the "specified Frequency." Therefore, if the Surveillance were not performed within the 7 day interval (plus the extension allowed by SR 3.0.2), but operation was < 25% RTP, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of SR 3.0.4 occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not exceed 12 hours with power  $\geq$  25% RTP.

(plus the extension allowed by SR 3.0.2)

(continued)



1.4 Frequency

EXAMPLES

EXAMPLE 1.4-3 (continued)

Once the unit reaches 25% RTP, 12 hours would be allowed for completing the Surveillance. If the Surveillance were not performed within this 12 hour interval, there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.

*(plus the extension allowed by SR 3.0.2)*

EXAMPLE 1.4-4

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>-----NOTE----- Only required to be met in MODE 1. -----</p>	
<p>Verify leakage rates are within limits.</p>	<p>24 hours</p>

Example 1.4-4 specifies that the requirements of this Surveillance do not have to be met until the unit is in MODE 1. The interval measurement for the Frequency of this Surveillance continues at all times, as described in Example 1.4-1. However, the Note constitutes an "otherwise stated" exception to the Applicability of this Surveillance. Therefore, if the Surveillance were not performed within the 24 hour interval (plus the extension allowed by SR 3.0.2), but the unit was not in MODE 1, there would be no failure of the SR nor failure to meet the LCO. Therefore, no violation of SR 3.0.4 occurs when changing MODES, even with the 24 hour Frequency exceeded, provided the MODE change was not made into MODE 1. Prior to entering MODE 1 (assuming again that the 24 hour Frequency were not met), SR 3.0.4 would require satisfying the SR.

Control Rod OPERABILITY  
3.1.3

ACTIONS		
CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3 Perform SR 3.1.3.2 and <del>SR 3.1.3.3</del> for each withdrawn OPERABLE control rod.	24 hours from discovery of Condition A concurrent with THERMAL POWER greater than the low power setpoint (LPSP) of the RWM
	<u>AND</u> A.4 Perform SR 3.1.1.1.	72 hours
B. Two or more withdrawn control rods stuck.	B.1 Be in MODE 3.	12 hours
C. One or more control rods inoperable for reasons other than Condition A or B.	-----NOTE----- RWM may be bypassed as allowed by LCO 3.3.2.1, if required, to allow insertion of inoperable control rod and continued operation. -----	
	C.1 Fully insert inoperable control rod.	3 hours
	<u>AND</u> C.2 Disarm the associated CRD.	4 hours

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.3.1 Determine the position of each control rod.	24 hours
<p>SR 3.1.3.2</p> <p>-----NOTE-----            Not required to be performed until 7 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of RWM.            -----</p> <p>Insert each fully withdrawn control rod at least one notch.</p>	7 days
<p>SR 3.1.3.2<sup>2</sup></p> <p>-----NOTE-----            Not required to be performed until 31 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RWM.            -----</p> <p>Insert each <del>partially</del> withdrawn control rod at least one notch.</p>	31 days
<p>SR 3.1.3.3<sup>3</sup></p> <p>Verify each control rod scram time from fully withdrawn to notch position 06 is <math>\leq 7</math> seconds.</p>	In accordance with SR 3.1.4.1, SR 3.1.4.2, SR 3.1.4.3. and SR 3.1.4.4

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.1.3 <sup>4</sup> Verify each control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to "full out" position  <u>AND</u>  Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect coupling

Table 3.1.4-1 (page 1 of 1)  
Control Rod Scram Times

-----NOTES-----

1. OPERABLE control rods with scram times not within the limits of this Table are considered "slow."
2. Enter applicable Conditions and Required Actions of LCO 3.1.3. "Control Rod OPERABILITY," for control rods with scram times > 7 seconds to notch position 06. These control rods are inoperable, in accordance with SR 3.1.3.4, and are not considered "slow."

③

NOTCH POSITION	SCRAM TIMES when REACTOR STEAM DOME PRESSURE $\geq$ 800 psig (seconds) <sup>(a)</sup> <sup>(b)</sup>
46	0.457
36	1.084
26	1.841
06	3.361

- (a) Maximum scram time from fully withdrawn position, based on de-energization of scram pilot valve solenoids at time zero.
- (b) When reactor steam dome pressure is < 800 psig established scram time limits apply.

**ENCLOSURE 3 TO  
NRC-08-0001**

**REVISED TECHNICAL SPECIFICATIONS PAGES**

**Pages 1.4-4, 1.4-5,  
3.1-8, 3.1-10, 3.1-11 and 3.1-14**

1.4 Frequency

EXAMPLES

EXAMPLE 1.4-2 (continued)

"Thereafter" indicates future performances must be established per SR 3.0.2, but only after a specified condition is first met (i.e., the "once" performance in this example). If reactor power decreases to < 25% RTP, the measurement of both intervals stops. New intervals start upon reactor power reaching 25% RTP.

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>-----NOTE-----                      Not required to be performed until                      12 hours after <math>\geq</math> 25% RTP.                      -----</p>	<p>7 days</p>
<p>Perform channel adjustment.</p>	

The interval continues whether or not the unit operation is < 25% RTP between performances.

As the Note modifies the required performance of the Surveillance, it is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is < 25% RTP, this Note allows 12 hours after power reaches  $\geq$  25% RTP to perform the Surveillance. The Surveillance is still considered to be within the "specified Frequency." Therefore, if the Surveillance were not performed within the 7 day interval (plus the extension allowed by SR 3.0.2), but operation was < 25% RTP, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of SR 3.0.4 occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not exceed 12 hours (plus the extension allowed by SR 3.0.2) with power  $\geq$  25% RTP.

(continued)

1.4 Frequency

EXAMPLES

EXAMPLE 1.4-3 (continued)

Once the unit reaches 25% RTP, 12 hours would be allowed for completing the Surveillance. If the Surveillance were not performed within this 12 hour interval (plus the extension allowed by SR 3.0.2), there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.

EXAMPLE 1.4-4

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>-----NOTE----- Only required to be met in MODE 1. -----</p>	
<p>Verify leakage rates are within limits.</p>	<p>24 hours</p>

Example 1.4-4 specifies that the requirements of this Surveillance do not have to be met until the unit is in MODE 1. The interval measurement for the Frequency of this Surveillance continues at all times, as described in Example 1.4-1. However, the Note constitutes an "otherwise stated" exception to the Applicability of this Surveillance. Therefore, if the Surveillance were not performed within the 24 hour interval (plus the extension allowed by SR 3.0.2), but the unit was not in MODE 1, there would be no failure of the SR nor failure to meet the LCO. Therefore, no violation of SR 3.0.4 occurs when changing MODES, even with the 24 hour Frequency exceeded, provided the MODE change was not made into MODE 1. Prior to entering MODE 1 (assuming again that the 24 hour Frequency were not met), SR 3.0.4 would require satisfying the SR.



ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.3 Perform SR 3.1.3.2 for each withdrawn OPERABLE control rod.</p> <p><u>AND</u></p> <p>A.4 Perform SR 3.1.1.1.</p>	<p>24 hours from discovery of Condition A concurrent with THERMAL POWER greater than the low power setpoint (LPSP) of the RWM</p> <p>72 hours</p>
B. Two or more withdrawn control rods stuck.	B.1 Be in MODE 3.	12 hours
C. One or more control rods inoperable for reasons other than Condition A or B.	<p>-----NOTE----- RWM may be bypassed as allowed by LCO 3.3.2.1, if required, to allow insertion of inoperable control rod and continued operation. -----</p> <p>C.1 Fully insert inoperable control rod.</p> <p><u>AND</u></p> <p>C.2 Disarm the associated CRD.</p>	<p>3 hours</p> <p>4 hours</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.3.1 Determine the position of each control rod.	24 hours
SR 3.1.3.2 -----NOTE----- Not required to be performed until 31 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RWM. ----- Insert each withdrawn control rod at least one notch.	31 days
SR 3.1.3.3 Verify each control rod scram time from fully withdrawn to notch position 06 is $\leq 7$ seconds.	In accordance with SR 3.1.4.1, SR 3.1.4.2, SR 3.1.4.3, and SR 3.1.4.4
SR 3.1.3.4 Verify each control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to "full out" position  <u>AND</u>  Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect coupling

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Table 3.1.4-1 (page 1 of 1)  
Control Rod Scram Times

-----NOTES-----

1. OPERABLE control rods with scram times not within the limits of this Table are considered "slow."
  2. Enter applicable Conditions and Required Actions of LCO 3.1.3, "Control Rod OPERABILITY," for control rods with scram times > 7 seconds to notch position 06. These control rods are inoperable, in accordance with SR 3.1.3.3, and are not considered "slow."
- 

NOTCH POSITION	SCRAM TIMES when REACTOR STEAM DOME PRESSURE $\geq$ 800 psig (seconds)(a)(b)
46	0.457
36	1.084
26	1.841
06	3.361

- (a) Maximum scram time from fully withdrawn position, based on de-energization of scram pilot valve solenoids at time zero.
- (b) When reactor steam dome pressure is < 800 psig established scram time limits apply.

**ENCLOSURE 4 TO  
NRC-08-0001**

**REGULATORY COMMITMENTS**

**REGULATORY COMMITMENTS:**

The following table identifies those actions committed to by Detroit Edison in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments. Please direct questions regarding these commitments to Mr. Ronald W. Gaston, Manager, Nuclear Licensing at (734) 586-5197.

<b>REGULATORY COMMITMENTS</b>	<b>DUE DATE / EVENT</b>
Detroit Edison will establish the Technical Specification Bases for TS B 3.1.3, TS B 3.1.4, and TS B 3.3.1.2 consistent with those shown in TSTF-475, Revision 1, "Control Rod Notch Testing Frequency and SRM Insert Control Rod Action."	To be implemented concurrently with implementation of the associated license amendment.

**ENCLOSURE 5 TO  
NRC-08-0001**

**PROPOSED TECHNICAL SPECIFICATION BASES PAGES**

**Pages B 3.1.3-4, B 3.1.3-8, B 3.1.3-9,  
B 3.1.4-3,  
and B 3.3.1.2-5**

BASES

ACTIONS (continued)

RWM is bypassed to ensure compliance with the CRDA analysis. With one withdrawn control rod stuck, the local scram reactivity rate and CRDA control rod worth assumptions may not be met if the stuck control rod separation criteria are not met. Therefore, a verification that the separation criteria are met must be performed immediately. The separation criteria are not met if: a) the stuck control rod occupies a location adjacent to two "slow" control rods; b) the stuck control rod occupies a location adjacent to one "slow" control rod, and the one "slow" control rod is also adjacent to another "slow" control rod; or c) if the stuck control rod occupies a location adjacent to one "slow" control rod when there is another pair of "slow" control rods adjacent to one another. The description of "slow" control rods is provided in LCO 3.1.4, "Control Rod Scram Times." In addition, the associated control rod drive must be disarmed in 2 hours. The allowed Completion Time of 2 hours is acceptable, considering the reactor can still be shut down, assuming no additional control rods fail to insert, and provides a reasonable time to perform the Required Action in an orderly manner. Isolating the control rod from scram prevents damage to the CRDM. The control rod can be isolated from scram and normal insert and withdraw pressure, yet still maintain cooling water to the CRD.

Monitoring of the insertion capability of each withdrawn control rod must also be performed within 24 hours from discovery of Condition A concurrent with THERMAL POWER greater than the low power setpoint (LPSP) of the RWM. SR 3.1.3.2 and SR 3.1.3.3 perform periodic tests of the control rod insertion capability of withdrawn control rods. Testing each withdrawn control rod ensures that a generic problem does not exist. This Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." The Required Action A.3 Completion Time only begins upon discovery of Condition A concurrent with THERMAL POWER greater than the actual LPSP of the RWM, since the notch insertions may not be compatible with the requirements of rod pattern control (LCO 3.1.6) and the RWM (LCO 3.3.2.1). The allowed Completion Time of 24 hours from discovery of Condition A concurrent with THERMAL POWER greater than the LPSP of the RWM provides a reasonable time to test the control rods, considering the potential for a need to reduce power to perform the tests.



BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.1.3.2 and SR 3.1.3.3

Control rod insertion capability is demonstrated by inserting each partially or fully withdrawn control rod at least one notch and observing that the control rod moves. The control rod may then be returned to its original position. This ensures the control rod is not stuck and is free to insert on a scram signal. These Surveillances are not required when THERMAL POWER is less than or equal to the actual LPSP of the RWM, since the notch insertions may not be compatible with the requirements of the prescribed withdrawal sequence (LCO 3.1.6) and the RWM (LCO 3.3.2.1).

The 7 day Frequency of SR 3.1.3.2 is based on operating experience related to the changes in CRD performance and the ease of performing notch testing for fully withdrawn control rods. Partially withdrawn control rods are tested at a 31 day Frequency, based on the potential power reduction required to allow the control rod movement and considering the large testing sample of SR 3.1.3.2. Furthermore, the 31 day Frequency takes into account operating experience related to changes in CRD performance. At any time, if a withdrawn control rod is immovable, a determination of that control rod's ability to insert on a scram (OPERABILITY) must be made and appropriate action taken.

SR 3.1.3.4

③

Verifying that the scram time for each control rod to notch position O6 is  $\leq 7$  seconds provides reasonable assurance that the control rod will insert when required during a DBA or transient, thereby completing its shutdown function. This SR is performed in conjunction with the control rod scram time testing of SR 3.1.4.1, SR 3.1.4.2, SR 3.1.4.3, and SR 3.1.4.4. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," that overlaps this Surveillance and the functional testing of SDV vent and drain valves in LCO 3.1.8, "Scram Discharge Volume (SDV) Vent and Drain Valves," provide complete testing of the assumed safety function. The associated Frequencies are acceptable, considering the more frequent testing performed to demonstrate other aspects of control rod OPERABILITY and operating experience, which shows scram times do not significantly change over an operating cycle.

BASES

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SURVEILLANCE REQUIREMENTS (continued)

SR 3.1.3.6 (4)

Coupling verification is performed to ensure the control rod is connected to the CRDM and will perform its intended function when necessary. The Surveillance requires verifying a control rod does not go to the withdrawn overtravel position. The overtravel position feature provides a positive check on the coupling integrity since only an uncoupled CRD can reach the overtravel position. The verification is required to be performed any time a control rod is withdrawn to the "full out" position (notch position 48) or prior to declaring the control rod OPERABLE after work on the control rod or CRD System that could affect coupling. This includes control rods inserted one notch and then returned to the "full out" position during the performance of SR 3.1.3.2. This Frequency is acceptable, considering the low probability that a control rod will become uncoupled when it is not being moved and operating experience related to uncoupling events.

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REFERENCES

1. 10 CFR 50, Appendix A, GDC 26, GDC 27, GDC 28, and GDC 29.
2. UFSAR, Section 4.5.2.1.3.
3. UFSAR, Chapter 15.
4. NEDO-21231, "Banked Position Withdrawal Sequence," Section 7.2, January 1977.

BASES

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LCO (continued)

is accomplished through measurement of the "dropout" times. To ensure that local scram reactivity rates are maintained within acceptable limits, no more than two of the allowed "slow" control rods may occupy adjacent (i.e., face adjacent or diagonally adjacent) locations.

Table 3.1.4-1 is modified by two Notes which state that control rods with scram times not within the limits of the table are considered "slow" and that control rods with scram times > 7 seconds are considered inoperable as required by SR 3.1.3. ~~4.7~~ ③

This LCO applies only to OPERABLE control rods since inoperable control rods will be inserted and disarmed (LCO 3.1.3). Slow scrambling control rods may be conservatively declared inoperable and not accounted for as "slow" control rods.

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APPLICABILITY

In MODES 1 and 2, a scram is assumed to function during transients and accidents analyzed for these plant conditions. These events are assumed to occur during startup and power operation; therefore, the scram function of the control rods is required during these MODES. In MODES 3 and 4, the control rods are not able to be withdrawn since the reactor mode switch is in shutdown and a control rod block is applied. This provides adequate requirements for control rod scram capability during these conditions. Scram requirements in MODE 5 are contained in LCO 3.9.5, "Control Rod OPERABILITY - Refueling."

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ACTIONS

A.1

When the requirements of this LCO are not met, the rate of negative reactivity insertion during a scram may not be within the assumptions of the safety analyses. Therefore, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

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BASES

ACTIONS (continued)

position prevents subsequent control rod withdrawal by maintaining a control rod block. The allowed Completion Time of 1 hour is sufficient to accomplish the Required Action, and takes into account the low probability of an event requiring the SRM occurring during this interval.

E.1 and E.2

With one or more required SRMs inoperable in MODE 5, the ability to detect local reactivity changes in the core during refueling is degraded. CORE ALTERATIONS must be immediately suspended and action must be immediately initiated to insert all insertable control rods in core cells containing one or more fuel assemblies. Suspending CORE ALTERATIONS prevents the two most probable causes of reactivity changes, fuel loading and control rod withdrawal, from occurring. Inserting all insertable control rods ensures that the reactor will be at its minimum reactivity given that fuel is present in the core. Suspension of CORE ALTERATIONS shall not preclude completion of the movement of a component to a safe, conservative position.

fully

Action (once required to be initiated) to insert control rods must continue until all insertable rods in core cells containing one or more fuel assemblies are inserted.

SURVEILLANCE  
REQUIREMENTS

The SRs for each SRM Applicable MODE or other specified conditions are found in the SRs column of Table 3.3.1.2-1.

SR 3.3.1.2.1 and SR 3.3.1.2.3

Performance of the CHANNEL CHECK ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on another channel. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.