

Industry/TSTF Standard Technical Specification Change Traveler

Revise LCO 3.9.4 to Require One SDC Loop Operable and in Operation

Priority/Classification 2) Consistency/Standardization

NUREGs Affected: 1430 1431 1432 1433 1434

Description:

LCO 3.9.4 was revised to require that not only must a SDC loop be in operation, it must also be operable.

Justification:

LCO 3.9.4 currently requires one SDC loop to be in operation. The loop is not required to be operable. An operability requirement was added to reflect the intent of the LCO and to be consistent with LCO 3.9.5.

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: 22-Aug-96

Owners Group Comments
(No Comments)

Owners Group Resolution: Approved Date: 22-Aug-96

TSTF Review Information

TSTF Received Date: 27-Sep-96 Date Distributed for Review 27-Sep-96

OG Review Completed: BWOG WOG CEOG BWROG

TSTF Comments:

BWOG - Not applicable, BWOG accepts. Recommend that CEOG deletes old Action A.3, similar to the BWOG DHR spec. CEOG agrees.

BWROG - Not applicable, accepts

WOG - Not applicable, accepts

TSTF Resolution: Approved Date: 21-Oct-96

NRC Review Information

NRC Received Date: 23-Jan-97 NRC Reviewer:

NRC Comments:
(No Comments)

Final Resolution: NRC Approves

Final Resolution Date: 11-Apr-97

Incorporation Into the NUREGs

File to BBS/LAN Date:

TSTF Informed Date:

TSTF Approved Date:

4/2/98

NUREG Rev Incorporated:

Affected Technical Specifications

LCO 3.9.4 SDC and Coolant Circulation - High Water Level

LCO 3.9.4 Bases SDC and Coolant Circulation - High Water Level

Action 3.9.4.A SDC and Coolant Circulation - High Water Level

Action 3.9.4.A Bases SDC and Coolant Circulation - High Water Level

4/2/98

TSTF-146

3.9 REFUELING OPERATIONS

3.9.4 Shutdown Cooling (SDC) and Coolant Circulation—High Water Level

OPERABLE and

LCO 3.9.4 One SDC loop shall be in operation.

-----NOTE-----

The required SDC loop may be removed from operation for ≤ 1 hour per [8] hour period, provided no operations are permitted that would cause reduction of the Reactor Coolant System boron concentration.

APPLICABILITY: MODE 6 with the water level ≥ 23 ft above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p><u>One required</u> A. SDC loop requirements <u>not met.</u> <u>Inoperable or not in operation.</u></p>	<p>A. 2 Suspend operations involving a reduction in reactor coolant boron concentration.</p> <p>AND</p> <p>A. 3 Suspend loading irradiated fuel assemblies in the core.</p>	<p>Immediately</p> <p>Immediately</p>
	<p>AND</p> <p>A. 4 Initiate action to satisfy SDC loop requirements.</p>	<p>Immediately</p>
	<p>AND</p>	<p>(continued)</p>

A.1 Initiate action to restore SDC loop to OPERABLE status and operation. | Immediately

TSTF-146

BASES

APPLICABLE
SAFETY ANALYSES
(continued)

SDC and Coolant Circulation—High Water Level satisfies
Criterion 2 of the NRC Policy Statement.

LCO

Only one SDC loop is required for decay heat removal in
MODE 6, with water level \geq 23 ft above the top of the
reactor vessel flange. Only one SDC loop is required
because the volume of water above the reactor vessel flange
provides backup decay heat removal capability. At least one
SDC loop must be in operation to provide:

OPERABLE and

- a. Removal of decay heat;
- b. Mixing of borated coolant to minimize the possibility
of a criticality; and
- c. Indication of reactor coolant temperature.

An OPERABLE SDC loop includes an SDC pump, a heat exchanger,
valves, piping, instruments, and controls to ensure an
OPERABLE flow path and to determine the low end temperature.
The flow path starts in one of the RCS hot legs and is
returned to the RCS cold legs.

The LCO is modified by a Note that allows the required
operating SDC loop to be removed from service for up to
1 hour in each 8 hour period, provided no operations are
permitted that would cause a reduction of the RCS boron
concentration. Boron concentration reduction is prohibited
because uniform concentration distribution cannot be ensured
without forced circulation. This permits operations such as
core mapping or alterations in the vicinity of the reactor
vessel hot leg nozzles, and RCS to SDC isolation valve
testing. During this 1 hour period, decay heat is removed
by natural convection to the large mass of water in the
refueling cavity.

APPLICABILITY

One SDC loop must be in operation in MODE 6, with the water
level \geq 23 ft above the top of the reactor vessel flange, to
provide decay heat removal. The 23 ft level was selected
because it corresponds to the 23 ft requirement established
for fuel movement in LCO 3.9.6, "Refueling Water Level."

(continued)

BASES

APPLICABILITY
(continued)

Requirements for the SDC System in other MODES are covered by LCOs in Section 3.4, Reactor Coolant System (RCS), and Section 3.5, Emergency Core Cooling Systems (ECCS). SDC loop requirements in MODE 6, with the water level < 23 ft above the top of the reactor vessel flange, are located in LCO 3.9.5, "Shutdown Cooling (SDC) and Coolant Circulation—Low Water Level."

ACTIONS

SDC loop requirements are met by having one SDC loop OPERABLE and in operation, except as permitted in the Note to the LCO.

Insert →

A.2 2

If SDC loop requirements are not met, there will be no forced circulation to provide mixing to establish uniform boron concentrations. Reduced boron concentrations can occur through the addition of water with a lower boron concentration than that contained in the RCS. Therefore, actions that reduce boron concentration shall be suspended immediately.

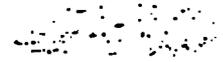
A.2 3

If SDC loop requirements are not met, actions shall be taken immediately to suspend loading irradiated fuel assemblies in the core. With no forced circulation cooling, decay heat removal from the core occurs by natural convection to the heat sink provided by the water above the core. A minimum refueling water level of 23 ft above the reactor vessel flange provides an adequate available heat sink. Suspending any operation that would increase the decay heat load, such as loading a fuel assembly, is a prudent action under this condition.

A.3

~~If SDC loop requirements are not met, actions shall be initiated and continued in order to satisfy SDC loop requirements.~~

(continued)

**INSERT****A.1**

If one required SDC loop is inoperable or not in operation, action shall be immediately initiated and continued until the SDC loop is restored to OPERABLE status and to operation. An immediate Completion Time is necessary for an operator to initiate corrective actions.