

Industry/TSTF Standard Technical Specification Change Traveler

Containment Spray System Completion Time Extension

Classification: 1) Technical Change

Priority: 2) Medium

NUREGs Affected: 1430 1431 1432 1433 1434

Description:

The Completion Time for one containment spray train inoperable is extended from 72 hours to 7 days.

Justification:

Background

Topical Report CE NPSD-1045-A, "Joint Applications Report, Modifications to the Containment Spray System and The Low Pressure Safety Injection System Technical Specifications," was approved by the NRC on 12/21/1999. The Topical Report justifies extending the Completion Time for a single inoperable containment spray system from 72 hours to 7 days.

Need for Change

The longer Completion Time for an inoperable containment spray system train will enhance overall plant safety by avoiding potential unscheduled plant shutdowns and allowing greater availability of safety significant components during shutdown. In addition, this extension provides for increased flexibility in scheduling and performing maintenance and surveillance activities in order to enhance plant safety and operational flexibility during lower modes of operation.

Proposed Change

The proposed change extends the LCO 3.6.6A Completion Time for one inoperable containment spray system train inoperable from 72 hours to 7 days. The "modified time zero" Completion Time in Conditions A and C are modified from 10 days to 14 days to be consistent with the new Completion Time. A Condition is added which addresses the condition of one containment spray system train and one containment cooling system train inoperable. This Condition has a Completion Time of 72 hours.

A Reviewer's Note is added explaining that utilization of the 7 day Completion Time is dependent on adopting the Topical Report.

Condition D is added to be consistent with the supporting analyses, which did not evaluate the concurrent inoperabilities of one containment spray and one containment cooling train. Therefore, the current Completion Time of 72 hours is retained in Condition D. Condition D is also consistent with ITS 3.6.6B.

5/19/2001

Justification

The detailed justification of this change is located in Topical Report CE NPSD-1045-A, "Joint Applications Report, Modifications to the Containment Spray System and The Low Pressure Safety Injection System Technical Specifications."

Effect on Safety Analyses

The plant safety analyses are not assumed to be initiated while in a Technical Specifications Required Action statement. As this change only extends the time allowed to remain in an existing Required Action, the safety analyses are not affected.

Effect on Risk Informed Analysis

The containment spray system Completion Time extension will result in very small increases in plant risk. There are processes for scheduling and controlling maintenance activities into which plant risk is incorporated. This compensates for the small risk increases and uncertainties associated with the proposed change.

Compensatory Measures

The NRC's Safety Evaluation for this change requires the licensee's submittals discuss implementation of procedures that prohibit entry into an extended containment spray system Completion Time for scheduled maintenance if external event conditions or warnings are in effect. The procedures will also include compensatory measures and normal plant practices that help avoid potentially high risk configurations during the extended Completion Time.

Determination of No Significant Hazards Considerations

In accordance with the criteria set forth in 10 CFR 50.92, the Industry has evaluated these proposed Improved Technical Specification changes and determined they do not represent a significant hazards consideration. The following is provided in support of this conclusion.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

The proposed change extends the Completion Time for a containment spray train inoperable from 72 hours to 7 days. Being in an ACTION is not an initiator of any accident previously evaluated. Consequently, the probability of an accident previously evaluated is not significantly increased. The consequences of an accident while relying on ACTIONS during the extended Completion Time are no different than the consequences of an accident while relying on the ACTION during the existing 72 hour Completion Time. Therefore, the consequences of an accident previously evaluated are not significantly increased by this change. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

The proposed change extends the Completion Time for a containment spray train inoperable from 72 hours to 7 days. The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

The proposed change extends the Completion Time for a containment spray train inoperable from 72 hours to 7 days. The risk-based evaluations in Topical Report CE NPSD-1045-A, "Joint Applications Report, Modifications to the Containment Spray System and The Low Pressure Safety Injection System Technical Specifications," determined that the effect on plant risk is very small. Therefore, this change does not involve a significant reduction in a margin of safety.

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Revision History**OG Revision 0****Revision Status: Closed**

Revision Proposed by: CEOG

Revision Description:

Original Issue

Owners Group Review Information

Date Originated by OG: 11-Jul-00

Owners Group Comments

Approved with modifications

Owners Group Resolution: Approved Date: 11-Jul-00

TSTF Review Information

TSTF Received Date: 11-Jul-00 Date Distributed for Review

OG Review Completed: BWOG WOG CEOG BWROG

TSTF Comments:

2/14/01 - TSTF comments:

Make SER quality

Change "time zero" Completion Time 14 days instead of 10 days

(CEOG Chairman comment) Make an action for one containment cooling and one containment spray inoperable with a Completion Time of 72 hours (similar to 3.6.6B) for consistency with the analysis.

TSTF Resolution: Superceded Date: 14-Feb-01

OG Revision 1**Revision Status: Active****Next Action: NRC**

Revision Proposed by: CEOG

Revision Description:

Added Action D to address the condition of one containment cooling train and one containment spray train inoperable. Revised the "modified time zero" actions from 10 to 14 day Completion Time. Replaced justification to address SE quality requirements.

Owners Group Review Information

Date Originated by OG: 05-Dec-00

Owners Group Comments

Make editorial changes identified.

Owners Group Resolution: Approved Date: 06-Mar-01

TSTF Review Information

TSTF Received Date: 08-Mar-01 Date Distributed for Review 06-Apr-01

OG Review Completed: BWOG WOG CEOG BWROG

5/19/2001

OG Revision 1**Revision Status: Active****Next Action: NRC**

TSTF Comments:

(No Comments)

TSTF Resolution: Approved Date: 02-May-01

NRC Review Information

NRC Received Date: 24-May-01

NRC Comments:

(No Comments)

Final Resolution: NRC Action Pending

Final Resolution Date:

Incorporation Into the NUREGs

File to BBS/LAN Date:

TSTF Informed Date:

TSTF Approved Date:

NUREG Rev Incorporated:

Affected Technical Specifications

| | |
|-----------------------|---|
| Ref. 3.6.6A | Containment Spray and Cooling Systems (Atmospheric and Dual) |
| Action 3.6.6A.A | Containment Spray and Cooling Systems (Atmospheric and Dual) |
| Action 3.6.6A.A Bases | Containment Spray and Cooling Systems (Atmospheric and Dual) |
| Action 3.6.6A.C | Containment Spray and Cooling Systems (Atmospheric and Dual) |
| Action 3.6.6A.C Bases | Containment Spray and Cooling Systems (Atmospheric and Dual) |
| Action 3.6.6A.D | Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Relabeled E |
| Action 3.6.6A.D | Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: New action |
| Action 3.6.6A.D Bases | Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Relabeled E |
| Action 3.6.6A.D Bases | Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: New Action |
| Action 3.6.6A.E | Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Relabeled F |
| Action 3.6.6A.E Bases | Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Relabeled F |
| Action 3.6.6A.F | Containment Spray and Cooling Systems (Atmospheric and Dual) Change Description: Relabeled G |

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Action 3.6.6A.F Bases Containment Spray and Cooling Systems (Atmospheric and Dual)

Change Description: Relabeled G

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INSERT 1

| | | |
|--|---|----------|
| D. One containment spray and one containment cooling train inoperable. | D.1 Restore containment spray train to OPERABLE status. | 72 hours |
| | <u>OR</u> | |
| | D.2 Restore containment cooling train to OPERABLE status. | 72 hours |

INSERT 2D.1 and D.2

With one containment spray and one containment cooling train inoperable, one of the required containment cooling trains must be restored to OPERABLE status within 72 hours. The components in this degraded condition provide iodine removal capabilities and are capable of providing at least 100% of the heat removal needs after an accident. The 72 hour Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray System and Containment Cooling System, the iodine removal function of the Containment Spray System, and the low probability of a DBA occurring during this period.

INSERT 3

----- Reviewer's Note -----

Utilization of the 7 day Completion Time for Required Action A.1 is dependent on the licensee adopting CE NPSD-1045-A (Ref. 6) and meeting the requirements of the Topical Report and the associated Safety Evaluation. Otherwise, a 72 hour Completion Time applies.

INSERT 4

6. CE NPSD-1045-A, "CEOG Joint Applications Report for Modification to the Containment Spray System Technical Specifications," March 2000.

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3.6 CONTAINMENT SYSTEMS

3.6.6A Containment Spray and Cooling Systems (Atmospheric and Dual)
(Credit taken for iodine removal by the Containment Spray System)

LCO 3.6.6A Two containment spray trains and two containment cooling trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and [4].

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|--|--|---|
| A. One containment spray train inoperable. | A.1 Restore containment spray train to OPERABLE status. | 72 hours [7 days] AND [14] 10 days from discovery of failure to meet the LCO |
| B. Required Action and associated Completion Time of Condition A not met. | B.1 Be in MODE 3. AND B.2 Be in MODE 5. | 6 hours 84 hours |
| C. One containment cooling train inoperable. | C.1 Restore containment cooling train to OPERABLE status. | 7 days AND [14] 10 days from discovery of failure to meet the LCO |
|  Two containment cooling trains inoperable. |   Restore one containment cooling train to OPERABLE status. | 72 hours |

Insert 1

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ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|--|---|--------------------------------|
| <p>Required Action and associated Completion Time of Condition C or D not met.</p> <p><i>(Handwritten: F, D, I, E, AND, or E)</i></p> | <p><i>(Handwritten: E)</i> 1 Be in MODE 3.</p> <p><u>AND</u></p> <p><i>(Handwritten: E)</i> 2 Be in MODE 5.</p> | <p>6 hours</p> <p>36 hours</p> |
| <p>Two containment spray trains inoperable.</p> <p><u>OR</u></p> <p>Any combination of three or more trains inoperable.</p> <p><i>(Handwritten: G)</i></p> | <p><i>(Handwritten: G)</i> 1 Enter LCO 3.0.3.</p> | <p>Immediately</p> |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | FREQUENCY |
|---|--|
| SR 3.6.6A.1 Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position. | 31 days |
| SR 3.6.6A.2 Operate each containment cooling train fan unit for ≥ 15 minutes. | 31 days |
| SR 3.6.6A.3 Verify each containment cooling train cooling water flow rate is ≥ [2000] gpm to each fan cooler. | 31 days |
| SR 3.6.6A.4 [Verify the containment spray piping is full of water to the [100] ft level in the containment spray header. | 31 days] |
| SR 3.6.6A.5 Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head. | In accordance with the Inservice Testing Program |

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BASES

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment and an increase in containment pressure and temperature, requiring the operation of the containment spray trains and containment cooling trains.

In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Thus, the Containment Spray and Containment Cooling systems are not required to be OPERABLE in MODES 5 and 6.

ACTIONS

A.1

Insert ?

[7 days]

With one containment spray train inoperable, the inoperable containment spray train must be restored to OPERABLE status within 72 hours. In this Condition, the remaining OPERABLE spray and cooling trains are adequate to perform the iodine removal and containment cooling functions. The 72 hour Completion Time takes into account the redundant heat removal capability afforded by the Containment Spray System, reasonable time for repairs, and the low probability of a DBA occurring during this period.

[7 day]

and the findings of Ref. 6.

[14]

The 10 day portion of the Completion Time for Required Action A.1 is based upon engineering judgment. It takes into account the low probability of coincident entry into two Conditions in this Specification coupled with the low probability of an accident occurring during this time. Refer to Section 1.3, "Completion Times," for a more detailed discussion of the purpose of the "from discovery of failure to meet the LCO" portion of the Completion Time.

B.1 and B.2

If the inoperable containment spray train cannot be restored to OPERABLE status within the required Completion Time, 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 at least MODE 3 within 6 hours and to MODE 5 within 84 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems. The extended interval to reach MODE 5 allows additional time for the restoration of the containment spray train and is reasonable when considering that the driving force for a release of radioactive material from the Reactor Coolant System is reduced in MODE 3.

BASES

ACTIONS (continued)

C.1

With one required containment cooling train inoperable, the inoperable containment cooling train must be restored to OPERABLE status within 7 days. The remaining OPERABLE containment spray and cooling components provide iodine removal capabilities and are capable of providing at least 100% of the heat removal needs after an accident. The 7 day Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray System and Containment Cooling System and the low probability of a DBA occurring during this period.

[14]

The 10 day portion of the Completion Time for Required Action C.1 is based upon engineering judgment. It takes into account the low probability of coincident entry into two Conditions in this Specification coupled with the low probability of an accident occurring during this time. Refer to Section 1.3 for a more detailed discussion of the purpose of the "from discovery of failure to meet the LCO" portion of the Completion Time.

Insert 2

E 0.1

With two required containment cooling trains inoperable, one of the required containment cooling trains must be restored to OPERABLE status within 72 hours. The components in this degraded condition provide iodine removal capabilities and are capable of providing at least 100% of the heat removal needs after an accident. The 72 hour Completion Time was developed taking into account the redundant heat removal capabilities afforded by combinations of the Containment Spray System and Containment Cooling System, the iodine removal function of the Containment Spray System, and the low probability of a DBA occurring during this period.

F E.1 and E.2

J or E

If the Required Actions and associated Completion Times of Condition C of this LCO are not met, 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 at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

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BASES

ACTIONS (continued)



With two containment spray trains or any combination of three or more Containment Spray System and Containment Cooling System trains inoperable, the unit is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE
REQUIREMENTS

SR 3.6.6A.1

Verifying the correct alignment for manual, power operated, and automatic valves in the containment spray flow path provides assurance that the proper flow paths will exist for Containment Spray System operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to being secured. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This SR does not require any testing or valve manipulation. Rather, it involves verifying, through a system walkdown, that those valves outside containment and capable of potentially being mispositioned are in the correct position.

SR 3.6.6A.2

Operating each containment cooling train fan unit for ≥ 15 minutes ensures that all trains are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected and corrective action taken. The 31 day Frequency of this SR was developed considering the known reliability of the fan units and controls, the two train redundancy available, and the low probability of a significant degradation of the containment cooling train occurring between surveillances and has been shown to be acceptable through operating experience.

SR 3.6.6A.3

Verifying a service water flow rate of $\geq [2000]$ gpm to each cooling unit provides assurance that the design flow rate assumed in the safety analyses will be achieved (Ref. 2). Also considered in selecting this Frequency were the known reliability of the Cooling Water System, the two train redundancy, and the low probability of a significant degradation of flow occurring between surveillances.

BASES

SURVEILLANCE REQUIREMENTS (continued)[SR 3.6.6A.4

Verifying that the containment spray header piping is full of water to the [100] ft level minimizes the time required to fill the header. This ensures that spray flow will be admitted to the containment atmosphere within the time frame assumed in the containment analysis. The 31 day Frequency is based on the static nature of the fill header and the low probability of a significant degradation of water level in the piping occurring between surveillances.]

SR 3.6.6A.5

Verifying that each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head ensures that spray pump performance has not degraded during the cycle. Flow and differential pressure are normal tests of centrifugal pump performance required by Section XI of the ASME Code (Ref. 6). Since the containment spray pumps cannot be tested with flow through the spray headers, they are tested on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the Inservice Testing Program.

SR 3.6.6A.6 and SR 3.6.6A.7

These SRs verify that each automatic containment spray valve actuates to its correct position and that each containment spray pump starts upon receipt of an actual or simulated actuation signal. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. The [18] month Frequency is based on the need to perform these Surveillances under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillances were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillances when performed at the [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

The surveillance of containment sump isolation valves is also required by SR 3.5.2.5. A single surveillance may be used to satisfy both requirements.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.6A.8

This SR verifies that each containment cooling train actuates upon receipt of an actual or simulated actuation signal. The [18] month Frequency is based on engineering judgment and has been shown to be acceptable through operating experience. See SR 3.6.6A.6 and SR 3.6.6A.7, above, for further discussion of the basis for the [18] month Frequency.

SR 3.6.6A.9

With the containment spray inlet valves closed and the spray header drained of any solution, low pressure air or smoke can be blown through test connections. Performance of this SR demonstrates that each spray nozzle is unobstructed and provides assurance that spray coverage of the containment during an accident is not degraded. Due to the passive design of the nozzle, a test at [the first refueling and at] 10 year intervals is considered adequate to detect obstruction of the spray nozzles.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 38, GDC 39, GDC 40, GDC 41, GDC 42, and GDC 43.
2. FSAR, Section [].
3. FSAR, Section [].
4. FSAR, Section [].
5. FSAR, Section [].
- ⑦ → ⑧ ASME, Boiler and Pressure Vessel Code, Section XI.

Insert 4

⑦ → ⑧