



Nebraska Public Power District

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NLS2005001
August 25, 2005

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

Subject: License Amendment Request to Revise Technical Specification Definitions of Channel Calibration, Channel Functional Test, and Logic System Functional Test Cooper Nuclear Station, NRC Docket No. 50-298, DPR-46

Reference: Technical Specification Task Force Improved Standard Technical Specifications Change Traveler TSTF-205-A, "Revision of Channel Calibration, Channel Functional Test, and Related Definitions," Revision 3, dated July 31, 2003

The purpose of this letter is for the Nebraska Public Power District (NPPD) to request an amendment to Facility Operating License DPR-46 in accordance with the provisions of 10 CFR 50.4 and 10 CFR 50.90 to revise the Cooper Nuclear Station (CNS) Technical Specifications (TS). The amendment request proposes to revise the definitions of Channel Calibration, Channel Functional Test, and Logic System Functional Test in accordance with the referenced Technical Specification Task Force Traveler (TSTF)-205-A.

The U.S. Nuclear Regulatory Commission (NRC) has approved TSTF-205-A, Revision 3, and incorporated the revised definitions into the latest approved version of BWR4 Standard Technical Specifications (STS) (NUREG-1433, Rev. 3.0). This license amendment request proposes to adopt the TS changes as proposed in TSTF-205-A, and incorporated in BWR4 STS without deviation. The meanings of the definitions are not changed by the revisions.

NPPD requests approval of the proposed TS revisions by August 1, 2006. The amendment will be implemented within 30 days of issuance of the amendment.

Attachment 1 provides a description of the TS change, the basis for the amendment, the no significant hazards consideration evaluation pursuant to 10 CFR 50.91(a)(1), and the environmental impact evaluation pursuant to 10 CFR 51.22. Attachment 2 provides the proposed changes to the current CNS TS on marked up pages. Attachment 3 provides the revised TS pages in final typed format. CNS had previously adopted the TS Bases changes proposed in TSTF-205-A in accordance with 10 CFR 50.59. Attachment 4 provides the current TS Bases for information.

The proposed TS changes have been reviewed by the necessary safety review committees (Station Operations Review Committee and Safety Review and Audit Board). Amendments to the CNS

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Facility Operating License through Amendment 211, dated March 22, 2005, have been incorporated into this request. This request is submitted under oath pursuant to 10 CFR 50.30(b).

By copy of this letter and its attachments, the appropriate State of Nebraska official is notified in accordance with 10 CFR 50.91(b)(1). Copies to the NRC Region IV office and the CNS Resident Inspector are also being provided in accordance with 10 CFR 50.4(b)(1).

If you have any questions concerning this matter, please contact Paul Fleming, Licensing Manager, at (402) 825-2774.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 8/25/05
(date)

Sincerely,



Stewart Minahan
General Manager of Plant Operations

/rr

Attachments

cc: Regional Administrator w/ attachments
USNRC - Region IV

Senior Project Manager w/ attachments
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector w/ attachments
USNRC

Nebraska Health and Human Services w/ attachments
Department of Regulation and Licensure

NPG Distribution w/o attachments

CNS Records w/ attachments

Attachment 1

License Amendment Request to Revise Technical Specification Definitions of Channel Calibration, Channel Functional Test, and Logic System Functional Test

Cooper Nuclear Station, NRC Docket 50-298, DPR-46

Revised Pages
Technical Specification Pages

1.1-1

1.1-2

1.1-4

- 1.0 Description
- 2.0 Proposed Change
- 3.0 Background
- 4.0 Technical Analysis
- 5.0 Regulatory Safety Analysis
 - 5.1 No Significant Hazards Consideration (NSHC)
 - 5.2 Applicable Regulatory Requirements/Criteria
- 6.0 Environmental Consideration
- 7.0 References

1.0 Description

The Nebraska Public Power District (NPPD) requests that Operating License No. DPR-46 for Cooper Nuclear Station (CNS) be amended by revision of three definitions in Technical Specification (TS) Section 1.1.

Changes are proposed to the definitions of Channel Calibration, Channel Functional Test, and Logic System Functional Test. The revisions involve (1) deleting the list of specific devices to be included in the test, (2) replacing the list of devices with a statement that the test is to encompass all devices in the channel required for channel operability, and (3) deleting the phrase that the entire channel is calibrated or tested.

These changes are based on Technical Specification Task Force Improved Standard Technical Specifications Change Traveler (TSTF)-205-A, Revision 3, "Revision of Channel Calibration, Channel Functional Test, and Related Definitions."

2.0 Proposed Change

1. The definition of Channel Calibration states (in part):

"The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, display, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST."

This statement in the definition is revised to state:

"The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST."

The last sentence in the definition states:

"The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is calibrated."

The phrase "...so that the entire channel is calibrated" is deleted.

No changes to the TS Bases for the Channel Calibration surveillance requirements were proposed in TSTF-205-A.

2. The definition of Channel Functional Test states (in part):

“A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY, including required alarm, interlock, display, and trip functions, and channel failure trips.”

This statement in the definition is revised to state:

“A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY.”

The last sentence in the definition states:

“The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is tested.”

The phrase “...so that the entire channel is tested” is deleted.

TSTF-205-A proposed changes to the TS Bases for the Channel Functional Test surveillance requirements in TS. The Bases changes involved stating that a successful test of the required contacts of a channel relay may be performed by the verification of the change of state of a single contact of the relay, and that this clarifies what is an acceptable Channel Functional Test of a relay.

3. The definition of Logic System Functional Test states (in part):

“A LOGIC SYSTEM FUNCTIONAL TEST shall be a test of all required logic components (i.e., all required relays and contacts, trip units, solid state logic elements, etc.) of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device, to verify OPERABILITY.”

This statement in the definition is revised to state:

“A LOGIC SYSTEM FUNCTIONAL TEST shall be a test of all logic components required for OPERABILITY of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device, to verify OPERABILITY.”

No changes to the TS Bases for the LOGIC SYSTEM FUNCTIONAL TEST surveillance requirements were proposed in TSTF-205-A.

3.0 Background

Various terms used in the TS are defined in TS Section 1.1. Included are the definitions of Channel Calibration, Channel Functional Test, and Logic System Functional Test. These definitions provide basic information about what the test involves, the components that are encompassed within the test, and general information regarding how the test is to be performed.

The TS contain surveillance requirements (SRs) that require routine testing by channel functional tests, channel calibration, and logic system functional tests. The definitions in TS Section 1.1 are provided in support of the testing required by the various specific SRs in order to help ensure consistent performance of the surveillances.

The changes to the definitions proposed in this amendment request were proposed in TSTF-205-A, Revision 3. The staff of the Nuclear Regulatory Commission (NRC) reviewed and approved TSTF-205-A, Revision 3, for licensees to adopt through license amendment requests. The changes proposed in TSTF-205-A, Revision 3 were incorporated into the latest version of BWR/4 Standard Technical Specifications (NUREG-1433, Rev. 3.0).

TSTF-205-A states that there is ambiguity in the application of the word "required" in the definitions and whether the list is inclusive or representative. As stated in the TSTF, the revised definitions eliminate this ambiguity.

TSTF-205-A proposes deleting the phrase "... so that the entire channel is [tested] / [calibrated]" from the definition. The TSTF discusses that this deletion is needed in order to resolve a conflict between a verbatim reading of the CHANNEL FUNCTIONAL TEST definition and the revised TS Bases as proposed in the TSTF. The TSTF explains the conflict as a result of the statement in the definition "...of all devices in the channel required for channel OPERABILITY" and the revised statement in the TS Bases that "A successful test of the required contacts of a channel relay may be performed by the verification of the change of state of a single contact of the relay." The resolution discussed in the TSTF is to delete the statement "...so that the entire channel is tested" from the CHANNEL FUNCTIONAL TEST definition.

In June 2001 the CNS TS Bases were revised as proposed in TSTF-205-A pursuant to 10 CFR 50.59 without prior NRC review. The 10 CFR 50.59 evaluation, approved by the Station Operations Review Committee on June 19, 2001, stated that no change to the TS is proposed or required for consistency with the Bases change. However, revising the Bases in accordance with the TSTF but not the TS resulted in the conflict discussed in the TSTF.

In May of 2004 NPPD documented in the CNS Corrective Action Program (CAP) a question of whether it was acceptable to revise the Bases and not the TS as reflected in TSTF-205-A. The evaluation concluded that revising the TS Bases as reflected in TSTF-205-A, but not the definitions in TS, created an apparent conflict between the Bases and the TS. It was

determined that NPPD should submit a license amendment request (LAR) to revise the definitions as reflected in TSTF-205-A, Rev.3.

In July of 2004 NPPD documented in CAP a concern that revising the CNS TS Bases as reflected in TSTF-205-A but not the TS definitions was a violation of TS Section 5.5.10, TS Bases Control Program. TS Section 5.5.10 states that licensees may make changes to the TS Bases without prior NRC approval provided the changes do not involve a change to the TS. The evaluation of the CAP document concluded that this was not a violation of TS 5.5.10. The basis for this conclusion, in part, was that the conflict mentioned in TSTF-205-A created by revising the TS Bases but not the definition in TS involved a difference in interpretation only and not intent between the revised TS Bases and the TS definition, and that the 10 CFR 50.59 evaluation justifying the Bases changes stated that the definition of Channel Functional Test does not specify the method of testing the channel to confirm the function of the required channel devices. Also, it is noted that the 10 CFR 50.59 evaluation addressed whether changes to the TS were required, concluding that no changes were required for consistency with the Bases changes.

Additionally, TSTF-205-A states that the proposed revisions to the definitions are not intended to change the meaning or intent of the affected definitions.

4.0 Technical Analysis

TSTF-205-A presents the basis for the proposed changes. The TSTF states that the revised definitions eliminate a current ambiguity and possible misinterpretation of these definitions, including channel calibration, channel functional tests, and logic system functional tests. The ambiguity being eliminated is in the application of the word "required" in the phrase "required sensor, alarm, interlock, display and trip functions" used in the definitions. Replacing this list with a phrase similar to "all devices in the channel required for channel OPERABILITY" clarifies the use of the word "required" and makes clear that the components that are required to be calibrated or tested are only those that are necessary for the channel to perform its safety function.

The justification stated in TSTF-205-A is generically applicable to plants that have converted to Standard Technical Specifications, and is therefore applicable to CNS.

The requested changes to the CNS TS are reflected in the latest issued version of BWR4 Standard Technical Specifications (NUREG-1433, Rev. 3.0).

5.0 Regulatory Safety Analysis

5.1 No Significant Hazards Consideration

10 CFR 50.91(a)(1) requires that licensee requests for operating license amendments be accompanied by an evaluation of significant hazard posed by issuance of the

amendment. Nebraska Public Power District (NPPD) has evaluated this proposed amendment with respect to the criteria given in 10 CFR 50.92(c).

NPPD is requesting an amendment of the operating license for the Cooper Nuclear Station (CNS.) The requested amendment proposes to revise the definitions of Channel Calibration, Channel Functional Test, and Logic System Functional Test in the CNS Technical Specifications (TS).

The CNS TS contain definitions of terms used throughout the TS. These include definitions of Channel Calibration, Channel Functional Test, and Logic System Functional Test. These definitions provide basic information about what the test involves, the components encompassed in the test, and general information regarding how the test is to be performed. These definitions are provided in support of the testing required by the various specific TS Surveillance Requirements (SR).

NPPD is proposing to revise the definitions by (1) deleting the list of specific devices required to be included in the calibration or functional test, (2) replacing the list of devices with a statement that the test is to encompass all devices in the channel required for channel operability, and (3) deleting the phrase that the entire channel is calibrated or tested.

The proposed revisions are based on the NRC-approved Technical Specification Task Force Traveler TSTF-205-A, Revision 3, "Revision of Channel Calibration, Channel Functional Test, and Related Definitions." As discussed in TSTF-205-A, Revision 3, the revisions eliminate ambiguity and possible misinterpretation of the definitions, and are not intended to change the meaning or intent of the affected definitions.

The changes are evaluated against the three criteria of 10 CFR 50.92(c) in the following evaluation. The evaluation supports a finding of "no significant hazards" for the proposed amendment.

1. Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The definitions of Channel Calibration, Channel Functional Test, and Logic System Functional Test specified in Technical Specifications (TS) provide basic information regarding what the test involves, the components involved in the test, and general information regarding how the test is to be performed. These definitions and their specific wording are not precursors to any accident. As a result these revised definitions result in no increase in the probability of an accident previously evaluated.

The proposed revisions of these definitions involve no changes to plant design, equipment, or operation related to mitigation of accidents. The proposed revisions of these definitions do not change their meaning or intent. The proposed revisions clarify the definitions and do not result in a reduction of required testing of instrumentation used to mitigate accidents.

Based on the above NPPD concludes that the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Do the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed revisions of the definitions do not involve a change to the design or operation of any plant structure, system, or component (SSC). As a result the plant will continue to be operated in the same manner. The proposed revisions will not result in a change to how the instrumentation used to monitor plant operation and to mitigate accidents is tested. Operating the plant and testing the plant's instrumentation in the same manner as is currently done will not create the possibility of a new or different kind of accident.

Based on the above NPPD concludes that the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

3. Do the proposed changes involve a significant reduction in a margin of safety?

Response: No.

The affected definitions involve testing of instrumentation used in the mitigation of accidents to ensure that the instrumentation will perform as assumed in safety analyses. The proposed revisions of these definitions will not change their meaning or intent. As a result, the instrumentation will continue to be tested in the same manner as is currently done. Revising these definitions as proposed will not result in a change to the design or operation of any plant SSC used to shutdown the plant, initiate the Emergency Core Cooling Systems, or isolate primary or secondary containment. As a result the ability of the plant to respond to and mitigate accidents is unchanged by the revised definitions.

Based on the above, NPPD concludes that the proposed changes do not involve a significant reduction in a margin of safety.

Based on the above evaluation of the three criteria, NPPD concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 Applicable Regulatory Requirements/Criteria

1. Updated Safety Analysis Report (USAR) Appendix F, Criterion 19, *Protection Systems Reliability*

"Protection systems shall be designed for high functional reliability and in-service testability commensurate with the safety functions to be performed."

2. USAR Appendix F, Criterion 25, *Demonstration of Functional Operability of Protection Systems*

"Means shall be included for testing protection systems while the reactor is in operation to demonstrate that no failure or loss of redundancy has occurred."

3. USAR Appendix F, Criterion 46, *Testing of Emergency Core Cooling Systems Components*

"Design provisions shall be made so that active components of the emergency core cooling systems, such as pumps and valves, can be tested periodically for operability and required functional performance."

4. USAR Appendix F, Criterion 48, *Testing of Operational Sequence of Emergency Core Cooling Systems*

"A capability shall be provided to test under conditions as close to design as practical the full operational sequence that would bring the emergency core cooling systems into action, including the transfer to alternate power sources."

CNS continues to satisfy applicable regulatory requirements with the proposed changes to the definitions.

6.0 Environmental Consideration

10 CFR 51.22(b) allows that an environmental assessment (EA) or an environmental impact statement (EIS) is not required for any action included in the list of categorical exclusions in 10 CFR 51.22(c). 10 CFR 51.22(c)(9) identifies an amendment to an operating license

which changes a requirement with respect to installation or use of a facility component located within the restricted area, or which changes an inspection or a surveillance requirement, as a categorical exclusion provided that (1) the amendment involves no significant hazards consideration, (2) there is no significant change in the types or significant increase in the amounts of any effluents that may be released off-site, and (3) there is no significant increase in individual or cumulative occupational radiation exposure.

NPPD has reviewed the proposed license amendment and concludes that it meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(c), no EIS or EA needs to be prepared in connection with issuance of the proposed license changes. The basis for this determination is as follows:

1. The No Significant Hazards Consideration evaluation presented above in Section 5.1 concluded that the proposed revision of the TS definitions of Channel Calibration, Channel Functional Test, and Logic System Functional Test involves no significant hazards consideration;
2. Revision of the definitions will not result in a significant change in the types or significant increase in the amounts of any effluents that may be released off-site; and
3. Revision of the definitions will not result in a significant increase in the individual or cumulative occupational radiation exposure.

7.0 References

1. TSTF-205-A, Rev. 3, Revision of Channel Calibration, Channel Functional Test, and Related Definitions
2. PRECEDENT: Duane Arnold Energy Center (DAEC) – Amendment No. 234

Amendment No. 234 dated October 3, 2000, to License No. DPR-49, issued revised technical specifications to DAEC with revised definitions of Channel Calibration, Channel Functional Test, and Logic System Functional Test. The NRC issued the amendment in response to initial submittal from Alliant Energy dated November 22, 1999, as supplemented by submittal from Nuclear Management Company, LLC, dated August 14, 2000.

3. PRECEDENT: James A. Fitzpatrick Amendment No. 274

Amendment No. 274, dated July 3, 2002, to License No. DPR-59, issued the complete James A. Fitzpatrick Technical Specifications for conversion to Improved Technical Specifications based on NUREG-1433, Revision 1, "Standard Technical Specifications for General Electric Plants, BWR/4."

ATTACHMENT 2
PROPOSED TECHNICAL SPECIFICATION REVISIONS
(MARK-UP)

COOPER NUCLEAR STATION
NRC DOCKET 50-298, LICENSE DPR-46

Technical Specification Pages

1.1-1

1.1-2

1.1-3

1.0 USE AND APPLICATION

1.1 Definitions

-----NOTE-----

The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

<u>Term</u>	<u>Definition</u>
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)	The APLHGR shall be applicable to a specific planar height and is equal to the sum of the heat generation rate per unit length of fuel rod for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle at the height.
CHANNEL CALIBRATION	<p>A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass <u>the entire channel, including the required sensor, alarm, display, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST.</u> Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an in-place qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps, so that the entire channel is calibrated.</p> <p><i>all devices in the channel required for channel OPERABILITY and</i></p>
CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or

(continued)

1.1 Definitions

CHANNEL CHECK (continued)

status derived from independent instrument channels measuring the same parameter.

CHANNEL FUNCTIONAL TEST

of all devices in
the channel required
for channel
OPERABILITY

A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY, ~~including required alarm, interlock, display, and trip functions, and channel failure trips.~~ The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps ~~so that the entire channel is tested.~~

CORE ALTERATION

CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components within the reactor vessel with the vessel head removed and fuel in the vessel. The following exceptions are not considered to be CORE ALTERATIONS:

- a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); and
- b. Control rod movement, provided there are no fuel assemblies in the associated core cell.

Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

CORE OPERATING LIMITS REPORT (COLR)

The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.

DOSE EQUIVALENT I-131

DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same adult thyroid dose as the quantity and isotopic mixture of I-131, I-132,

(continued)

1.1 Definitions

DOSE EQUIVALENT I-131 (continued)

I-133, I-134, and I-135 actually present. The DOSE EQUIVALENT I-131 concentration is calculated as follows:
$$\text{DOSE EQUIVALENT I-131} = (\text{I-131}) + 0.0096 (\text{I-132}) + 0.18 (\text{I-133}) + 0.0025 (\text{I-134}) + 0.037 (\text{I-135}).$$

LEAKAGE

LEAKAGE shall be:

a. Identified LEAKAGE

1. LEAKAGE into the drywell, such as that from pump seals or valve packing, that is captured and conducted to a sump or collecting tank; or
2. LEAKAGE into the drywell atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE;

b. Unidentified LEAKAGE

All LEAKAGE into the drywell that is not identified LEAKAGE;

c. Total LEAKAGE

Sum of the identified and unidentified LEAKAGE;

d. Pressure Boundary LEAKAGE

LEAKAGE through a nonisolable fault in a Reactor Coolant System (RCS) component body, pipe wall, or vessel wall.

LOGIC SYSTEM FUNCTIONAL TEST

A LOGIC SYSTEM FUNCTIONAL TEST shall be a test of all ~~required~~ logic components ^Y (i.e., all required relays and ~~contacts, trip units, solid state logic elements, etc.~~) of a logic circuit,

required for
OPERABILITY

(continued)

ATTACHMENT 3
PROPOSED TECHNICAL SPECIFICATION REVISIONS
(FINAL TYPED)

COOPER NUCLEAR STATION
NRC DOCKET 50-298, LICENSE DPR-46

Technical Specification Pages

1.1-1

1.1-2

1.1-3

1.0 USE AND APPLICATION

1.1 Definitions

NOTE

The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

<u>Term</u>	<u>Definition</u>
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)	The APLHGR shall be applicable to a specific planar height and is equal to the sum of the heat generation rate per unit length of fuel rod for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle at the height.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps.
CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or

(continued)

1.1 Definitions

CHANNEL CHECK (continued)	status derived from independent instrument channels measuring the same parameter.
CHANNEL FUNCTIONAL TEST	A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY. The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps.
CORE ALTERATION	<p>CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components within the reactor vessel with the vessel head removed and fuel in the vessel. The following exceptions are not considered to be CORE ALTERATIONS:</p> <ul style="list-style-type: none">a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); andb. Control rod movement, provided there are no fuel assemblies in the associated core cell. <p>Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.</p>
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same adult thyroid dose as the quantity and isotopic mixture of I-131, I-132,

(continued)

1.1 Definitions

DOSE EQUIVALENT I-131 (continued)

I-133, I-134, and I-135 actually present. The DOSE EQUIVALENT I-131 concentration is calculated as follows:
$$\text{DOSE EQUIVALENT I-131} = (\text{I-131}) + 0.0096 (\text{I-132}) + 0.18 (\text{I-133}) + 0.0025 (\text{I-134}) + 0.037 (\text{I-135}).$$

LEAKAGE

LEAKAGE shall be:

a. Identified LEAKAGE

1. LEAKAGE into the drywell, such as that from pump seals or valve packing, that is captured and conducted to a sump or collecting tank; or
2. LEAKAGE into the drywell atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE;

b. Unidentified LEAKAGE

All LEAKAGE into the drywell that is not identified LEAKAGE;

c. Total LEAKAGE

Sum of the identified and unidentified LEAKAGE;

d. Pressure Boundary LEAKAGE

LEAKAGE through a nonisolable fault in a Reactor Coolant System (RCS) component body, pipe wall, or vessel wall.

LOGIC SYSTEM FUNCTIONAL TEST

A LOGIC SYSTEM FUNCTIONAL TEST shall be a test of all logic components required for OPERABILITY of a logic circuit,

(continued)

ATTACHMENT 4
CURRENT TECHNICAL SPECIFICATION BASES
COOPER NUCLEAR STATION
NRC DOCKET 50-298, LICENSE DPR-46

Technical Specification Bases Pages

B3.3-26
B3.3-29
B3.3-39
B3.3-50
B3.3-52
B3.3-88
B3.3-123
B3.3-135
B3.3-164
B3.3-175
B3.3-182
B3.3-192
B3.3-203
B3.4-28
B3.9-4
B3.9-7

Note: The attached TS Bases pages are currently in effect. These revisions were made pursuant to 10 CFR 50.59 in accordance with Cooper Nuclear Station TS 5.5.10, "Technical Specification (TS) Bases Control Program." These pages are provided for information.

BASES

SURVEILLANCE REQUIREMENTS (continued)

Surveillance is required to have been satisfactorily performed within the last 7 days, in accordance with SR 3.0.2. A Note is provided which allows an increase in THERMAL POWER above 25% if the 7 day Frequency is not met per SR 3.0.2. In this event, the SR must be performed within 12 hours after reaching or exceeding 25% RTP. Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR.

SR 3.3.1.1.3

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

As noted, SR 3.3.1.1.3 is not required to be performed when entering MODE 2 from MODE 1, since testing of the MODE 2 required IRM and APRM Functions cannot be performed in MODE 1 without utilizing jumpers, lifted leads, or movable links. This allows entry into MODE 2 if the 7 day Frequency is not met per SR 3.0.2. In this event, the SR must be performed within 12 hours after entering MODE 2 from MODE 1. Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR.

A Frequency of 7 days provides an acceptable level of system average unavailability over the Frequency interval and is based on reliability analysis (Ref. 10).

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.1.9 and SR 3.3.1.1.11

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology. The 92 day Frequency of SR 3.3.1.1.9 is based on the reliability analysis of Reference 10.

The 18 month Frequency of SR 3.3.1.1.11 is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Testing of Function 10 requires placing the mode switch in "Shutdown". Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency.

SR 3.3.1.1.10 and SR 3.3.1.1.12

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies that the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology. Physical inspection of the position switches is performed in conjunction with SR 3.3.1.1.12 for Functions 5, 7.b, and 8 to ensure that the switches are not corroded or otherwise degraded.

Note 1 of SR 3.3.1.1.10 and SR 3.3.1.1.12 states that neutron detectors are excluded from CHANNEL CALIBRATION because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Changes in neutron detector sensitivity are compensated for by performing the 7 day calorimetric calibration (SR 3.3.1.1.2) and the 1000 MWD/T LPRM calibration against the TIPs (SR 3.3.1.1.8). Note 1 of SR 3.3.1.1.10 states that recirculation loop flow

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.2.4

This Surveillance consists of a verification of the SRM instrument readout to ensure that the SRM reading is greater than a specified minimum count rate with the detector full-in, which ensures that the detectors are indicating count rates indicative of neutron flux levels within the core. With few fuel assemblies loaded, the SRMs will not have a high enough count rate to satisfy the SR. Therefore, allowances are made for loading sufficient "source" material, in the form of irradiated fuel assemblies, to establish the minimum count rate.

To accomplish this, the SR is modified by a Note that states that the count rate is not required to be met on an SRM that has less than or equal to four fuel assemblies adjacent to the SRM and no other fuel assemblies are in the associated core quadrant. With four or less fuel assemblies loaded around each SRM and no other fuel assemblies in the associated core quadrant, even with a control rod withdrawn, the configuration will not be critical. This SR does not require determination of the noise ratio.

The Frequency is based upon channel redundancy and other information available in the control room, and ensures that the required channels are frequently monitored while core reactivity changes are occurring. When no reactivity changes are in progress, the Frequency is relaxed from 12 hours to 24 hours.

SR 3.3.1.2.5 and SR 3.3.1.2.6

Performance of a CHANNEL FUNCTIONAL TEST demonstrates the associated channel will function properly. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. SR 3.3.1.2.5 is required in MODE 5, and the 7 day Frequency ensures that the channels are OPERABLE while core reactivity changes could be in progress. This Frequency is reasonable, based on operating experience and on other Surveillances (such as a

BASES

SURVEILLANCE REQUIREMENTS (continued)

Required Actions taken. This Note is based on the reliability analysis (Ref. 9) assumption of the average time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that a control rod block will be initiated when necessary.

SR 3.3.2.1.1

A CHANNEL FUNCTIONAL TEST is performed for each RBM channel to ensure that the channel will perform the intended function. It includes the Reactor Manual Control System input. It also includes the local alarm lights representing upscale and downscale trips, but no rod block will be produced at this time. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology. The Frequency of 92 days is based on reliability analyses (Ref. 10).

SR 3.3.2.1.2 and SR 3.3.2.1.3

A CHANNEL FUNCTIONAL TEST is performed for the RWM to ensure that the system will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The CHANNEL FUNCTIONAL TEST for the RWM includes performing the RWM computer on line diagnostic test satisfactorily, attempting to withdraw a control rod not in compliance with the prescribed sequence and verifying a control rod block occurs. For SR 3.3.2.1.2, the CHANNEL FUNCTIONAL TEST also includes attempting to select a control rod not in compliance with the prescribed sequence and verifying a selection error occurs. As noted in the SRs, SR 3.3.2.1.2 is not required to be performed until 1 hour after any control rod is withdrawn in MODE 2. As noted, SR 3.3.2.1.3 is not required to be performed until 1 hour after THERMAL POWER is $\leq 10\%$ RTP in MODE 1. This allows

BASES

SURVEILLANCE REQUIREMENTS (continued)

As noted, neutron detectors are excluded from the CHANNEL CALIBRATION because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Neutron detectors are adequately tested in SR 3.3.1.1.2 and SR 3.3.1.1.8.

The Frequency is based upon the assumption of a 184 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.2.1.6

The RWM is automatically bypassed when power is above a specified value. The power level is determined from feedwater flow and steam flow signals. The setpoint where the automatic bypass feature is unbypassed must be verified periodically to be > 10% RTP. If the RWM low power setpoint is nonconservative, then the RWM is considered inoperable. Alternately, the low power setpoint channel can be placed in the conservative condition (nonbypass). If placed in the nonbypassed condition, the SR is met and the RWM is not considered inoperable. The Frequency is based on the trip setpoint methodology utilized for the low power setpoint channel.

SR 3.3.2.1.7

A CHANNEL FUNCTIONAL TEST is performed for the Reactor Mode Switch — Shutdown Position Function to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The CHANNEL FUNCTIONAL TEST for the Reactor Mode Switch — Shutdown Position Function is performed by attempting to withdraw any control rod with the reactor mode switch in the shutdown position and verifying a control rod block occurs.

As noted in the SR, the Surveillance is not required to be performed until 1 hour after the reactor mode switch is in the shutdown position, since testing of this interlock with the reactor mode switch in any other position cannot be performed without using jumpers, lifted leads, or movable links. This allows entry into MODES 3 and 4 if the 18 month Frequency

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.1.1

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency of 92 days is based on the reliability analysis of Reference 3.

SR 3.3.4.1.2

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency is based upon the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.4.1.3

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. For the Reactor Vessel Water Level-Low Low (Level 2) logic, this shall include the nominal 9 second time delay of the RRMG field breaker trip. The system functional test of the RRMG field breakers is included as part of this Surveillance and overlaps the LOGIC SYSTEM FUNCTIONAL TEST to provide complete testing of the assumed safety function. Therefore, if

BASES

SURVEILLANCE REQUIREMENTS (continued)

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 guarantees that undetected outright channel failure is limited to 12 hours; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

The Frequency is based upon operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the channels required by the LCO.

SR 3.3.5.1.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency of 92 days is based on the reliability analyses of Reference 8.

BASES

SURVEILLANCE REQUIREMENTS (continued)

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.

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

The Frequency is based upon operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the channels required by the LCO.

SR 3.3.5.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency of 92 days is based on the reliability analysis of Reference 2.

SR 3.3.5.2.3 and SR 3.3.5.2.4

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.1.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The 92 day Frequency of SR 3.3.6.1.2 is based on the reliability analysis described in References 10 and 11.

SR 3.3.6.1.3, SR 3.3.6.1.4 and SR 3.3.6.1.5

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology. SR 3.3.6.1.5, however, is only a calibration of the radiation detectors using a standard radiation source.

As noted for SR 3.3.6.1.4, the main steam line radiation detectors (Function 2.d) are excluded from CHANNEL CALIBRATION due to ALARA reasons (when the plant is operating, the radiation detectors are generally in a high radiation area; the steam tunnel). This exclusion is acceptable because the radiation detectors are passive devices, with minimal drift. The radiation detectors are calibrated in accordance with SR 3.3.6.1.5 on an 18 month Frequency using a standard current source and radiation source. The CHANNEL CALIBRATION of the remaining portions of the channel (SR 3.3.6.1.4) are performed using a standard current source.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.2.1

Performance of the CHANNEL CHECK once every 12 hours 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 other channels. 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.

Agreement criteria are determined by the plant staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

The Frequency is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channel status during normal operational use of the displays associated with channels required by the LCO.

SR 3.3.6.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency of 92 days is based on the reliability analysis of References 5 and 6.

BASES

ACTIONS (continued)

B.1

If the Required Action and associated Completion Time of Condition A is not met, or both LLS valves are inoperable due to inoperable channels, the LLS valves may be incapable of performing their intended function. Therefore, the associated LLS valve must be declared inoperable immediately. A LLS valve is OPERABLE if the associated logic (e.g., Logic A) has one Function 1 channel, two Function 2 channels, and four Function 3 channels OPERABLE.

SURVEILLANCE
REQUIREMENTS

As noted at the beginning of the SRs, the SRs for each LLS instrumentation Function are located in the SRs column of Table 3.3.6.3-1.

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains LLS initiation capability. LLS initiation capability is maintained provided one LLS valve can be initiated by the LLS instrumentation. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 3) assumption of the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the LLS valves will initiate when necessary.

SR 3.3.6.3.1, SR 3.3.6.3.2, and SR 3.3.6.3.3

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.7.1.1 (continued)

Agreement criteria are determined by the plant staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit.

The Frequency is based upon operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channel status during normal operational use of the displays associated with channels required by the LCO.

SR 3.3.7.1.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency of 92 days is based on the reliability analyses of References 5, 6, and 7.

SR 3.3.7.1.3

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.8.1.1

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency of 31 days is based on operating experience with regard to channel OPERABILITY and drift, which demonstrates that failure of more than one channel of a given Function in any 31 day interval is a rare event.

SR 3.3.8.1.2

A CHANNEL CALIBRATION is a complete check of the relay circuitry and associated time delay relays. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

Any setpoint adjustment shall be consistent with the assumptions of the current plant specific setpoint methodology.

The Frequency is based upon the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.8.1.3

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required actuation logic for a specific channel. The system functional testing performed in LCO 3.8.1 and LCO 3.8.2 overlaps this Surveillance to provide complete testing of the assumed safety functions.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.5.2

This SR is for the performance of a CHANNEL FUNCTIONAL TEST of the required RCS leakage detection instrumentation. The test ensures that the monitors can perform their function in the desired manner. The test also verifies the alarm setpoint and relative accuracy of the instrument string. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The Frequency of 31 days considers instrument reliability, and operating experience has shown it proper for detecting degradation.

SR 3.4.5.3

This SR is for the performance of a CHANNEL CALIBRATION of required leakage detection instrumentation channels. The calibration verifies the accuracy of the instrument string. The Frequency is 92 days and operating experience has proven this Frequency is acceptable.

REFERENCES

1. USAR, Section IV-10.2.
2. Regulatory Guide 1.45, May 1973.
3. USAR, Section IV-10.3.
4. GEAP-5620, "Failure Behavior in ASTM A106B Pipes Containing Axial Through-Wall Flaws," April 1968.
5. NUREG-75/067, "Investigation and Evaluation of Cracking in Austenitic Stainless Steel Piping of Boiling Water Reactors," October 1975.
6. USAR, Section IV-10.3.2.
7. 10 CFR 50.36(c)(2)(ii).

BASES

ACTIONS

A.1 (continued)

immediately suspended. This action ensures that operations are not performed with equipment that would potentially not be blocked from unacceptable operations (e.g., loading fuel into a cell with a control rod withdrawn). Suspension of in-vessel fuel movement shall not preclude completion of movement of a component to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.9.1.1

Performance of a CHANNEL FUNCTIONAL TEST demonstrates each required refueling equipment interlock will function properly when a simulated or actual signal indicative of a required condition is injected into the logic. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is tested.

The 7 day Frequency is based on engineering judgment and is considered adequate in view of other indications of refueling interlocks and their associated input status that are available to unit operations personnel.

REFERENCES

1. USAR, Appendix F, Section F-2.5.
 2. USAR, Section VII-6.
 3. USAR, Section XIV-5.3.3.
 4. USAR, Section XIV-5.3.4.
 5. 10 CFR 50.36(c)(2)(ii).
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BASES

SURVEILLANCE REQUIREMENTS

SR 3.9.2.1

Proper functioning of the refueling position one-rod-out interlock requires the reactor mode switch to be in Refuel. During control rod withdrawal in MODE 5, improper positioning of the reactor mode switch could, in some instances, allow improper bypassing of required interlocks. Therefore, this Surveillance imposes an additional level of assurance that the refueling position one-rod-out interlock will be OPERABLE when required. By "locking" the reactor mode switch in the proper position (i.e., removing the reactor mode switch key from the console while the reactor mode switch is positioned in refuel), an additional administrative control is in place to preclude operator errors from resulting in unanalyzed operation.

The Frequency of 12 hours is sufficient in view of other administrative controls utilized during refueling operations to ensure safe operation.

SR 3.9.2.2

Performance of a CHANNEL FUNCTIONAL TEST on each channel demonstrates the associated refuel position one-rod-out interlock will function properly when a simulated or actual signal indicative of a required condition is injected into the logic. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is tested. The 7 day Frequency is considered adequate because of demonstrated circuit reliability, procedural controls on control rod withdrawals, and visual and audible indications available in the control room to alert the operator to control rods not fully inserted. To perform the required testing, the applicable condition must be entered (i.e., a control rod must be withdrawn from its full-in position). Therefore, SR 3.9.2.2 has been modified by a Note that states the CHANNEL FUNCTIONAL TEST is not required to be performed until 1 hour after any control rod is withdrawn.

ATTACHMENT 3 LIST OF REGULATORY COMMITMENTS©

Correspondence Number: NLS2005001

The following table identifies those actions committed to by Nebraska Public Power District (NPPD) in this document. Any other actions discussed in the submittal represent intended or planned actions by NPPD. They are described for information only and are not regulatory commitments. Please notify the Licensing Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

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