
Industry/TSTF Standard Technical Specification Change Traveler

Revise CE Analog CEA Position Indication Verification

Priority/Classification 3) Improve Specifications

NUREGs Affected: 1430 1431 1432 1433 1434

Description:

The change replaces SR 3.1.5.2 (position indication verification) and adds a new Frequency to SR 3.1.5.1 to verify the indicated position of each CEA to be within 7 inches of all other CEAs in its group within one hour following any CEA movement of > 7 inches.

Justification:

The typical CE Analog plant has four methods of CEA position indication: 1) full length reed switch position transmitters, 2) plant computer pulse counter, 3) CEA full-in switch, and 4) CEA full-out switch. During normal plant operation, the CEAs are slightly inserted to prevent fretting, so only two position indication systems are available. The performance of SR 3.1.5.2 requires at least two position indication systems every 12 hours.

Of the two available position indication systems, the pulse counting method requires the plant computer. Plant computers are non-safety related equipment in CE Analog plants. If the equipment is unavailable due to maintenance or equipment failure for 12 hours, the SR cannot be performed. As there is no Condition for an inoperable position indication system, LCO 3.0.3 would be entered.

An alternate Surveillance is suggested. Since the most likely condition for a CEA to become misaligned is during rod movement, SR 3.1.5.1, which requires that the indicated position of all CEAs be verified to be within 7 inches of all other CEAs in its group, is given an additional Frequency. The alignment verification must be performed once every 12 hours and within 1 hour following any CEA movement of > [7 inches].

With this change, CEA alignment is verified after each CEA movement using the available position indication methods. This will ensure that CEA alignment is maintained, while not imposing unnecessary plant shutdowns due to a malfunctioning plant computer.

Revision History

OG Revision 0

Revision Status: Active

Next Action:

Revision Proposed by: Calvert Cliffs

Revision Description:
Original Issue

Owners Group Review Information

Date Originated by OG: 24-Oct-96

Owners Group Comments
(No Comments)

Owners Group Resolution: Approved Date: 24-Oct-96

4/2/98

TSTF Review Information

TSTF Received Date: 03-Jan-97 Date Distributed for Review 20-Jan-97

OG Review Completed: BWOG WOG CEOG BWROG

TSTF Comments:

WOG - Not applicable, accepts

BWOG - Not applicable, accepts

BWROG - Not applicable, accepts

TSTF Resolution: Approved Date: 06-Mar-97

NRC Review Information

NRC Received Date: 27-Mar-97 NRC Reviewer: TJADER, R.

NRC Comments:

4/7/97 Rec'd pkg.

4/10/97 Forwarded to reviewer.

4/17/97 reviewer recommended approval.

4/30/97 to C. Grimes for disposition.

5/2/97 C. Grimes approved changes.

Final Resolution: NRC Approves

Final Resolution Date: 02-May-97

Incorporation Into the NUREGs

File to BBS/LAN Date:

TSTF Informed Date:

TSTF Approved Date:

NUREG Rev Incorporated:

Affected Technical Specifications

SR 3.1.5.1 CEA Alignment (Analog)

SR 3.1.5.1 Bases CEA Alignment (Analog)

SR 3.1.5.2 CEA Alignment (Analog)
Change Description: DeletedSR 3.1.5.2 Bases CEA Alignment (Analog)
Change Description: DeletedSR 3.1.5.3 CEA Alignment (Analog)
Change Description: Renumbered to SR 3.1.5.2SR 3.1.5.3 Bases CEA Alignment (Analog)
Change Description: Renumbered to SR 3.1.5.2SR 3.1.5.4 CEA Alignment (Analog)
Change Description: Renumbered to SR 3.1.5.3SR 3.1.5.4 Bases CEA Alignment (Analog)
Change Description: Renumbered to SR 3.1.5.3

4/2/98

SR 3.1.5.5	CEA Alignment (Analog)
	Change Description: Renumbered to SR 3.1.5.4
SR 3.1.5.5 Bases	CEA Alignment (Analog)
	Change Description: Renumbered to SR 3.1.5.4
SR 3.1.5.6	CEA Alignment (Analog)
	Change Description: Renumbered to SR 3.1.5.5
SR 3.1.5.6 Bases	CEA Alignment (Analog)
	Change Description: Renumbered to SR 3.1.5.5
SR 3.1.5.7	CEA Alignment (Analog)
	Change Description: Renumbered to SR 3.1.5.6
SR 3.1.5.7 Bases	CEA Alignment (Analog)
	Change Description: Renumbered to SR 3.1.5.6

TSTF-193

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time not met. <u>OR</u> One or more CEAs untrippable. <u>OR</u> Two or more CEAs misaligned by > [15 inches].	E.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

within 1 hour following any CEA movement of > [7 inches] AND

SURVEILLANCE	FREQUENCY
SR 3.1.5.1 Verify the indicated position of each CEA to be within [7 inches] of all other CEAs in its group.	12 hours
SR 3.1.5.2 Verify that, for each CEA, the OPERABLE CEA position indicator channels, reed switch, and plant computer CEA position indication indicate within [5 inches] of each other.	12 hours
SR 3.1.5.2 ² Verify the CEA motion inhibit is OPERABLE.	31 days

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.1.5. ³ Verify the CEA deviation circuit is OPERABLE.	31 days
SR 3.1.5. ⁴ Verify CEA freedom of movement (trippability) by moving each individual CEA that is not fully inserted into the reactor core [5 inches] in either direction.	92 days
SR 3.1.5. ⁵ Perform a CHANNEL FUNCTIONAL TEST of the reed switch position transmitter channel.	18 months
SR 3.1.5. ⁶ Verify each CEA drop time is \leq [3.1] seconds.	Prior to reactor criticality, after each removal of the reactor head

BASES

ACTIONS

E.1 (continued)

MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.1.5.1

Verification that individual CEA positions are within [7 inches] (indicated reed switch positions) of all other CEAs in the group at a 12 hour Frequency allows the operator to detect a CEA that is beginning to deviate from its expected position. The specified Frequency takes into account other CEA position information that is continuously available to the operator in the control room, so that during CEA movement, deviations can be detected, and protection can be provided by the CEA motion inhibit and deviation circuits.

Frequencies of within 1 hour of any CEA movement of > 7.5 inches and every 12 hours. The CEA position verification after each movement of > 7.5 inches ensures that the CEAs in that group are properly aligned at the time when CEA misalignments are most likely to have occurred. The

SR 3.1.5.2

OPERABILITY of at least two CEA position indicator channels is required to determine CEA positions, and thereby ensure compliance with the CEA alignment and insertion limits. The CEA "full in" and "full out" limits provide an additional independent means for determining the CEA positions when the CEAs are at either their fully inserted or fully withdrawn positions.

The 12 hour Frequency takes into consideration other information continuously available to the operator in the control room, so that during CEA movement, deviations can be detected, and protection can be provided by the CEA motion inhibit and deviation circuits.

SR 3.1.5.2

Demonstrating the CEA motion inhibit OPERABLE verifies that the CEA motion inhibit is functional, even if it is not regularly operated. The 31 day Frequency takes into account other information continuously available to the operator in the control room, so that during CEA movement, deviations

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BASES

SURVEILLANCE
REQUIREMENTSSR 3.1.5.3 (continued)

can be detected, and protection can be provided by the CEA deviation circuits.

SR 3.1.5.4

Demonstrating the CEA deviation circuit is OPERABLE verifies the circuit is functional. The 31 day Frequency takes into account other information continuously available to the operator in the control room, so that during CEA movement, deviations can be detected, and protection can be provided by the CEA motion inhibit.

SR 3.1.5.5

Verifying each CEA is trippable would require that each CEA be tripped. In MODES 1 and 2, tripping each CEA would result in radial or axial power tilts, or oscillations. Therefore, individual CEAs are exercised every 92 days to provide increased confidence that all CEAs continue to be trippable, even if they are not regularly tripped. A movement of [5 inches] is adequate to demonstrate motion without exceeding the alignment limit when only one CEA is being moved. The 92 day Frequency takes into consideration other information available to the operator in the control room and other surveillances being performed more frequently, which add to the determination of OPERABILITY of the CEAs. Between required performances of SR 3.1.5.5, if a CEA(s) is discovered to be immovable, but remains trippable and aligned, the CEA is considered to be OPERABLE. At any time, if a CEA(s) is immovable, a determination of the trippability (OPERABILITY) of the CEA(s) must be made, and appropriate action taken.

SR 3.1.5.6

Performance of a CHANNEL FUNCTIONAL TEST of each reed switch position transmitter channel ensures the channel is OPERABLE and capable of indicating CEA position over the entire length of the CEA's travel. Since this Surveillance must be performed when the reactor is shut down, an 18 month Frequency to be coincident with refueling outage was

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BASES

SURVEILLANCE
REQUIREMENTS

⁵
SR 3.1.5.6 (continued)

selected. Operating experience has shown that these components usually pass this Surveillance when performed at a Frequency of once every 18 months. Furthermore, the Frequency takes into account other surveillances being performed at shorter Frequencies, which determine the OPERABILITY of the CEA Reed Switch Indication System.

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SR 3.1.5.7

Verification of CEA drop times determined that the maximum CEA drop time permitted is consistent with the assumed drop time used in that safety analysis (Ref. 7). Measuring drop times prior to reactor criticality, after reactor vessel head removal, ensures that reactor internals and CEDM will not interfere with CEA motion or drop time and that no degradation in these systems has occurred that would adversely affect CEA motion or drop time. Individual CEAs whose drop times are greater than safety analysis assumptions are not OPERABLE. This SR is performed prior to criticality, based on the need to perform this Surveillance under the conditions that apply during a unit outage and because of the potential for an unplanned unit transient if the Surveillance were performed with the reactor at power.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 10 and GDC 26.
 2. 10 CFR 50.46.
 3. FSAR, Section [].
 4. FSAR, Section [].
 5. FSAR, Section [].
 6. FSAR, Section [].
 7. FSAR, Section [].
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