Industry/TSTF Standard Technical Specification Change Traveler

Reduce plant trips due to spurious signals to the NIS during physics testing

Classification: 1) Correct Specifications

NUREGs Affected: ☐ 1430   ☑ 1431   ☐ 1432   ☐ 1433   ☐ 1434

Description:

During the performance of physics testing one power range NIS channel is used to provide input to the reactivity computer. When this channel is used, the channel is usually placed in a tripped condition by removing the fuses to the electronics drawer. This effectively places the NIS trip logic in a one-out-of-three logic status. Any spurious signals received on one channel will result in a reactor trip. In fact, this has occurred on at least two plants. The proposed changes would allow returning the fuses to the NIS channel that is disconnected from the detector input. This would effectively place this channel in a bypass state and place the overall logic in a two-out-of-three logic status. This would precluded spurious signals from causing plant trips.

Justification:

During the performance of Physics Tests, the reactor power is restricted to less than 5 percent. In addition, the NIS trip setpoints are typically set to reduced values until after the core physics have been verified following a reload. Placing the NIS in a two-out-of-three logic versus a one-out-of-three logic precludes unnecessary plant trips during the performance of physics tests.

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Revision History

OG Revision 0   **Revision Status: Active**   **Next Action: NRC**

Revision Proposed by   WOG

Revision Description:
Original Issue

Owners Group Review Information

Date Originated by OG: 23-Jun-98

Owners Group Comments
(No Comments)

Owners Group Resolution: Approved   Date: 23-Jun-98

TSTF Review Information

TSTF Received Date: 01-Jul-98   Date Distributed for Review   12-Oct-98

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF Comments:
WOG only.

TSTF Resolution: Approved   Date: 20-Nov-98

Incorporation Into the NUREGs

12/8/98

File to BBS/LAN Date: TSTF Informed Date: TSTF Approved Date:

NUREG Rev Incorporated:

Affected Technical Specifications

LCO 3.1.10	Physics Tests Exceptions - Mode 2

LCO 3.1.10 Bases	Physics Tests Exceptions - Mode 2

INSERT 1

... and the number of required channels for LCO 3.3.1, "RTS Instrumentation," Functions 2, 3, 6, and 18.e, may be reduced to "3" required channels.

INSERT 2

One Power Range Neutron Flux channel may be bypassed, reducing the number of required channels from "4" to "3".

3.1 REACTIVITY CONTROL SYSTEMS

3.1.10 PHYSICS TESTS Exceptions—MODE 2

LCO 3.1.10   During the performance of PHYSICS TESTS, the requirements of

LCO 3.1.4, "Moderator Temperature Coefficient (MTC)";
LCO 3.1.5, "Rod Group Alignment Limits";
LCO 3.1.6, "Shutdown Bank Insertion Limits";
LCO 3.1.7, "Control Bank Insertion Limits"; and
LCO 3.4.2, "RCS Minimum Temperature for Criticality"

INSERT 1 may be suspended, provided:

a.   RCS lowest loop average temperature is ≥ [531]°F; and

b.   SDM is ≥ [1.6]% Δk/k.

APPLICABILITY: MODE 2 during PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. SDM not within limit.	A.1	Initiate boration to restore SDM to within limit.	15 minutes
	AND		
	A.2	Suspend PHYSICS TESTS exceptions.	1 hour
B. THERMAL POWER not within limit.	B.1	Open reactor trip breakers.	Immediately

(continued)

BASES

APPLICABLE	problems, may require the operating control or process
SAFETY ANALYSES	variables to deviate from their LCO limitations.
(continued)	

The FSAR defines requirements for initial testing of the
facility, including PHYSICS TESTS. Tables [14.1-1
and 14.1-2] summarize the zero, low power, and power tests.
Requirements for reload fuel cycle PHYSICS TESTS are defined
in ANSI/ANS-19.6.1-1985 (Ref. 4). Although these PHYSICS
TESTS are generally accomplished within the limits for all
LCOs, conditions may occur when one or more LCOs must be
suspended to make completion of PHYSICS TESTS possible or
practical. This is acceptable as long as the fuel·design
criteria are not violated. When one or more of the
requirements specified in LCO 3.1.4, "Moderator Temperature
Coefficient (MTC)," LCO 3.1.5, LCO 3.1.6, LCO 3.1.7, and
LCO 3.4.2 are suspended for PHYSICS TESTS, the fuel design
criteria are preserved as long as the power level is limited
to $\leq$ 5% RTP, the reactor coolant temperature is kept
$\geq$ 531°F, and SDM is $\geq$ [1.6]% $\Delta k/k$.

The PHYSICS TESTS include measurement of core nuclear
parameters or the exercise of control components that affect
process variables. Among the process variables involved are
AFD and QPTR, which represent initial conditions of the unit
safety analyses. Also involved are the movable control
components (control and shutdown rods), which are required
to shut down the reactor. The limits for these variables
are specified for each fuel cycle in the COLR. PHYSICS
TESTS meet the criteria for inclusion in the Technical
Specifications, since the components and process variable
LCOs suspended during PHYSICS TESTS meet Criteria 1, 2,
and 3 of the NRC Policy Statement.

Reference 6 allows special test exceptions (STEs) to be
included as part of the LCO that they affect. It was
decided, however, to retain this STE as a separate LCO
because it was less cumbersome and provided additional
clarity.

LCO	This LCO allows the reactor parameters of MTC and minimum
	temperature for criticality to be outside their specified
	limits. In addition, it allows selected control and
	shutdown rods to be positioned outside of their specified
	alignment and insertion limits. Operation beyond specified

INSERT 2

(continued)

BASES

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LCO (continued)	limits is permitted for the purpose of performing PHYSICS TESTS and poses no threat to fuel integrity, provided the SRs are met.

The requirements of LCO 3.1.4, LCO 3.1.5, LCO 3.1.6, LCO 3.1.7, and LCO 3.4.2 may be suspended during the performance of PHYSICS TESTS provided: →*INSERT 1*

a. RCS lowest loop average temperature is ≥ [531] °F; and

b. SDM is ≥ [1.6]% Δk/k.

APPLICABILITY

This LCO is applicable in MODE 2 when performing low power PHYSICS TESTS. The applicable PHYSICS TESTS are performed in MODE 2 at HZP. Other PHYSICS TESTS are performed in MODE 1 and are addressed in LCO 3.1.9, "PHYSICS TESTS Exceptions—MODE 1."

ACTIONS

A.1 and A.2

If the SDM requirement is not met, boration must be initiated promptly. A Completion Time of 15 minutes is adequate for an operator to correctly align and start the required systems and components. The operator should begin boration with the best source available for the plant conditions. Boration will be continued until SDM is within limit.

Suspension of PHYSICS TESTS exceptions requires restoration of each of the applicable LCOs to within specification.

B.1

When THERMAL POWER is > 5% RTP, the only acceptable action is to open the reactor trip breakers (RTBs) to prevent operation of the reactor beyond its design limits. Immediately opening the RTBs will shut down the reactor and prevent operation of the reactor outside of its design limits.

(continued)