

RS-19-040

10 CFR 50.90

June 25, 2019

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

Braidwood Station, Units 1 and 2  
Renewed Facility Operating License Nos. NPF-72 and NPF-77  
NRC Docket Nos. 50-456 and 50-457

Byron Station, Units 1 and 2  
Renewed Facility Operating License Nos. NPF-37 and NPF-66  
NRC Docket Nos. 50-454 and 50-455

Calvert Cliffs Nuclear Power Plant, Units 1 and 2  
Renewed Facility Operating License Nos. DPR-53 and DPR-69  
NRC Docket Nos. 50-317 and 50-318

Clinton Power Station, Unit 1  
Facility Operating License No. NPF-62  
NRC Docket No. 50-461

Dresden Nuclear Power Station, Units 2 and 3  
Renewed Facility Operating License Nos. DPR-19 and DPR-25  
NRC Docket Nos. 50-237 and 50-249

James A. FitzPatrick Nuclear Power Plant  
Renewed Facility Operating License No. DPR-59  
Docket No. 50-333

LaSalle County Station, Units 1 and 2  
Renewed Facility Operating License Nos. NPF-11 and NPF-18  
NRC Docket Nos. 50-373 and 50-374

Limerick Generating Station, Units 1 and 2  
Renewed Facility Operating License Nos. NPF-39 and NPF-85  
NRC Docket Nos. 50-352 and 50-353

Nine Mile Point Nuclear Station, Units 1 and 2  
Renewed Facility Operating License No. DPR-63 and NPF-69  
NRC Docket Nos. 50-220 and 50-410

Peach Bottom Atomic Power Station, Units 2 and 3  
Renewed Facility Operating License Nos. DPR-44 and DPR-56  
NRC Docket Nos. 50-277 and 50-278

Quad Cities Nuclear Power Station, Units 1 and 2  
Renewed Facility Operating License Nos. DPR-29 and DPR-30  
NRC Docket Nos. 50-254 and 50-255

R.E. Ginna Nuclear Power Plant  
Renewed Facility Operating License No. DPR-18  
Docket No. 50-244

Subject: Application to Adopt TSTF-563, "Revise Instrument Testing Definitions to Incorporate the Surveillance Frequency Control Program"

- References:
1. TSTF-563, Revision 0, "Revise Instrument Testing Definitions to Incorporate the Surveillance Frequency Control Program," dated May 10, 2017
  2. Final Safety Evaluations of Technical Specifications Task Force Traveler TSTF-563, Revision 0, "Revise Instrument Testing Definitions to Incorporate the Surveillance Frequency Control Program," using the Consolidated Line Item Improvement Process, dated December 4, 2018 (CAC No. MF9955, EPID L-2017-PMP-0006)

In accordance with the provisions of 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (EGC) is submitting a request for an amendment to:

Renewed Facility Operating License (FOL) Nos. NPF-72 and NPF-77 For Braidwood Station (BRW), Units 1 and 2;  
Renewed FOL Nos. NPF-37 and NPF-66 for Byron Station (BYR), Units 1 and 2;  
Renewed FOL Nos. DPR-53 and DPR-69 for Calvert Cliffs Nuclear Power Plant (CCNPP), Units 1 and 2;  
FOL No. NPF-62 for Clinton Power Station (CPS), Unit 1;  
Renewed FOL Nos. DPR-19 and DPR-25 for Dresden Nuclear Power Station (DRE), Units 2 and 3;  
Renewed FOL No. DPR-59 for James A. FitzPatrick Nuclear Power Plant (JAF);  
Renewed FOL Nos. NPF-11 and NPF-18 for LaSalle County Station (LSCS), Units 1 and 2;  
Renewed FOL Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2;  
Renewed FOL Nos. DPR-63 and NPF-69 for Nine Mile Point Nuclear Station (NMP), Units 1 and 2;  
Renewed FOL Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3;

Renewed FOL Nos. DPR-29 and DPR-30 for Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2;  
Renewed FOL No. DPR-18 for R.E. Ginna Nuclear Power Plant (GIN).

Exelon Generation Company, LLC (EGC) requests adoption of TSTF-563, "Revise Instrument Testing Definitions to Incorporate the Surveillance Frequency Control Program." TSTF-563 revises the Technical Specifications (TS) definitions of Channel Calibration, Channel Functional Test, Channel Operational Test, and Trip Actuating Device Operational Test. While there are some minor differences in wording between the Standard TS and the affected licensee TS described herein, these definitions permit performance by any series of sequential, overlapping, or total channel steps, to allow the required frequency for testing the components or devices in each step to be determined in accordance with the TS Surveillance Frequency Control Program.

The proposed changes have been reviewed by the affected Plant Operations Review Committees in accordance with the EGC Quality Assurance Program.

Attachment 1 provides a description and assessment of the proposed changes. Attachments 2a through 2l provide the existing TS pages marked to show the proposed changes.

Approval of the proposed amendment is requested by December 31, 2019. Once approved, the amendments shall be implemented within 60 days.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated State Officials.

There are no regulatory commitments contained within this letter. Should you have any questions concerning this letter, please contact Mr. Jason Taken at (630) 657-3660.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 25<sup>th</sup> day of June, 2019.

Respectfully,



Dwi Murray  
Manager – Licensing  
Exelon Generation Company, LLC

Attachments: 1. Description and Assessment  
2a. Proposed Technical Specifications Changes (Mark-Up) for Braidwood Station, Units 1 and 2  
2b. Proposed Technical Specifications Changes (Mark-Up) for Byron Station, Units 1 and 2

- 2c. Proposed Technical Specifications Changes (Mark-Up) for Calvert Cliffs Nuclear Power Plant, Units 1 and 2
- 2d. Proposed Technical Specifications Changes (Mark-Up) for Clinton Power Station, Unit 1
- 2e. Proposed Technical Specifications Changes (Mark-Up) for Dresden Nuclear Power Station, Units 2 and 3
- 2f. Proposed Technical Specification Changes (Mark-Up) for James A. FitzPatrick Nuclear Power Plant
- 2g. Proposed Technical Specifications Changes (Mark-Up) for LaSalle County Station, Units 1 and 2
- 2h. Proposed Technical Specifications Changes (Mark-Up) for Limerick Generation Station, Units 1 and 2
- 2i. Proposed Technical Specifications Changes (Mark-Up) for Nine Mile Point Nuclear Station, Units 1 and 2
- 2j. Proposed Technical Specifications Changes (Mark-Up) for Peach Bottom Atomic Power Station, Units 2 and 3
- 2k. Proposed Technical Specifications Changes (Mark-Up) for Quad Cities Nuclear Power Station, Units 1 and 2
- 2l. Proposed Technical Specifications Changes (Mark-Up) for R.E. Ginna Nuclear Power Plant

cc: NRC Regional Administrator, Region I  
NRC Regional Administrator, Region III  
NRC Senior Resident Inspector – Braidwood Station  
NRC Senior Resident Inspector – Byron Station  
NRC Senior Resident Inspector – Clinton Power Station  
NRC Senior Resident Inspector – Calvert Cliffs Nuclear Power Plant  
NRC Senior Resident Inspector – Dresden Nuclear Power Station  
NRC Senior Resident Inspector – James A. FitzPatrick Nuclear Power Plant  
NRC Senior Resident Inspector – R.E. Ginna Nuclear Power Plant  
NRC Senior Resident Inspector – LaSalle County Station  
NRC Senior Resident Inspector – Limerick Generating Station  
NRC Senior Resident Inspector – Nine Mile Point Nuclear Station  
NRC Senior Resident Inspector – Peach Bottom Atomic Power Station  
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station  
NRC Project Managers – NRR (BRW, BYR, DRE, CAL, CPS, GIN, JAF, LSCS, LGS,  
NMP, PBAPS, QCNPS, Fleet)  
Illinois Emergency Management Agency – Division of Nuclear Safety  
Director, Bureau of Radiation Protection – Pennsylvania Department  
of Environmental Protection  
A. L. Peterson, NYSERDA  
R.R. Janati, Pennsylvania Bureau of Radiation Protection  
D. Tancabel, State of Maryland

# **ATTACHMENT 1**

## **DESCRIPTION AND ASSESSMENT**

### **1.0 DESCRIPTION**

Exelon Generation Company, LLC (EGC) requests adoption of TSTF-563, "Revise Instrument Testing Definitions to Incorporate the Surveillance Frequency Control Program." TSTF-563 revises the Technical Specifications (TS) definitions of Channel Calibration, Channel Functional Test, Channel Operational Test, and Trip Actuating Device Operational Test. While there are some minor differences in wording between the Standard TS and the affected licensee TS described herein, these definitions permit performance by any series of sequential, overlapping, or total channel steps, to allow the required frequency for testing the components or devices in each step to be determined in accordance with the TS Surveillance Frequency Control Program.

### **2.0 ASSESSMENT**

#### **2.1 Applicability of Safety Evaluation**

EGC has reviewed the safety evaluation for TSTF-563 provided to the Technical Specifications Task Force in a letter dated December 4, 2018. This review included a review of the NRC staff's evaluation, as well as the information provided in TSTF-563. As described herein, EGC has concluded that the justifications presented in TSTF-563 and the safety evaluation prepared by the NRC staff are applicable to Braidwood Station, Units 1 and 2; Byron Station, Units 1 and 2; Calvert Cliffs Nuclear Power Plant, Units 1 and 2; Clinton Power Station, Unit 1; Dresden Nuclear Power Station, Units 2 and 3; James A. FitzPatrick Nuclear Power Plant; LaSalle County Station, Units 1 and 2; Limerick Generating Station, Units 1 and 2; Nine Mile Point Nuclear Station, Units 1 and 2; Peach Bottom Atomic Power Station, Units 2 and 3; Quad Cities Nuclear Power Station, Units 1 and 2; and R.E Ginna Nuclear Power Plant, and justify this amendment for the incorporation of the changes to the BRW, BYR, CCNPP, CPS, DRE, JAF, LSCS, LGS, NMP, PBAPS, QCNPS, and GIN TS.

A Surveillance Frequency Control Program was incorporated into the BRW, Units 1 and 2, TS in a license amendment dated 2/24/2011 (NRC Agency Documents Access and Management System (ADAMS) Accession No. ML110070153).

A Surveillance Frequency Control Program was incorporated into the BYR, Units 1 and 2, TS in a license amendment dated 2/24/2011 (ADAMS Accession No. ML110060811).

A Surveillance Frequency Control Program was incorporated into the CCNPP, Units 1 and 2, TS in a license amendment dated 8/18/2015 (ADAMS Accession No. ML15211A005).

A Surveillance Frequency Control Program was incorporated into the CPS, Unit 1, TS in a license amendment dated 2/15/2011 (ADAMS Accession No. ML102380477).

A Surveillance Frequency Control Program was incorporated into the DRE, Units 2 and 3, TS in a license amendment dated 2/25/2011 (ADAMS Accession No. ML110240234).

A Surveillance Frequency Control Program was incorporated into the JAF, TS in a license amendment dated 2/14/2012 (ADAMS Accession No. ML113430851).

A Surveillance Frequency Control Program was incorporated into the LSCS, Units 1 and 2, TS in a license amendment dated 2/24/2011 (ADAMS Accession No. ML110200143).

## **ATTACHMENT 1 DESCRIPTION AND ASSESSMENT**

A Surveillance Frequency Control Program was incorporated into the LGS, Units 1 and 2, TS in a license amendment dated 9/28/2006 (ADAMS Accession No. ML062420049).

A Surveillance Frequency Control Program was incorporated into the NMP, Unit 2, TS in a license amendment dated 11/30/2015 (ADAMS Accession No. ML15317A307).

A Surveillance Frequency Control Program was incorporated into the NMP, Unit 1, TS in a license amendment dated 5/31/2016 (ADAMS Accession No. ML16081A256).

A Surveillance Frequency Control Program was incorporated into the PBAPS, Units 2 and 3, TS in a license amendment dated 8/27/2010 (ADAMS Accession No. ML102100388).

A Surveillance Frequency Control Program was incorporated into the QCNPS, Units 1 and 2, TS in a license amendment dated 2/18/2011 (ADAMS Accession No. ML102920260).

A Surveillance Frequency Control Program was incorporated into the GIN TS in a license amendment dated 6/28/2016 (ADAMS Accession No. ML16125A485).

### **2.2    Variations**

EGC is proposing the following variations from the TS changes described in TSTF-563 or the applicable parts of the NRC staff's safety evaluation dated December 4, 2018.

#### **2.2.1   Braidwood Station**

The BRW TS are different from the Westinghouse Standard Technical Specifications (STS) (NUREG-1431 Revision 4) on which TSTF-563 is based. The BRW TS definitions of Channel Calibration, Channel Operational Test (COT), and Trip Actuating Device Operational Test (TADOT) are consistent with NUREG-1431, Revision 1.

BRW TS definition specifies that a Channel Calibration, "shall be the adjustment, as necessary, of the channel so that it responds within the required range and accuracy to known inputs," and, "shall encompass the entire channel, including the required sensor, alarm, interlock, display, and trip functions." The Westinghouse STS states that 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," and, "shall encompass all devices in the channel required for channel OPERABILITY." These differences in the definition do not affect the applicability of the changes proposed in TSTF-563.

BRW TS definition specifies that a COT shall be the injection of a signal, "to verify the OPERABILITY of required alarm, interlock, display, and trip functions," and, "shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints so that the setpoints are within the required range and accuracy." The Westinghouse STS states that a COT shall be the injection of a signal, "to verify OPERABILITY of all devices in the channel required for channel OPERABILITY," and, "shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy." These differences in the definition do not affect the applicability of the changes proposed in TSTF-563.

## **ATTACHMENT 1 DESCRIPTION AND ASSESSMENT**

BRW TS definition specifies that a TADOT, "shall consist of operating the trip actuating device and verifying the OPERABILITY of required alarm, interlock, display, and trip functions." The Westinghouse STS states that a TADOT, "shall consist of operating the trip actuating device and verifying the OPERABILITY of all devices in the channel required for trip actuating device OPERABILITY." This difference in the definition does not affect the applicability of the changes proposed in TSTF-563.

Unlike the definitions in the Westinghouse STS, BRW TS definitions of COT and TADOT do not include a statement that the tests may be performed by means of any series of sequential, overlapping, or total channel steps. This provision was added to the Westinghouse STS definitions of COT and TADOT by TSTF-205-A, Revision 3, "Revision of Channel Calibration, Channel Functional Test, and Related Definitions," which was approved by the NRC on January 13, 1999 and incorporated into NUREG-1431, Revision 2. TSTF-205-A, Revision 3 described the change:

Other changes are made for consistency of the definitions between the ISTS NUREGs. The NUREG-1430 Channel Functional Test and NUREG-1431 Channel Operational Test definitions are modified to include the sentence, "The CHANNEL FUNCTIONAL (OPERATIONAL for NUREG-1431) TEST may be performed by means of any series of sequential, overlapping, or total channel steps." This allowance currently exists in the CEOG, BWR/4 and BWR/6 definitions of Channel Functional Test and is understood to apply to the BWO and WOG definitions, although not stated. [...] The changes proposed increase the consistency of the five NUREGs and are not intended to change the meaning or intent of the affected definitions.

Because of this, the proposed adoption of TSTF-563 will add the following sentence to the BRW TS definition of COT:

The COT may be performed by means of any series of sequential, overlapping or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

Additionally, because of this difference, the proposed adoption of TSTF-563 will add the following sentence to the BRW TS definition of TADOT:

The TADOT may be performed by means of any series of sequential, overlapping or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

The addition of these sentences to the COT and TADOT definitions is necessary to adopt TSTF-563 and, as stated in TSTF-205-A, Revision 3, is understood to apply to the existing definitions, although not explicitly stated. Therefore, adding the sentences does not change the intent of the existing definitions and permits adoption of TSTF-563.



## **ATTACHMENT 1 DESCRIPTION AND ASSESSMENT**

### **2.2.2 Byron Station**

The BYR TS are different from the Westinghouse STS on which TSTF-563 is based. The BYR TS definitions of Channel Calibration, Channel Operational Test (COT), and Trip Actuating Device Operational Test (TADOT) are consistent with NUREG-1431, Revision 1.

BYR TS definition specifies that a Channel Calibration, "shall be the adjustment, as necessary, of the channel so that it responds within the required range and accuracy to known inputs," and, "shall encompass the entire channel, including the required sensor, alarm, interlock, display, and trip functions." The Westinghouse STS states that 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," and, "shall encompass all devices in the channel required for channel OPERABILITY." These differences in the definition do not affect the applicability of the changes proposed in TSTF-563.

BYR TS definition specifies that a COT shall be the injection of a signal, "to verify the OPERABILITY of required alarm, interlock, display, and trip functions," and, "shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints so that the setpoints are within the required range and accuracy." The Westinghouse STS states that a COT shall be the injection of a signal, "to verify OPERABILITY of all devices in the channel required for channel OPERABILITY," and, "shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy." These differences in the definition do not affect the applicability of the changes proposed in TSTF-563.

BYR TS definition specifies that a TADOT, "shall consist of operating the trip actuating device and verifying the OPERABILITY of required alarm, interlock, display, and trip functions." The Westinghouse STS states that a TADOT, "shall consist of operating the trip actuating device and verifying the OPERABILITY of all devices in the channel required for trip actuating device OPERABILITY." This difference in the definition does not affect the applicability of the changes proposed in TSTF-563.

Unlike the definitions in the Westinghouse STS, BYR TS definitions of COT and TADOT do not include a statement that the tests may be performed by means of any series of sequential, overlapping, or total channel steps. This provision was added to the Westinghouse STS definitions of COT and TADOT by TSTF-205-A, Revision 3, "Revision of Channel Calibration, Channel Functional Test, and Related Definitions," which was approved by the NRC on January 13, 1999 and incorporated into NUREG-1431, Revision 2. TSTF-205-A, Revision 3 described the change:

Other changes are made for consistency of the definitions between the ISTS NUREGs. The NUREG-1430 Channel Functional Test and NUREG-1431 Channel Operational Test definitions are modified to include the sentence, "The CHANNEL FUNCTIONAL (OPERATIONAL for NUREG-1431) TEST may be performed by means of any series of sequential, overlapping, or total channel steps." This allowance currently exists in the CEOG, BWR/4 and BWR/6 definitions of Channel Functional Test and is understood to apply to the BWO and WOG definitions, although not stated. [...] The changes proposed increase the consistency of the five NUREGs and are not intended to change the meaning or intent of the affected definitions.

## **ATTACHMENT 1 DESCRIPTION AND ASSESSMENT**

Because of this, the proposed adoption of TSTF-563 will add the following sentence to the BYR TS definition of COT:

The COT may be performed by means of any series of sequential, overlapping or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

Because of this, the proposed adoption of TSTF-563 will add the following sentence to the BYR TS definition of TADOT:

The TADOT may be performed by means of any series of sequential, overlapping or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

The addition of these sentences to the COT and TADOT definitions is necessary to adopt TSTF-563 and, as stated in TSTF-205-A, Revision 3, is understood to apply to the existing definitions, although not explicitly stated. Therefore, adding the sentences does not change the intent of the existing definitions and permits adoption of TSTF-563.

### **2.2.3 Calvert Cliffs Nuclear Power Plant**

CCNPP TS definitions contain wording differences from Revision 4 of NUREG-1432. CCNPP TS definition of Channel Calibration does not include the sentence that describes that "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." CCNPP TS definition of Channel Functional Test does not reference "Digital computer channels" and does not include injecting an "actual signal" to perform the Channel Functional Test. These differences do not affect the applicability of TSTF-563.

The traveler and Safety Evaluation discuss the applicable regulatory requirements and guidance, including the 10 CFR 50, Appendix A, General Design Criteria (GDC). CCNPP was not licensed to the 10 CFR 50, Appendix A, GDC. CCNPP's Updated Final Safety Analysis Report (UFSAR), Section 1C.0, "AEC Proposed General Design Criteria for Nuclear Power Plants," provides an assessment against the draft GDC published in 1967. This difference does not alter the conclusion that the proposed change is applicable to CCNPP.

### **2.2.4 Dresden Nuclear Power Station**

The traveler and Safety Evaluation discuss the applicable regulatory requirements and guidance, including the 10 CFR 50, Appendix A, General Design Criteria (GDC). DRE was not licensed to the 10 CFR 50, Appendix A, GDC. The DRE equivalents of the referenced GDC are located in Section 3.1 of the DRE Updated Final Safety Analysis Report (UFSAR). This difference does not alter the conclusion that the proposed change is applicable to DRE.

## **ATTACHMENT 1 DESCRIPTION AND ASSESSMENT**

### **2.2.5 James A. FitzPatrick Nuclear Power Plant**

The traveler and Safety Evaluation discuss the applicable regulatory requirements and guidance, including the 10 CFR 50, Appendix A, General Design Criteria (GDC). JAF was not licensed to the 10 CFR 50, Appendix A, GDC. The JAF equivalents of the referenced GDC are located in Section 1.5 of the JAF Updated Final Safety Analysis Report (UFSAR). This difference does not alter the conclusion that the proposed change is applicable to JAF.

### **2.2.6 Limerick Generating Station**

LGS TS definitions contain wording differences from Revision 4 of NUREG-1433.

LGS TS definition of Channel Calibration states that "The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST." Revision 4 of NUREG-1433 definition of Channel Calibration states that "The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST," and that "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 STS definition of Channel Functional Test states "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 LGS TS describe the difference between Analog Channels and Bistable channels within the definition of Channel Functional Test.

These differences do not affect the applicability of TSTF-563.

### **2.2.7 Nine Mile Point Nuclear Station**

#### **NMP, Unit 1**

#### **Instrument Channel Test**

Nine Mile Point Nuclear Station, Unit 1 (NMP-1) TS differ from General Electric (GE) STS on which TSTF-563 was based but are encompassed in the TSTF-563 justification. NMP-1 TS contain different formatting, numbering, and titles than the STS. These variations do not affect adoption of TSTF-563. The STS on which TSTF-563 was based contain the definition "Channel Functional Test." NMP-1 did not adopt the STS and therefore the equivalent definition in the NMP-1 TS is "Instrument Channel Test."

Differences between the NMP-1 Instrument Channel Test definition and the STS Channel Functional Test definitions are as follows:

- 1) Channel Functional Test allows for an injected signal to be simulated or actual to meet the requirement. Instrument Channel Test does not explicitly authorize it.
- 2) Channel Functional Test clarifies that the test should be conducted "as close to the sensor as practicable" while no clarification exists in Instrument Channel Test.

## **ATTACHMENT 1 DESCRIPTION AND ASSESSMENT**

- 3) Channel Functional Test expressly discusses that this test is required for operability while Instrument Channel Test uses "proper response."
- 4) Channel Functional Test describes that the test "may be performed by means of any series of sequential, overlapping, or total channel steps" while Instrument Channel Test does not explicitly authorize this.

Differences 1 through 3 above do not affect the adoption of TSTF-563. Although NMP-1 did not adopt the STS, the differences outlined are editorial, and are aligned with the intent of the definition of Channel Functional Test and are within the bounds of the Safety Evaluation which TSTF-563 relies upon.

Difference 4 (outlined above) is relevant to the discussion and adoption of TSTF-563. The NMP-1 TS definition of "Instrument Channel Test" does not include the provision that the test may be performed by any means of any series of sequential, overlapping, or total channel steps. This provision was added to the STS definitions of Channel Functional Test and Channel Calibration via TSTF-205-A, Revision 3, which was approved by the NRC on January 13, 1999 and incorporated into the GE STS. TSTF-205-A Revision 3 described the change:

Other changes are made for consistency of the definitions between the ISTS NUREGS. The NUREG-1430 Channel Functional Test . . . are modified to include the sentence, "The CHANNEL FUNCTIONAL (OPERATIONAL for NUREG 1431) TEST may be performed by means of any series of sequential, overlapping, or total channel steps." This allowance currently exists in the CEOG, BWR/4 and BWR/6 definitions of Channel Functional Test and is understood to apply to the BWOG and WOG definitions, although not stated. [. . .] The changes proposed increase the consistency of the five NUREGs and are not intended to change the meaning or intent of the affected definitions.

Because of the differences between GE STS and NMP-1 TS, the proposed adoption of TSTF-563 will add the following sentence to the NMP-1 TS definition of Instrument Channel Test:

The channel test may be performed by means of any series of sequential, overlapping or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

The addition of this sentence is required for adoption of TSTF-563. The beginning part of the sentence (i.e., "The channel test may be performed by any means of any series of sequential, overlapping, or total channel steps") is understood to apply to the existing definition, although not explicitly stated. Therefore, adding the sentence does not change the intent of the existing definition and permits adoption of TSTF-563.

### Instrument Channel Calibration

NMP-1 TS differ from GE STS on which TSTF-563 was based but are encompassed in the TSTF-563 justification. The STS on which TSTF-563 was based contain the definition "Channel Calibration." NMP-1 did not adopt the STS and therefore the equivalent definition in the NMP-1 TS is "Instrument Channel Calibration."

## **ATTACHMENT 1 DESCRIPTION AND ASSESSMENT**

NMP-1 TS definition of Instrument Channel Calibration differs from STS definition of Channel Calibration, however, these differences are editorial and do not modify the intent of the definition. The proposed modification to the NMP-1 definition of Instrument Channel Calibration is identical to the proposed definition modification of Channel Calibration in TSTF-563 which adds ", and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step." to the end of Channel Calibration. The variations between the STS definition of Channel Calibration and the NMP-1 TS definition of Instrument Channel Calibration are editorial and permit adoption of TSTF-563 to NMP-1 TS.

The traveler and Safety Evaluation discuss the applicable regulatory requirements and guidance, including the 10 CFR 50, Appendix A, General Design Criteria (GDC). NMP-1 was not licensed to the 10 CFR 50, Appendix A, GDC. The NMP-1 equivalents of the referenced GDC are located in Section 1 of the NMP-1 Updated Final Safety Analysis Report (UFSAR). This difference does not alter the conclusion that the proposed change is applicable to NMP-1.

### NMP, Unit 2

NMP, Unit 2, (NMP-2) TS definitions contain wording differences from the GE STS on which TSTF-563 is based upon. These differences do not affect the applicability of TSTF-563 to NMP-2.

#### 2.2.8 Peach Bottom Atomic Power Station

PBAPS TS definitions contain wording differences from Revision 4 of NUREG-1433. PBAPS TS describe that a Channel Calibration "shall encompass the entire channel, including the required sensor, alarm, display, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST," and the STS state that the Channel Calibration "shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST."

PBAPS TS definition of Channel Functional Test contains the wording "including required alarm, interlock, display, and trip functions, and channel failure trips" rather than "all devices in the channel" as specified in STS.

These differences do not affect the applicability of TSTF-563.

The traveler and Safety Evaluation discuss the applicable regulatory requirements and guidance, including the 10 CFR 50, Appendix A, General Design Criteria (GDC). PBAPS was not licensed to the 10 CFR 50, Appendix A, GDC. The PBAPS UFSAR, Appendix H, "Conformance to AEC (NRC) Criteria," contains an evaluation of the design bases of PBAPS with respect to the proposed GDC to be added to 10 CFR 50 as Appendix A in July 1967. This difference does not alter the conclusion that the proposed change is applicable to PBAPS.

#### 2.2.9 R.E. Ginna Nuclear Power Plant

The GIN TS are different from the Westinghouse STS (NUREG-1431 Revision 4) on which TSTF-563 is based upon. The GIN TS definitions of Channel Calibration, Channel Operational Test (COT), and Trip Actuating Device Operational Test (TADOT) are consistent with NUREG-1431, Revision 1.

## **ATTACHMENT 1 DESCRIPTION AND ASSESSMENT**

GIN TS definition specifies that a Channel Calibration "shall be the adjustment, as necessary, of the channel so that it responds within the required range and accuracy to known inputs," and, "shall encompass the entire channel, including the required sensor, alarm, interlock, display, and trip functions." The Westinghouse STS states that 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," and, "shall encompass all devices in the channel required for channel OPERABILITY." These differences in the definition do not affect the applicability of the changes proposed in TSTF-563.

GIN TS definition specifies that a COT shall be the injection of a signal, "to verify the OPERABILITY of required alarm, interlock, display, and trip functions," and, "shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints so that the setpoints are within the required range and accuracy." The Westinghouse STS states that a COT shall be the injection of a signal, "to verify OPERABILITY of all devices in the channel required for channel OPERABILITY," and, "shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy." These differences in the definition do not affect the applicability of the changes proposed in TSTF-563.

GIN TS definition specifies that a TADOT, "shall consist of operating the trip actuating device and verifying the OPERABILITY of required alarm, interlock, display, and trip functions." The Westinghouse STS states that a TADOT, "shall consist of operating the trip actuating device and verifying the OPERABILITY of all devices in the channel required for trip actuating device OPERABILITY." This difference in the definition does not affect the applicability of the changes proposed in TSTF-563.

Unlike the definitions in the Westinghouse STS, GIN TS definitions of COT and TADOT do not include a statement that the tests may be performed by means of any series of sequential, overlapping, or total channel steps. This provision was added to the Westinghouse STS definitions of COT and TADOT by TSTF-205-A, Revision 3, "Revision of Channel Calibration, Channel Functional Test, and Related Definitions," which was approved by the NRC on January 13, 1999 and incorporated into NUREG-1431, Revision 2. TSTF-205-A, Revision 3 described the change:

Other changes are made for consistency of the definitions between the ISTS NUREGs. The NUREG-1430 Channel Functional Test and NUREG-1431 Channel Operational Test definitions are modified to include the sentence, "The CHANNEL FUNCTIONAL (OPERATIONAL for NUREG-1431) TEST may be performed by means of any series of sequential, overlapping, or total channel steps." This allowance currently exists in the CEOG, BWR/4 and BWR/6 definitions of Channel Functional Test and is understood to apply to the BWO and WOG definitions, although not stated. [...] The changes proposed increase the consistency of the five NUREGs and are not intended to change the meaning or intent of the affected definitions.

Because of this, the proposed adoption of TSTF 563 will add the following sentence to the GIN TS definition of COT:

## **ATTACHMENT 1 DESCRIPTION AND ASSESSMENT**

The COT may be performed by means of any series of sequential, overlapping or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

Because of this, the proposed adoption of TSTF 563 will add the following sentence to the GIN TS definition of TADOT:

The TADOT may be performed by means of any series of sequential, overlapping or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

The addition of these sentences to the COT and TADOT definitions is necessary to adopt TSTF-563 and, as stated in TSTF-205-A, Revision 3, is understood to apply to the existing definitions, although not explicitly stated. Therefore, adding the sentences does not change the intent of the existing definitions and permits adoption of TSTF-563.

The traveler and Safety Evaluation discuss the applicable regulatory requirements and guidance, including the 10 CFR 50, Appendix A, General Design Criteria (GDC). GIN was not licensed to the 10 CFR 50, Appendix A, GDC. The GIN equivalents of the referenced GDC are located in Section 3.1 of the GIN Updated Final Safety Analysis Report (UFSAR). This difference does not alter the conclusion that the proposed change is applicable to GIN.

### **2.2.10 Quad Cities Nuclear Power Station**

The traveler and Safety Evaluation discuss the applicable regulatory requirements and guidance, including the 10 CFR 50, Appendix A, General Design Criteria (GDC). QCNPS was not licensed to the 10 CFR 50, Appendix A, GDC. The QCNPS equivalents of the referenced GDC are located in Section 3.1 of the QCNPS Updated Final Safety Analysis Report (UFSAR). This difference does not alter the conclusion that the proposed change is applicable to QCNPS.

## **3.0 REGULATORY ANALYSIS**

### **3.1 No Significant Hazards Consideration Analysis**

EGC requests adoption of TSTF-563, "Revise Instrument Testing Definitions to Incorporate the Surveillance Frequency Control Program." TSTF-563 revises the Technical Specifications (TS) definitions of Channel Calibration, Channel Functional Test, Channel Operational Test, and Trip Actuating Device Operational Test. While there are some minor differences in wording between the Standard TS and the affected licensee TS described in this application, these definitions permit performance by any series of sequential, overlapping, or total channel steps, to allow the required frequency for testing the components or devices in each step to be determined in accordance with the TS Surveillance Frequency Control Program.

EGC has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

**ATTACHMENT 1  
DESCRIPTION AND ASSESSMENT**

- 1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?**

**Response: No**

The proposed change revises the TS definitions of Channel Calibration, Channel Functional Test, Channel Operational Test, and Trip Actuating Device Operational Test to allow the frequency for testing the components or devices in each step to be determined in accordance with the TS Surveillance Frequency Control Program, as applicable. All components in the channel continue to be calibrated. The frequency at which a channel calibration is performed is not an initiator of any accident previously evaluated, so the probability of an accident is not affected by the proposed change. The channels surveilled in accordance with the affected definitions continue to be required to be operable and the acceptance criteria of the surveillances are unchanged. As a result, any mitigating functions assumed in the accident analysis will continue to be performed.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

- 2. Does the proposed amendment create the possibility of a new or different kind of accident from any previously evaluated?**

**Response: No**

The proposed change revises the TS definitions of Channel Calibration, Channel Functional Test, Channel Operational Test, and Trip Actuating Device Operational Test to allow the frequency for testing the components or devices in each step to be determined in accordance with the TS Surveillance Frequency Control Program, as applicable. The design function or operation of the components involved are not affected and there is no physical alteration of the plant (i.e., no new or different type of equipment will be installed). No credible new failure mechanisms, malfunctions, or accident initiators not considered in the design and licensing bases are introduced. The changes do not alter assumptions made in the safety analysis. The proposed changes are consistent with the safety analysis assumptions.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

- 3. Does the proposed amendment involve a significant reduction in a margin of safety?**

**Response: No**

The proposed change revises the TS definitions of Channel Calibration, Channel Functional Test, Channel Operational Test, and Trip Actuating Device Operational Test to allow the frequency for testing the components or devices in each step to be determined in accordance with the TS Surveillance Frequency Control Program, as applicable. The Surveillance Frequency Control Program assures sufficient safety margins are maintained, and that design, operation, surveillance methods, and acceptance criteria specified in applicable codes and standards (or alternatives approved for use by the NRC) will continue



## **ATTACHMENT 1 DESCRIPTION AND ASSESSMENT**

to be met as described in the plants' licensing basis. The proposed change does not adversely affect existing plant safety margins or the reliability of the equipment assumed to operate in the safety analysis. As such, there are no changes being made to safety analysis assumptions, safety limits, or limiting safety system settings that would adversely affect plant safety as a result of the proposed change. Margins of safety are unaffected by method of determining surveillance test intervals under an NRC-approved licensee-controlled program.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, EGC concludes that the proposed change 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.

### **3.2     Conclusion**

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

## **4.0     ENVIRONMENTAL EVALUATION**

The proposed change would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed change.

**ATTACHMENT 2a**  
**Proposed Technical Specifications Changes (Mark-Up) for**  
**Braidwood Station, Units 1 and 2**

## 1.0 USE AND APPLICATION

### 1.1 Definitions

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-----NOTE-----  
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.  
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<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.
ACTUATION LOGIC TEST	An ACTUATION LOGIC TEST shall be the application of various simulated or actual input combinations in conjunction with each possible interlock logic state and the verification of the required logic output. The ACTUATION LOGIC TEST, as a minimum, shall include a continuity check of output devices.
AXIAL FLUX DIFFERENCE (AFD)	AFD shall be the difference in normalized flux signals between the top and bottom halves of a two section excore neutron detector.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel so that it responds within the required range and accuracy to known inputs. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, interlock, display, and trip functions. 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 calibrations or total channel steps so that the entire channel is calibrated, <u>and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>

## 1.1 Definitions

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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 status derived from independent instrument channels measuring the same parameter.
CHANNEL OPERATIONAL TEST (COT)	A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify the OPERABILITY of required alarm, interlock, display, and trip functions. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints so that the setpoints are within the required range and accuracy. <u>The COT may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>
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. 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 parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Unit operation within these limits is addressed in individual Specifications.

## 1.1 Definitions

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### TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT)

A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of required alarm, interlock, display, and trip functions. The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the required accuracy. The TADOT may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

**ATTACHMENT 2b**  
**Proposed Technical Specifications Changes (Mark-Up) for**  
**Byron Station, Units 1 and 2**

## 1.0 USE AND APPLICATION

### 1.1 Definitions

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-----NOTE-----  
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.  
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<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.
ACTUATION LOGIC TEST	An ACTUATION LOGIC TEST shall be the application of various simulated or actual input combinations in conjunction with each possible interlock logic state and the verification of the required logic output. The ACTUATION LOGIC TEST, as a minimum, shall include a continuity check of output devices.
AXIAL FLUX DIFFERENCE (AFD)	AFD shall be the difference in normalized flux signals between the top and bottom halves of a two section excore neutron detector.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel so that it responds within the required range and accuracy to known inputs. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, interlock, display, and trip functions. 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 calibrations or total channel steps so that the entire channel is calibrated, <u>and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>

## 1.1 Definitions

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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 status derived from independent instrument channels measuring the same parameter.
CHANNEL OPERATIONAL TEST (COT)	A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify the OPERABILITY of required alarm, interlock, display, and trip functions. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints so that the setpoints are within the required range and accuracy. <u>The COT may be performed by means of any series of sequential, overlapping or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>
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. 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 parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Unit operation within these limits is addressed in individual Specifications.



## 1.1 Definitions

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### TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT)

A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of required alarm, interlock, display, and trip functions. The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the required accuracy. The TADOT may be performed by means of any series of sequential, overlapping or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

**ATTACHMENT 2c**  
**Proposed Technical Specifications Changes (Mark-Up) for**  
**Calvert Cliffs Nuclear Power Plant, Units 1 and 2**

## 1.0 USE AND APPLICATION

### 1.1 Definitions

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----- NOTE -----  
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.  
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<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.
AXIAL SHAPE INDEX (ASI)	ASI shall be the power generated in the lower half of the core less the power generated in the upper half of the core, divided by the sum of the power generated in the lower and upper halves of the core. $ASI = \frac{\text{lower} - \text{upper}}{\text{lower} + \text{upper}}$
AZIMUTHAL POWER TILT ( $T_q$ )	AZIMUTHAL POWER TILT shall be the power asymmetry between azimuthally symmetric core locations.
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 shall include the CHANNEL FUNCTIONAL TEST. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps, <u>and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>
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

## 1.1 Definitions

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indication and status to other indications or status derived from independent instrument channels measuring the same parameter.

### CHANNEL FUNCTIONAL TEST

A CHANNEL FUNCTIONAL TEST shall be:

Analog Channels - the injection of a simulated signal into the channel as close to the primary sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY.

Bistable Channels - the injection of a simulated signal into the channel sensor 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, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

### 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 parameter 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 thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The TEDE (Total Effective Dose Equivalent) inhalation dose conversion factors used for this calculation shall be those listed in Table 2.1 in the column headed "effective" of Federal Guidance Report 11, ORNL, 1988, "Limiting Values of Radionuclide Intake and

**ATTACHMENT 2d**  
**Proposed Technical Specifications Changes (Mark-Up) for**  
**Clinton Power Station, Unit 1**

## 1.0 USE AND APPLICATION

## 1.1 Definitions

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

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<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 LHGRs 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, <u>and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>

(continued)

1.1 Definitions (continued)

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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 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, <u>and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>
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"><li>a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); and</li><li>b. Control rod movement, provided there are no fuel assemblies in the associated core cell.</li></ul> <p>Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.</p>

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(continued)

## 1.1 Definitions (continued)

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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 inhalation CEDE dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The inhalation CEDE dose conversion factors used for this calculation shall be those listed in Table 2.1 of Federal Guidance Report 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," ORNL, 1989.
DRAIN TIME	<p>The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:</p> <ol style="list-style-type: none"> <li>The water inventory above the TAF is divided by the limiting drain rate;</li> <li>The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure (e.g., seismic event, loss of normal power, single human error), for all</li> </ol>

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(continued)



## Definitions

### DRAIN TIME (continued)

penetration flow paths below the TAF except:

1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are locked, sealed, or otherwise secured in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;
  2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or
  3. Penetration flow paths with isolation devices that can be closed prior to the RPV water level being equal to the TAF by a dedicated operator trained in the task, who is in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation devices without offsite power.
- c. The penetration flow paths required to be evaluated per paragraph b) are assumed to open instantaneously and are not subsequently isolated, and no water is assumed to be subsequently added to the RPV water inventory;
- d. No additional draining events occur; and
- e. Realistic cross-sectional areas and drain rates are used.

A bounding DRAIN TIME may be used in lieu of a calculated value.

### EMERGENCY CORE COOLING SYSTEM (ECCS) RESPONSE TIME

The ECCS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ECCS initiation setpoint at the channel sensor until the ECCS equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

(continued)

## 1.1 Definitions (continued)

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END OF CYCLE RECIRCULATION PUMP TRIP (EOC-RPT) SYSTEM RESPONSE TIME	The EOC-RPT SYSTEM RESPONSE TIME shall be that time interval from initial movement of the associated turbine stop valve or turbine control valve to complete suppression of the electric arc between the fully open contacts of the recirculation pump circuit breaker. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).
ISOLATION SYSTEM RESPONSE TIME	The ISOLATION SYSTEM RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its isolation initiation setpoint at the channel sensor until the isolation valves travel to their required positions. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
LEAKAGE	<p>LEAKAGE shall be:</p> <ul style="list-style-type: none"> <li>a. <u>Identified LEAKAGE</u> <ul style="list-style-type: none"> <li>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</li> <li>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;</li> </ul> </li> <li>b. <u>Unidentified LEAKAGE</u> <p>All LEAKAGE into the drywell that is not identified LEAKAGE;</p> </li> <li>c. <u>Total LEAKAGE</u> <p>Sum of the identified and unidentified LEAKAGE;</p> </li> <li>d. <u>Pressure Boundary LEAKAGE</u> <p>LEAKAGE through a nonisolable fault in a Reactor Coolant System (RCS) component body, pipe wall, or vessel wall.</p> </li> </ul>

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(continued)

## 1.1 Definitions (continued)

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LINEAR HEAT GENERATION RATE (LHGR)	The LHGR shall be the heat generation rate per unit length of fuel rod. It is the integral of the heat flux over the heat transfer area associated with the unit length.
LOGIC SYSTEM FUNCTIONAL TEST	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. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.
MINIMUM CRITICAL POWER RATIO (MCPR)	The MCPR shall be the smallest critical power ratio (CPR) that exists in the core for each class of fuel. The CPR is that power in the assembly that is calculated by application of the appropriate correlation(s) to cause some point in the assembly to experience boiling transition, divided by the actual assembly operating power.
MODE	A MODE shall correspond to any one inclusive combination of mode switch position, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE—OPERABILITY	A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 3473 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS trip setpoint at the channel sensor until de-energization of the scram pilot valve solenoids. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

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(continued)

## 1.1 Definitions (continued)

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SHUTDOWN MARGIN (SDM)	<p>SDM shall be the amount of reactivity by which the reactor is subcritical or would be subcritical throughout the operating cycle assuming that:</p> <ol style="list-style-type: none"><li>The reactor is xenon free;</li><li>The moderator temperature is <math>\geq 68^{\circ}\text{F}</math>, corresponding to the most reactive state; and</li><li>All control rods are fully inserted except for the single control rod of highest reactivity worth, which is assumed to be fully withdrawn. With control rods not capable of being fully inserted, the reactivity worth of these control rods must be accounted for in the determination of SDM.</li></ol>
STAGGERED TEST BASIS	<p>A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during <math>n</math> Surveillance Frequency intervals, where <math>n</math> is the total number of systems, subsystems, channels, or other designated components in the associated function.</p>
THERMAL POWER	<p>THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.</p>
TURBINE BYPASS SYSTEM RESPONSE TIME	<p>The TURBINE BYPASS SYSTEM RESPONSE TIME consists of two components:</p> <ol style="list-style-type: none"><li>The time from initial movement of the main turbine stop valve or control valve until 80% of the turbine bypass capacity is established; and</li><li>The time from initial movement of the main turbine stop valve or control valve until initial movement of the turbine bypass valve.</li></ol> <p>The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.</p>

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Table 1.1-1 (page 1 of 1)  
MODES

MODE	TITLE	REACTOR MODE SWITCH POSITION	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	Run	NA
2	Startup	Refuel (a) or Startup/Hot Standby	NA
3	Hot Shutdown (a)	Shutdown	> 200
4	Cold Shutdown (a)	Shutdown	≤ 200
5	Refueling (b)	Shutdown or Refuel	NA

(a) All reactor vessel head closure bolts fully tensioned.

(b) One or more reactor vessel head closure bolts less than fully tensioned.

1.0 USE AND APPLICATION

1.2 Logical Connectors

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PURPOSE	<p>The purpose of this section is to explain the meaning of logical connectors.</p> <p>Logical connectors are used in Technical Specifications (TS) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connectors that appear in TS are <u>AND</u> and <u>OR</u>. The physical arrangement of these connectors constitutes logical conventions with specific meanings.</p>
BACKGROUND	<p>Several levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left justified with the number of the Required Action). The successive levels of logic are identified by additional digits of the Required Action number and by successive indentions of the logical connectors.</p> <p>When logical connectors are used to state a Condition, Completion Time, Surveillance, or Frequency, only the first level of logic is used, and the logical connector is left justified with the statement of the Condition, Completion Time, Surveillance, or Frequency.</p>
EXAMPLES	<p>The following examples illustrate the use of logical connectors.</p>

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(continued)

1.2 Logical Connectors

EXAMPLES  
(continued)

EXAMPLE 1.2-1

ACTIONS		
CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Verify . . .	
	<u>AND</u>	
	A.2 Restore . . .	

In this example, the logical connector AND is used to indicate that, when in Condition A, both Required Actions A.1 and A.2 must be completed.

(continued)

1.2 Logical Connectors

EXAMPLES  
(continued)

EXAMPLE 1.2-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Trip . . .	
	<u>OR</u>	
	A.2.1 Verify . . .	
	<u>AND</u>	
	A.2.2.1 Reduce . . .	
	<u>OR</u>	
	A.2.2.2 Perform . . .	
	<u>OR</u>	
	A.3 Align . . .	

This example represents a more complicated use of logical connectors. Required Actions A.1, A.2, and A.3 are alternative choices, only one of which must be performed as indicated by the use of the logical connector OR and the left justified placement. Any one of these three Actions may be chosen. If A.2 is chosen, then both A.2.1 and A.2.2 must be performed as indicated by the logical connector AND. Required Action A.2.2 is met by performing A.2.2.1 or A.2.2.2. The indented position of the logical connector OR indicates that A.2.2.1 and A.2.2.2 are alternative choices, only one of which must be performed.



## 1.0 USE AND APPLICATION

### 1.3 Completion Times

PURPOSE	The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.
BACKGROUND	Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe operation of the unit. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).
DESCRIPTION	<p>The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the discovery of a situation (e.g., inoperable equipment or variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the unit is in a MODE or specified condition stated in the Applicability of the LCO. Unless otherwise specified, the Completion Time begins when a senior licensed operator on the operating shift crew with responsibility for plant operations makes the determination that an LCO is not met and an ACTIONS Condition is entered. The "otherwise specified" exceptions are varied, such as a Required Action Note or Surveillance Requirement Note that provides an alternative time to perform specific tasks, such as testing, without starting the Completion Time. While utilizing the Note, should a Condition be applicable for any reason not addressed by the Note, the Completion Time begins. Should the time allowance in the Note be exceeded, the Completion Time begins at that point. The exceptions may also be incorporated into the Completion Time. For example, LCO 3.8.1, "AC Sources - Operating," Required Action B.2, requires declaring required feature(s) supported by an inoperable diesel generator, inoperable when the redundant required feature(s) are inoperable. The Completion Time states, "4 hours from discovery of Condition B concurrent with inoperability of redundant required features(s)." In this case the Completion Time does not begin until the conditions in the Completion Time are satisfied. Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability.</p> <p>If situations are discovered that require entry into more than one Condition at a time within a single LCO (multiple Conditions), the Required Actions for each Condition must be performed within the associated Completion Time. When in multiple Conditions, separate Completion Times are tracked</p>

(continued)

### 1.3 Completion Times

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DESCRIPTION  
(continued)

for each Condition starting from the discovery of the situation that required entry into the Condition, unless otherwise specified.

Once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition unless specifically stated. The Required Actions of the Condition continue to apply to each additional failure, with Completion Times based on initial entry into the Condition, unless otherwise specified.

However, when a subsequent division, subsystem, component, or variable expressed in the Condition is discovered to be inoperable or not within limits, the Completion Time(s) may be extended. To apply this Completion Time extension, two criteria must first be met. The subsequent inoperability:

- a. Must exist concurrent with the first inoperability; and
- b. Must remain inoperable or not within limits after the first inoperability is resolved.

The total Completion Time allowed for completing a Required Action to address the subsequent inoperability shall be limited to the more restrictive of either:

- a. The stated Completion Time, as measured from the initial entry into the Condition, plus an additional 24 hours; or
- b. The stated Completion Time as measured from discovery of the subsequent inoperability.

The above Completion Time extension does not apply to those Specifications that have exceptions that allow completely separate re-entry into the Condition (for each division, subsystem, component, or variable expressed in the Condition) and separate tracking of Completion Times based on this re-entry. These exceptions are stated in individual Specifications.

The above Completion Time extension does not apply to a Completion Time with a modified "time zero." This modified "time zero" may be expressed as a repetitive time (i.e., "once per 8 hours," where the Completion Time is referenced from a previous completion of the Required Action versus the time of Condition entry) or as a time modified by the phrase "from discovery . . ." Example 1.3-3 illustrates one use of this type of Completion Time. The 10 day Completion Time specified for Conditions A and B in Example 1.3-3 may not be extended.

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(continued)

1.3 Completion Times (continued)

EXAMPLES                      The following examples illustrate the use of Completion Times with different types of Conditions and changing Conditions.

EXAMPLE 1.3-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

Condition B has two Required Actions. Each Required Action has its own separate Completion Time. Each Completion Time is referenced to the time that Condition B is entered.

The Required Actions of Condition B are to be in MODE 3 within 12 hours AND in MODE 4 within 36 hours. A total of 12 hours is allowed for reaching MODE 3 and a total of 36 hours (not 48 hours) is allowed for reaching MODE 4 from the time that Condition B was entered. If MODE 3 is reached within 6 hours, the time allowed for reaching MODE 4 is the next 30 hours because the total time allowed for reaching MODE 4 is 36 hours.

If Condition B is entered while in MODE 3, the time allowed for reaching MODE 4 is the next 36 hours.

(continued)

### 1.3 Completion Times

EXAMPLES  
(continued)

EXAMPLE 1.3-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pump inoperable.	A.1 Restore pump to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

When a pump is declared inoperable, Condition A is entered. If the pump is not restored to OPERABLE status within 7 days, Condition B is also entered and the Completion Time clocks for Required Actions B.1 and B.2 start. If the inoperable pump is restored to OPERABLE status after Condition B is entered, Conditions A and B are exited, and therefore, the Required Actions of Condition B may be terminated.

When a second pump is declared inoperable while the first pump is still inoperable, Condition A is not re-entered for the second pump. LCO 3.0.3 is entered, since the ACTIONS do not include a Condition for more than one inoperable pump. The Completion Time clock for Condition A does not stop after LCO 3.0.3 is entered, but continues to be tracked from the time Condition A was initially entered.

While in LCO 3.0.3, if one of the inoperable pumps is restored to OPERABLE status and the Completion Time for Condition A has not expired, LCO 3.0.3 may be exited and operation continued in accordance with Condition A.

(continued)

### 1.3 Completion Times

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#### EXAMPLES

#### EXAMPLE 1.3-2 (continued)

While in LCO 3.0.3, if one of the inoperable pumps is restored to OPERABLE status and the Completion Time for Condition A has expired, LCO 3.0.3 may be exited and operation continued in accordance with Condition B. The Completion Time for Condition B is tracked from the time the Condition A Completion Time expired.

On restoring one of the pumps to OPERABLE status, the Condition A Completion Time is not reset, but continues from the time the first pump was declared inoperable. This Completion Time may be extended if the pump restored to OPERABLE status was the first inoperable pump. A 24 hour extension to the stated 7 days is allowed, provided this does not result in the second pump being inoperable for > 7 days.

(continued)

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1.3 Completion Times

EXAMPLES  
(continued)

EXAMPLE 1.3-3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Function X subsystem inoperable.	A.1 Restore Function X subsystem to OPERABLE status.	7 days <u>AND</u> 10 days from discovery of failure to meet the LCO
B. One Function Y subsystem inoperable.	B.1 Restore Function Y subsystem to OPERABLE status.	72 hours <u>AND</u> 10 days from discovery of failure to meet the LCO
C. One Function X subsystem inoperable.  <u>AND</u> One Function Y subsystem inoperable.	C.1 Restore Function X subsystem to OPERABLE status.  <u>OR</u> C.2 Restore Function Y subsystem to OPERABLE status.	72 hours   72 hours

(continued)

### 1.3 Completion Times

---

#### EXAMPLES

#### EXAMPLE 1.3-3 (continued)

When one Function X subsystem and one Function Y subsystem are inoperable, Condition A and Condition B are concurrently applicable. The Completion Times for Condition A and Condition B are tracked separately for each subsystem, starting from the time each subsystem was declared inoperable and the Condition was entered. A separate Completion Time is established for Condition C and tracked from the time the second subsystem was declared inoperable (i.e., the time the situation described in Condition C was discovered).

If Required Action C.2 is completed within the specified Completion Time, Conditions B and C are exited. If the Completion Time for Required Action A.1 has not expired, operation may continue in accordance with Condition A. The remaining Completion Time in Condition A is measured from the time the affected subsystem was declared inoperable (i.e., initial entry into Condition A).

The Completion Times of Conditions A and B are modified by a logical connector, with a separate 10 day Completion Time measured from the time it was discovered the LCO was not met. In this example, without the separate Completion Time, it would be possible to alternate between Conditions A, B, and C in such a manner that operation could continue indefinitely without ever restoring systems to meet the LCO. The separate Completion Time modified by the phrase "from discovery of failure to meet the LCO" is designed to prevent indefinite continued operation while not meeting the LCO. This Completion Time allows for an exception to the normal "time zero" for beginning the Completion Time "clock". In this instance, the Completion Time "time zero" is specified as commencing at the time the LCO was initially not met, instead of at the time the associated Condition was entered.

(continued)

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### 1.3 Completion Times

#### EXAMPLES (continued)

#### EXAMPLE 1.3-4

##### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve(s) to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

A single Completion Time is used for any number of valves inoperable at the same time. The Completion Time associated with Condition A is based on the initial entry into Condition A and is not tracked on a per valve basis. Declaring subsequent valves inoperable, while Condition A is still in effect, does not trigger the tracking of separate Completion Times.

Once one of the valves has been restored to OPERABLE status, the Condition A Completion Time is not reset, but continues from the time the first valve was declared inoperable. The Completion Time may be extended if the valve restored to OPERABLE status was the first inoperable valve. The Condition A Completion Time may be extended for up to 4 hours provided this does not result in any subsequent valve being inoperable for > 4 hours.

If the Completion Time of 4 hours (plus the extension) expires while one or more valves are still inoperable, Condition B is entered.

(continued)



1.3 Completion Times

EXAMPLES  
(continued)

EXAMPLE 1.3-5

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each inoperable valve.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

The Note above the ACTIONS table is a method of modifying how the Completion Time is tracked. If this method of modifying how the Completion Time is tracked was applicable only to a specific Condition, the Note would appear in that Condition rather than at the top of the ACTIONS Table.

The Note allows Condition A to be entered separately for each inoperable valve, and Completion Times tracked on a per valve basis. When a valve is declared inoperable, Condition A is entered and its Completion Time starts. If subsequent valves are declared inoperable, Condition A is entered for each valve and separate Completion Times start and are tracked for each valve.

(continued)

### 1.3 Completion Times

#### EXAMPLES

#### EXAMPLE 1.3-5 (continued)

If the Completion Time associated with a valve in Condition A expires, Condition B is entered for that valve. If the Completion Times associated with subsequent valves in Condition A expire, Condition B is entered separately for each valve and separate Completion Times start and are tracked for each valve. If a valve that caused entry into Condition B is restored to OPERABLE status, Condition B is exited for that valve.

Since the Note in this example allows multiple Condition entry and tracking of separate Completion Times, Completion Time extensions do not apply.

#### EXAMPLE 1.3-6

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Perform SR 3.x.x.x.	Once per 8 hours
	<u>OR</u> A.2 Reduce THERMAL POWER to $\leq 50\%$ RTP.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

(continued)

### 1.3 Completion Times

---

#### EXAMPLES

#### EXAMPLE 1.3-6 (continued)

Entry into Condition A offers a choice between Required Action A.1 or A.2. Required Action A.1 has a "once per" Completion Time, which qualifies for the 25% extension, per SR 3.0.2, to each performance after the initial performance. If Required Action A.1 is followed and the Required Action is not met within the Completion Time (plus the extension allowed by SR 3.0.2), Condition B is entered. If Required Action A.2 is followed and the Completion Time of 8 hours is not met, Condition B is entered.

If after entry into Condition B, Required Action A.1 or A.2 is met, Condition B is exited and operation may then continue in Condition A.

---

(continued)

### 1.3 Completion Times

#### EXAMPLES (continued)

#### EXAMPLE 1.3-7

##### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Verify affected subsystem isolated.	1 hour <u>AND</u> Once per 8 hours thereafter
	<u>AND</u> A.2 Restore subsystem to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

Required Action A.1 has two Completion Times. The 1 hour Completion Time begins at the time the Condition is entered and each "Once per 8 hours thereafter" interval begins upon performance of Required Action A.1.

If after Condition A is entered, Required Action A.1 is not met within either the initial 1 hour or any subsequent 8 hour interval from the previous performance (plus the extension allowed by SR 3.0.2), Condition B is entered. The Completion Time clock for Condition A does not stop after

(continued)

1.3 Completion Times

---

EXAMPLES	<u>EXAMPLE 1.3-7</u> (continued)  Condition B is entered, but continues from the time Condition A was initially entered. If Required Action A.1 is met after Condition B is entered, Condition B is exited and operation may continue in accordance with Condition A, provided the Completion Time for Required Action A.2 has not expired.
IMMEDIATE COMPLETION TIME	When "Immediately" is used as a Completion Time, the Required Action should be pursued without delay and in a controlled manner.

---

## 1.0 USE AND APPLICATION

### 1.4 Frequency

PURPOSE	The purpose of this section is to define the proper use and application of Frequency requirements.
DESCRIPTION	<p>Each Surveillance Requirement (SR) has a specified Frequency in which the Surveillance must be met in order to meet the associated Limiting Condition for Operation (LCO). An understanding of the correct application of the specified Frequency is necessary for compliance with the SR.</p> <p>The "specified Frequency" is referred to throughout this section and each of the Specifications of Section 3.0, Surveillance Requirement (SR) Applicability. The "specified Frequency" consists of the requirements of the Frequency column of each SR, as well as certain Notes in the Surveillance column that modify performance requirements.</p> <p>Sometimes special situations dictate when the requirements of a Surveillance are to be met. They are "otherwise stated" conditions allowed by SR 3.0.1. They may be stated as clarifying Notes in the Surveillance, as part of the Surveillance, or both. Example 1.4-4 discusses these special situations.</p> <p>Situations where a Surveillance could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after the associated LCO is within its Applicability, represent potential SR 3.0.4 conflicts. To avoid these conflicts, the SR (i.e., the Surveillance or the Frequency) is stated such that it is only "required" when it can be and should be performed. With an SR satisfied, SR 3.0.4 imposes no restriction.</p> <p>The use of "met" or "performed" in these instances conveys specified meanings. A Surveillance is "met" only when the acceptance criteria are satisfied. Known failure of the requirements of a Surveillance, even without a Surveillance specifically being "performed," constitutes a Surveillance not "met." "Performance" refers only to the requirement to specifically determine the ability to meet the acceptance</p>

(continued)

## 1.4 Frequency

DESCRIPTION (continued)	<p>criteria. SR 3.0.4 restrictions would not apply if both the following conditions are satisfied:</p> <ul style="list-style-type: none"> <li>a. The Surveillance is not required to be performed; and</li> <li>b. The Surveillance is not required to be met or, even if required to be met, is not known to be failed.</li> </ul>
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EXAMPLES The following examples illustrate the various ways that Frequencies are specified. In these examples, the Applicability of the LCO (LCO not shown) is MODES 1, 2, and 3. The examples do not reflect the potential application of LCO 3.0.4.b.

### EXAMPLE 1.4-1

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Perform CHANNEL CHECK.	12 hours

Example 1.4-1 contains the type of SR most often encountered in the Technical Specifications (TS). The Frequency specifies an interval (12 hours) during which the associated Surveillance must be performed at least one time. Performance of the Surveillance initiates the subsequent interval. Although the Frequency is stated as 12 hours, an extension of the time interval to 1.25 times the interval specified in the Frequency is allowed by SR 3.0.2 for operational flexibility. The measurement of this interval continues at all times, even when the SR is not required to be met per SR 3.0.1 (such as when the equipment is inoperable, a variable is outside specified limits, or the unit is outside the Applicability of the LCO). If the interval specified by SR 3.0.2 is exceeded while the unit is in a MODE or other specified condition in the Applicability of the LCO, and the performance of the Surveillance is not otherwise modified (refer to Examples 1.4-3 and 1.4-4), then SR 3.0.3 becomes applicable.

(continued)

## 1.4 Frequency

## EXAMPLES

EXAMPLE 1.4-1 (continued)

If the interval as specified by SR 3.0.2 is exceeded while the unit is not in a MODE or other specified condition in the Applicability of the LCO for which performance of the SR is required, the Surveillance must be performed within the Frequency requirements of SR 3.0.2 prior to entry into the MODE or other specified condition. Failure to do so would result in a violation of SR 3.0.4.

EXAMPLE 1.4-2SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify flow is within limits.	Once within 12 hours after ≥ 25% RTP  <u>AND</u>  24 hours thereafter

Example 1.4-2 has two Frequencies. The first is a one time performance Frequency, and the second is of the type shown in Example 1.4-1. The logical connector "AND" indicates that both Frequency requirements must be met. Each time reactor power is increased from a power level < 25% RTP to ≥ 25% RTP, the Surveillance must be performed within 12 hours.

The use of "once" indicates a single performance will satisfy the specified Frequency (assuming no other Frequencies are connected by "AND"). This type of Frequency does not qualify for the extension allowed by SR 3.0.2.

(continued)



## 1.4 Frequency

## EXAMPLES

EXAMPLE 1.4-2 (continued)

"Thereafter" indicates future performances must be established per SR 3.0.2, but only after a specified condition is first met (i.e., the "once" performance in this example). If reactor power decreases to < 25% RTP, the measurement of both intervals stops. New intervals start upon reactor power reaching 25% RTP.

EXAMPLE 1.4-3SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>-----NOTE-----</p> <p>Not required to be performed until 12 hours after <math>\geq</math> 25% RTP.</p> <p>-----</p> <p>Perform channel adjustment.</p>	7 days

The interval continues whether or not the unit operation is < 25% RTP between performances.

As the Note modifies the required performance of the Surveillance, it is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is < 25% RTP, this Note allows 12 hours after power reaches  $\geq$  25% RTP to perform the Surveillance. The Surveillance is still considered to be within the "specified Frequency." Therefore, if the Surveillance were not performed within the 7 day interval (plus the extension allowed by SR 3.0.2), but operation was < 25% RTP, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of SR 3.0.4 occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not exceed 12 hours (plus the extension allowed by SR 3.0.2) with power  $\geq$  25% RTP.

(continued)

## 1.4 Frequency

### EXAMPLES

#### EXAMPLE 1.4-3 (continued)

Once the unit reaches 25% RTP, 12 hours would be allowed for completing the Surveillance. If the Surveillance were not performed within this 12 hour interval (plus the extension allowed by SR 3.0.2), there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.

#### EXAMPLE 1.4-4

##### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>-----NOTE----- Only required to be met in MODE 1. -----</p> <p>Verify leakage rates are within limits.</p>	24 hours

Example 1.4-4 specifies that the requirements of this Surveillance do not have to be met until the unit is in MODE 1. The interval measurement for the Frequency of this Surveillance continues at all times, as described in Example 1.4-1. However, the Note constitutes an "otherwise stated" exception to the Applicability of this Surveillance. Therefore, if the Surveillance were not performed within the 24 hour (plus the extension allowed by SR 3.0.2) interval, but the unit was not in MODE 1, there would be no failure of the SR nor failure to meet the LCO. Therefore, no violation of SR 3.0.4 occurs when changing MODES, even with the 24 hour Frequency exceeded, provided the MODE change was not made into MODE 1. Prior to entering MODE 1 (assuming again that the 24 hour Frequency were not met), SR 3.0.4 would require satisfying the SR.

**ATTACHMENT 2e**  
**Proposed Technical Specifications Changes (Mark-Up) for**  
**Dresden Nuclear Power Station, Units 2 and 3**

## 1.0 USE AND APPLICATION

### 1.1 Definitions

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-----NOTE-----  
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.  
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<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 LHGRs 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, <u>and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>

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(continued)

1.1 Definitions (continued)

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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 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, <u>and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>

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(continued)

## 1.1 Definitions (continued)

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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"><li>a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); and</li><li>b. Control rod movement, provided there are no fuel assemblies in the associated core cell.</li></ul> <p>Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.</p>
CORE OPERATING LIMITS REPORT (COLR)	<p>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.</p>
DOSE EQUIVALENT I-131	<p>DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The dose conversion factors used for this calculation shall be the inhalation committed dose conversion factors in Federal Guidance Report 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," 1989.</p>

(continued)

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## 1.1 Definitions (continued)

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### DRAIN TIME

The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:

- a. The water inventory above the TAF is divided by the limiting drain rate;
- b. The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure (e.g., seismic event, loss of normal power, single human error), for all penetration flow paths below the TAF except:
  1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are locked, sealed, or otherwise secured in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;
  2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or
  3. Penetration flow paths with isolation devices that can be closed prior to the RPV water level being equal to the TAF by a dedicated operator trained in the task, who is in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation device without offsite power.

(continued)

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## 1.1 Definitions

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### DRAIN TIME (continued)

- c. The penetration flow paths required to be evaluated per paragraph b) are assumed to open instantaneously and are not subsequently isolated, and no water is assumed to be subsequently added to the RPV water inventory;
- d. No additional draining events occur; and
- e. Realistic cross-sectional areas and drain rates are used.

A bounding DRAIN TIME may be used in lieu of a calculated value.

### INSERVICE TESTING PROGRAM

The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).

### 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;

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(continued)



## 1.1 Definitions

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LEAKAGE (continued)	<p>c. <u>Total LEAKAGE</u></p> <p>Sum of the identified and unidentified LEAKAGE; and</p> <p>d. <u>Pressure Boundary LEAKAGE</u></p> <p>LEAKAGE through a nonisolable fault in a Reactor Coolant System (RCS) component body, pipe wall, or vessel wall.</p>
LINEAR HEAT GENERATION RATE (LHGR)	The LHGR shall be the heat generation rate per unit length of fuel rod. It is the integral of the heat flux over the heat transfer area associated with the unit length.
LOGIC SYSTEM FUNCTIONAL TEST	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. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.
MINIMUM CRITICAL POWER RATIO (MCPR)	The MCPR shall be the smallest critical power ratio (CPR) that exists in the core for each class of fuel. The CPR is that power in the assembly that is calculated by application of the appropriate correlation(s) to cause some point in the assembly to experience boiling transition, divided by the actual assembly operating power.
MODE	A MODE shall correspond to any one inclusive combination of mode switch position, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE—OPERABILITY	A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water,

(continued)

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## 1.1 Definitions

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OPERABLE—OPERABILITY (continued)	lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 2957 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from the opening of the sensor contact until the opening of the trip actuator. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
SHUTDOWN MARGIN (SDM)	<p>SDM shall be the amount of reactivity by which the reactor is subcritical or would be subcritical throughout the operating cycle assuming that:</p> <ul style="list-style-type: none"> <li>a. The reactor is xenon free;</li> <li>b. The moderator temperature is <math>\geq 68^{\circ}\text{F}</math>, corresponding to the most reactive state; and</li> <li>c. All control rods are fully inserted except for the single control rod of highest reactivity worth, which is assumed to be fully withdrawn.</li> </ul> <p>With control rods not capable of being fully inserted, the reactivity worth of these control rods must be accounted for in the determination of SDM.</p>
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.
TURBINE BYPASS SYSTEM RESPONSE TIME	The TURBINE BYPASS SYSTEM RESPONSE TIME shall be that time interval from when the turbine bypass control unit generates a turbine bypass valve flow signal until the turbine bypass valves travel to their required positions. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

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Table 1.1-1 (page 1 of 1)  
MODES

MODE	TITLE	REACTOR MODE SWITCH POSITION	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	Run	NA
2	Startup	Refuel <sup>(a)</sup> or Startup/Hot Standby	NA
3	Hot Shutdown <sup>(a)</sup>	Shutdown	> 212
4	Cold Shutdown <sup>(a)</sup>	Shutdown	≤ 212
5	Refueling <sup>(b)</sup>	Shutdown or Refuel	NA

(a) All reactor vessel head closure bolts fully tensioned.

(b) One or more reactor vessel head closure bolts less than fully tensioned.

**ATTACHMENT 2f**  
**Proposed Technical Specifications Changes (Mark-Up) for**  
**James A. FitzPatrick Nuclear Power Plant**

## 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 assembly at the specified height divided by the number of fuel rods in the fuel assembly 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 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 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.</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 status derived from independent instrument channels measuring the same parameter.

, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step

(continued)

1.1 Definitions (continued)

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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

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:

, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step

- 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 plant 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 thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in International Commission on Radiological Protection Publication 30 (ICRP-30), "Limits for Intake by Workers," or in NRC Regulatory Guide 1.109, Rev. 1, 1977.

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(continued)

**ATTACHMENT 2g**  
**Proposed Technical Specifications Changes (Mark-Up) for**  
**LaSalle County Station, Units 1 and 2**

## 1.0 USE AND APPLICATION

### 1.1 Definitions

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-----NOTE-----  
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.  
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<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 LHGRs 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 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, <u>and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>

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(continued)



1.1 Definitions (continued)

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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 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, <u>and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>

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(continued)

## 1.1 Definitions (continued)

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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"><li>a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); and</li><li>b. Control rod movement, provided there are no fuel assemblies in the associated core cell.</li></ul> <p>Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.</p>
CORE OPERATING LIMITS REPORT (COLR)	<p>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.</p>
DOSE EQUIVALENT I-131	<p>DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites;" Table E-7 of Regulatory Guide 1.109, Rev. 1, NRC, 1977; or ICRP</p>

(continued)

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## 1.1 Definitions

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DOSE EQUIVALENT I-131 (continued)	30, Supplement to Part 1, pages 192-212, Table titled, "Committed Dose Equivalent in Target Organs or Tissues per Intake of Unit Activity."
DRAIN TIME	<p>The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:</p> <ol style="list-style-type: none"><li>a. The water inventory above the TAF is divided by the limiting drain rate;</li><li>b. The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure (e.g., seismic event, loss of normal power, single human error), for all penetration flow paths below the TAF except:<ol style="list-style-type: none"><li>1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are locked, sealed, or otherwise secured in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;</li><li>2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or</li></ol></li></ol>

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## 1.1 Definitions

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### DRAIN TIME (continued)

3. Penetration flow paths with isolation devices that can be closed prior to the RPV water level being equal to the TAF by a dedicated operator trained in the task, who is in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation devices without offsite power.
- c. The penetration flow paths required to be evaluated per paragraph b) are assumed to open instantaneously and are not subsequently isolated, and no water is assumed to be subsequently added to the RPV water inventory;
- d. No additional draining events occur; and
- e. Realistic cross-sectional areas and drain rates are used.

A bounding DRAIN TIME may be used in lieu of a calculated value.

### EMERGENCY CORE COOLING SYSTEM (ECCS) RESPONSE TIME

The ECCS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ECCS initiation setpoint at the channel sensor until the ECCS equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and method for verification have been previously reviewed and approved by the NRC.

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(continued)

1.1 Definitions (continued)

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END OF CYCLE RECIRCULATION PUMP TRIP (EOC-RPT) SYSTEM RESPONSE TIME	The EOC-RPT SYSTEM RESPONSE TIME shall be that time interval from initial signal generation by the associated turbine stop valve limit switch or from when the turbine control valve hydraulic oil control oil pressure drops below the pressure switch setpoint to complete suppression of the electric arc between the fully open contacts of the recirculation pump circuit breaker. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and method for verification have been previously reviewed and approved by the NRC.
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).
ISOLATION SYSTEM RESPONSE TIME	The ISOLATION SYSTEM RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its isolation initiation setpoint at the channel sensor until the isolation valves travel to their required positions. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and method for verification have been previously reviewed and approved by the NRC.

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(continued)

## 1.1 Definitions (continued)

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LEAKAGE	<p>LEAKAGE shall be:</p> <p>a. <u>Identified LEAKAGE</u></p> <ol style="list-style-type: none"> <li>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</li> <li>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;</li> </ol> <p>b. <u>Unidentified LEAKAGE</u></p> <p>All LEAKAGE into the drywell that is not identified LEAKAGE;</p> <p>c. <u>Total LEAKAGE</u></p> <p>Sum of the identified and unidentified LEAKAGE; and</p> <p>d. <u>Pressure Boundary LEAKAGE</u></p> <p>LEAKAGE through a nonisolable fault in a Reactor Coolant System (RCS) component body, pipe wall, or vessel wall.</p>
LINEAR HEAT GENERATION RATE (LHGR)	<p>The LHGR shall be the heat generation rate per unit length of fuel rod. It is the integral of the heat flux over the heat transfer area associated with the unit length.</p>
LOGIC SYSTEM FUNCTIONAL TEST	<p>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. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.</p>

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(continued)

## 1.1 Definitions (continued)

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MINIMUM CRITICAL POWER RATIO (MCPR)	The MCPR shall be the smallest critical power ratio (CPR) that exists in the core for each class of fuel. The CPR is that power in the assembly that is calculated by application of the appropriate correlation(s) to cause some point in the assembly to experience boiling transition, divided by the actual assembly operating power.
MODE	A MODE shall correspond to any one inclusive combination of mode switch position, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE—OPERABILITY	A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 3546 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS trip setpoint at the channel sensor until de-energization of the scram pilot valve solenoids. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and method for verification have been previously reviewed and approved by the NRC.

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(continued)

## 1.1 Definitions (continued)

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SHUTDOWN MARGIN (SDM)	<p>SDM shall be the amount of reactivity by which the reactor is subcritical or would be subcritical throughout the operating cycle assuming that:</p> <ol style="list-style-type: none"><li>The reactor is xenon free;</li><li>The moderator temperature is <math>\geq 68^{\circ}\text{F}</math>, corresponding to the most reactive state; and</li><li>All control rods are fully inserted except for the single control rod of highest reactivity worth, which is assumed to be fully withdrawn. With control rods not capable of being fully inserted, the reactivity worth of these control rods must be accounted for in the determination of SDM.</li></ol>
STAGGERED TEST BASIS	<p>A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during <math>n</math> Surveillance Frequency intervals, where <math>n</math> is the total number of systems, subsystems, channels, or other designated components in the associated function.</p>
THERMAL POWER	<p>THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.</p>
TURBINE BYPASS SYSTEM RESPONSE TIME	<p>The TURBINE BYPASS SYSTEM RESPONSE TIME shall be that time interval from when the turbine bypass control unit generates a turbine bypass valve flow signal until the turbine bypass valves travel to their required positions. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.</p>

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Table 1.1-1 (page 1 of 1)  
MODES

MODE	TITLE	REACTOR MODE SWITCH POSITION	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	Run	NA
2	Startup	Refuel <sup>(a)</sup> or Startup/Hot Standby	NA
3	Hot Shutdown <sup>(a)</sup>	Shutdown	> 200
4	Cold Shutdown <sup>(a)</sup>	Shutdown	≤ 200
5	Refueling <sup>(b)</sup>	Shutdown or Refuel	NA

(a) All reactor vessel head closure bolts fully tensioned.

(b) One or more reactor vessel head closure bolts less than fully tensioned.

**ATTACHMENT 2h**  
**Proposed Technical Specifications Changes (Mark-Up) for**  
**Limerick Generating Station, Units 1 and 2**

## 1.0 DEFINITIONS

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The following terms are defined so that uniform interpretation of these specifications may be achieved. The defined terms appear in capitalized type and shall be applicable throughout these Technical Specifications.

### ACTION

- 1.1 ACTION shall be that part of a Specification which prescribes remedial measures required under designated conditions.

### AVERAGE PLANAR EXPOSURE

- 1.2 The AVERAGE PLANAR EXPOSURE shall be applicable to a specific planar height and is equal to the sum of the exposure of all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle.

### AVERAGE PLANAR LINEAR HEAT GENERATION RATE

- 1.3 The AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR) shall be applicable to a specific planar height and is equal to the sum of the LINEAR HEAT GENERATION RATES for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle.

### CHANNEL CALIBRATION

- 1.4 A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping or total channel steps such that the entire channel is calibrated, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

### CHANNEL CHECK

- 1.5 A CHANNEL CHECK shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrument channels measuring the same parameter.

### CHANNEL FUNCTIONAL TEST

- 1.6 A CHANNEL FUNCTIONAL TEST shall be:
- a. Analog channels - the injection of a simulated signal into the channel as close to the sensor as practicable to verify OPERABILITY including alarm and/or trip functions and channel failure trips.
  - b. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.

The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping or total channel steps such that the entire channel is tested, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

## 1.0 DEFINITIONS

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The following terms are defined so that uniform interpretation of these specifications may be achieved. The defined terms appear in capitalized type and shall be applicable throughout these Technical Specifications.

### ACTION

- 1.1 ACTION shall be that part of a Specification which prescribes remedial measures required under designated conditions.

### AVERAGE PLANAR EXPOSURE

- 1.2 The AVERAGE PLANAR EXPOSURE shall be applicable to a specific planar height and is equal to the sum of the exposure of all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle.

### AVERAGE PLANAR LINEAR HEAT GENERATION RATE

- 1.3 The AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR) shall be applicable to a specific planar height and is equal to the sum of the LINEAR HEAT GENERATION RATES for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle.

### CHANNEL CALIBRATION

- 1.4 A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping or total channel steps such that the entire channel is calibrated, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

### CHANNEL CHECK

- 1.5 A CHANNEL CHECK shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrument channels measuring the same parameter.

### CHANNEL FUNCTIONAL TEST

- 1.6 A CHANNEL FUNCTIONAL TEST shall be:
- a. Analog channels - the injection of a simulated signal into the channel as close to the sensor as practicable to verify OPERABILITY including alarm and/or trip functions and channel failure trips.
  - b. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.

The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping or total channel steps such that the entire channel is tested, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.

**ATTACHMENT 2i**  
**Proposed Technical Specifications Changes (Mark-Up) for**  
**Nine Mile Point Nuclear Station, Units 1 and 2**

## 1.6 Instrument Channel Test

Instrument channel test means injection of a simulated signal into the channel to verify its proper response including, where applicable, alarm and/or trip initiating action. [The channel test may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.](#)

## 1.7 Instrument Channel Calibration

Instrument channel calibration means adjustment of channel output such that it responds, with acceptable range and accuracy, to known values of the parameter which the channel measures. Calibration shall encompass the entire channel, including equipment actuation, alarm, or trip. 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, [and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.](#)

## 1.8 Major Refueling Outage

For the purpose of designating frequency of testing and surveillance, a major refueling outage shall mean a regularly scheduled refueling outage; however, where such outages occur within 8 months of the end of the previous refueling outage, the test or surveillance need not be performed until the next regularly scheduled outage.

## 1.9 Operating Cycle

An operating cycle is that portion of Station operation between reactor startups following each major refueling outage.

## 1.10 Test Intervals

The test intervals specified are only valid during periods of power operation and do not apply in the event of extended Station shutdown.

## 1.11 Primary Containment Integrity

Primary containment integrity means that the drywell and absorption chamber are closed and all of the following conditions are satisfied:

## 1.0 USE AND APPLICATION

### 1.1 Definitions

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----- NOTE -----

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

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<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 LHGRs 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 the entire channel, including the required sensor, alarm, display, and trip functions, and shall include 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 so that the entire channel is calibrated, <u>and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>

(continued)

1.1 Definitions (continued)

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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 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, 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, <u>and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>

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(continued)



1.1 Definitions (continued)

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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 dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The dose conversion factors used for this calculation shall be the Committed Effective Dose Equivalent dose conversion factors listed in Table 2.1 of Federal Guidance Report No. 11, EPA, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," 1988.

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(continued)

## 1.1 Definitions (continued)

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DRAIN TIME

The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:

- a) The water inventory above the TAF is divided by the limiting drain rate;
- b) The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common Mode failure (e.g., seismic event, loss of normal power, single human error), for all penetration flow paths below the TAF except:
  - 1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are locked, sealed, or otherwise secured in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;
  - 2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or
  - 3. Penetration flow paths with isolation devices that can be closed prior to the RPV water level being equal to the TAF by a dedicated operator trained in the task, who is in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation device without offsite power.
- c) The penetration flow paths required to be evaluated per paragraph b) are assumed to open instantaneously and are not subsequently isolated, and no water is assumed to be subsequently added to the RPV water inventory;
- d) No additional draining events occur; and
- e) Realistic cross-sectional areas and drain rates are used.

A bounding DRAIN TIME may be used in lieu of a calculated value.

(continued)

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1.1 Definitions (continued)

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EMERGENCY CORE COOLING SYSTEM (ECCS) RESPONSE TIME	The ECCS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ECCS initiation setpoint at the channel sensor until the ECCS equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
END OF CYCLE RECIRCULATION PUMP TRIP (EOC-RPT) SYSTEM RESPONSE TIME	The EOC-RPT SYSTEM RESPONSE TIME shall be that time interval from initial movement of the associated turbine stop valves or turbine control valves to complete suppression of the electric arc between the fully open contacts of the recirculation pump circuit breaker. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).
ISOLATION SYSTEM RESPONSE TIME	The ISOLATION SYSTEM RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its isolation initiation setpoint at the channel sensor until the isolation valves travel to their required positions. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
LEAKAGE	<p>LEAKAGE shall be:</p> <p>a. <u>Identified LEAKAGE</u></p> <p>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</p>

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(continued)

## 1.1 Definitions

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LEAKAGE (continued)	<p>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;</p> <p>b. <u>Unidentified LEAKAGE</u></p> <p>All LEAKAGE into the drywell that is not identified LEAKAGE; and</p> <p>c. <u>Pressure Boundary LEAKAGE</u></p> <p>LEAKAGE through a nonisolable fault in a Reactor Coolant System (RCS) component body, pipe wall, or vessel wall.</p>
LINEAR HEAT GENERATION RATE (LHGR)	<p>The LHGR shall be the heat generation rate per unit length of fuel rod. It is the integral of the heat flux over the heat transfer area associated with the unit length.</p>
LOGIC SYSTEM FUNCTIONAL TEST	<p>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. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.</p>
MINIMUM CRITICAL POWER RATIO (MCPR)	<p>The MCPR shall be the smallest critical power ratio (CPR) that exists in the core for each class of fuel. The CPR is that power in the assembly that is calculated by application of the appropriate correlation(s) to cause some point in the assembly to experience boiling transition, divided by the actual assembly operating power.</p>
MODE	<p>A MODE shall correspond to any one inclusive combination of mode switch position, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.</p>

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(continued)

1.1 Definitions (continued)

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OPERABLE – OPERABILITY	A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
PHYSICS TESTS	<p>PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are:</p> <ul style="list-style-type: none"><li>a. Described in Chapter 14, Initial Test Program of the FSAR;</li><li>b. Authorized under the provisions of 10 CFR 50.59; or</li><li>c. Otherwise approved by the Nuclear Regulatory Commission.</li></ul>
PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)	The PTLR is the unit specific document that provides the reactor vessel pressure and temperature limits, including heatup and cooldown rates, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.7.
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 3988 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS trip setpoint at the channel sensor until de-energization of the scram pilot valve solenoids. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

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(continued)

1.1 Definitions (continued)

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SHUTDOWN MARGIN (SDM)	<p>SDM shall be the amount of reactivity by which the reactor is subcritical or would be subcritical throughout the operating cycle assuming that:</p> <ol style="list-style-type: none"><li>The reactor is xenon free;</li><li>The moderator temperature is <math>\geq 68^{\circ}\text{F}</math>, corresponding to the most reactive state; and</li><li>All control rods are fully inserted except for the single control rod of highest reactivity worth, which is assumed to be fully withdrawn. With control rods not capable of being fully inserted, the reactivity worth of these control rods must be accounted for in the determination of SDM.</li></ol>
STAGGERED TEST BASIS	<p>A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during <math>n</math> Surveillance Frequency intervals, where <math>n</math> is the total number of systems, subsystems, channels, or other designated components in the associated function.</p>
THERMAL POWER	<p>THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.</p>
TURBINE BYPASS SYSTEM RESPONSE TIME	<p>The TURBINE BYPASS SYSTEM RESPONSE TIME consists of two components:</p> <ol style="list-style-type: none"><li>The time from initial movement of the main turbine stop valve or control valve until 80% of the turbine bypass capacity is established; and</li><li>The time from initial movement of the main turbine stop valve or control valve until initial movement of the turbine bypass valve.</li></ol> <p>The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.</p>

Table 1.1-1 (page 1 of 1)  
MODES

MODE	TITLE	REACTOR MODE SWITCH POSITION	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	Run	NA
2	Startup	Refuel <sup>(a)</sup> or Startup/Hot Standby	NA
3	Hot Shutdown <sup>(a)</sup>	Shutdown	> 200
4	Cold Shutdown <sup>(a)</sup>	Shutdown	≤ 200
5	Refueling <sup>(b)</sup>	Shutdown or Refuel	NA

(a) All reactor vessel head closure bolts fully tensioned.

(b) One or more reactor vessel head closure bolts less than fully tensioned.

**ATTACHMENT 2j**  
**Proposed Technical Specifications Changes (Mark-Up) for**  
**Peach Bottom Atomic Power Station, Units 2 and 3**



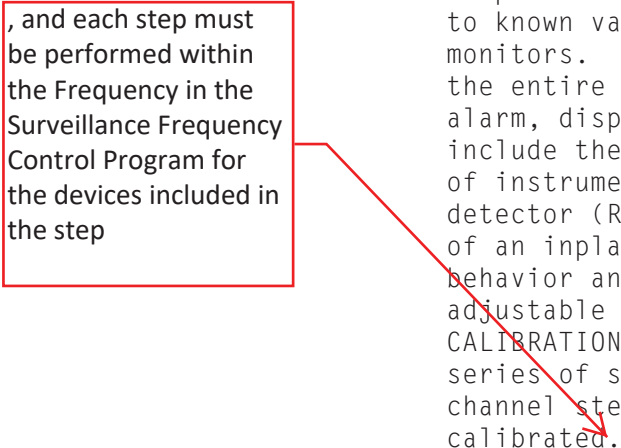
## 1.0 USE AND APPLICATION

### 1.1 Definitions

-----NOTE-----  
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.  
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<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 the entire channel, including the required sensor, alarm, display, and trip functions, and shall include 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 so that the entire channel is calibrated.
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 status derived from independent instrument channels measuring the same parameter.

, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step



(continued)

## 1.1 Definitions (continued)

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, 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	<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"> <li>a. Movement of wide range neutron monitors, local power range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); and</li> <li>b. Control rod movement, provided there are no fuel assemblies in the associated core cell.</li> </ul> <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 dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites," or Federal Guidance Report 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," 1989.

, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step

(continued)

## 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.  
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<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 the entire channel, including the required sensor, alarm, display, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST. 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.
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 status derived from independent instrument channels measuring the same parameter.

, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step

(continued)

## 1.1 Definitions (continued)

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### 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, 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:

, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step

- a. Movement of wide range neutron monitors, local power 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 dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites," or Federal Guidance Report 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," 1989.

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(continued)

**ATTACHMENT 2k**  
**Proposed Technical Specifications Changes (Mark-Up) for**  
**Quad Cities Nuclear Power Station, Units 1 and 2**

## 1.0 USE AND APPLICATION

### 1.1 Definitions

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-----NOTE-----  
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.  
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<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 LHGRs 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, <u>and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>

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(continued)

1.1 Definitions (continued)

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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 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, <u>and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>
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"><li>a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); and</li><li>b. Control rod movement, provided there are no fuel assemblies in the associated core cell.</li></ul> <p>Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.</p>

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(continued)

1.1 Definitions (continued)

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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 dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The dose conversion factors used for this calculation shall be the inhalation committed dose conversion factors in Federal Guidance Report 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," 1989.

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(continued)



## 1.2 Definitions (continued)

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### DRAIN TIME

The DRAIN TIME is the time it would take for the water inventory in and above the Reactor Pressure Vessel (RPV) to drain to the top of the active fuel (TAF) seated in the RPV assuming:

- a. The water inventory above the TAF is divided by the limiting drain rate;
- b. The limiting drain rate is the larger of the drain rate through a single penetration flow path with the highest flow rate, or the sum of the drain rates through multiple penetration flow paths susceptible to a common mode failure (e.g., seismic event, loss of normal power, single human error), for all penetration flow paths below the TAF except:
  1. Penetration flow paths connected to an intact closed system, or isolated by manual or automatic valves that are locked, sealed, or otherwise secured in the closed position, blank flanges, or other devices that prevent flow of reactor coolant through the penetration flow paths;
  2. Penetration flow paths capable of being isolated by valves that will close automatically without offsite power prior to the RPV water level being equal to the TAF when actuated by RPV water level isolation instrumentation; or
  3. Penetration flow paths with isolation devices that can be closed prior to the RPV water level being equal to the TAF by a dedicated operator trained in the task, who is in continuous communication with the control room, is stationed at the controls, and is capable of closing the penetration flow path isolation device without offsite power.

(continued)

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## 1.1 Definitions

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### DRAIN TIME (continued)

- c. The penetration flow paths required to be evaluated per paragraph b) are assumed to open instantaneously and are not subsequently isolated, and no water is assumed to be subsequently added to the RPV water inventory;
- d. No additional draining events occur; and
- e. Realistic cross-sectional areas and drain rates are used.

A bounding DRAIN TIME may be used in lieu of a calculated value.

### INSERVICE TESTING PROGRAM

The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).

### 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; and

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(continued)

## 1.1 Definitions

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LEAKAGE (continued)	d. <u>Pressure Boundary LEAKAGE</u>  LEAKAGE through a nonisolable fault in a Reactor Coolant System (RCS) component body, pipe wall, or vessel wall.
LINEAR HEAT GENERATION RATE (LHGR)	The LHGR shall be the heat generation rate per unit length of fuel rod. It is the integral of the heat flux over the heat transfer area associated with the unit length.
LOGIC SYSTEM FUNCTIONAL TEST	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. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.
MINIMUM CRITICAL POWER RATIO (MCPR)	The MCPR shall be the smallest critical power ratio (CPR) that exists in the core for each class of fuel. The CPR is that power in the assembly that is calculated by application of the appropriate correlation(s) to cause some point in the assembly to experience boiling transition, divided by the actual assembly operating power.
MODE	A MODE shall correspond to any one inclusive combination of mode switch position, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE—OPERABILITY	A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

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(continued)

## 1.1 Definitions (continued)

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RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 2957 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from the opening of the sensor contact until the opening of the trip actuator. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
SHUTDOWN MARGIN (SDM)	<p>SDM shall be the amount of reactivity by which the reactor is subcritical or would be subcritical throughout the operating cycle assuming that:</p> <ul style="list-style-type: none"> <li>a. The reactor is xenon free;</li> <li>b. The moderator temperature is <math>\geq 68^{\circ}\text{F}</math>, corresponding to the most reactive state; and</li> <li>c. All control rods are fully inserted except for the single control rod of highest reactivity worth, which is assumed to be fully withdrawn.</li> </ul> <p>With control rods not capable of being fully inserted, the reactivity worth of these control rods must be accounted for in the determination of SDM.</p>
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.
TURBINE BYPASS SYSTEM RESPONSE TIME	The TURBINE BYPASS SYSTEM RESPONSE TIME shall be that time interval from when the turbine bypass control unit generates a turbine bypass valve flow signal until the turbine bypass valves travel to their required positions. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

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Table 1.1-1 (page 1 of 1)  
MODES

MODE	TITLE	REACTOR MODE SWITCH POSITION	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	Run	NA
2	Startup	Refuel <sup>(a)</sup> or Startup/Hot Standby	NA
3	Hot Shutdown <sup>(a)</sup>	Shutdown	> 212
4	Cold Shutdown <sup>(a)</sup>	Shutdown	≤ 212
5	Refueling <sup>(b)</sup>	Shutdown or Refuel	NA

(a) All reactor vessel head closure bolts fully tensioned.

(b) One or more reactor vessel head closure bolts less than fully tensioned.

**ATTACHMENT 2I**  
**Proposed Technical Specifications Changes (Mark-Up) for**  
**R.E. Ginna Nuclear Power Plant**

## 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.
ACTUATION LOGIC TEST	An ACTUATION LOGIC TEST shall be the application of various simulated or actual input combinations in conjunction with each possible interlock logic state and the verification of the required logic output. The ACTUATION LOGIC TEST, as a minimum, shall include a continuity check of output devices.
AXIAL FLUX DIFFERENCE (AFD)	AFD shall be the difference in normalized flux signals between the top and bottom halves of a two section excore neutron detector.
CHANNEL CALIBRATION	<p>A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel so that it responds within the required range and accuracy to known input. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, interlock, display, and trip functions. 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.</p> <p>The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping calibrations or total channel steps so that the entire channel is calibrated <u>and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u></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 status derived from independent instrument channels measuring the same parameter.

CHANNEL OPERATIONAL TEST (COT)	A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify the OPERABILITY of required alarm, interlock, display, and trip functions. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints so that the setpoints are within the required range and accuracy. <u>The COT may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>
CORE ALTERATIONS	CORE ALTERATIONS 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. 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 plant specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter 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 thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in ICRP 30, Supplement to Part 1, pages 192-212, table entitled, "Committed Dose Equivalent in Target Organs or Tissues per Intake of Unit Activity."
DOSE EQUIVALENT XE-133	DOSE EQUIVALENT XE-133 shall be that concentration of Xe-133 (microcuries per gram) that alone would produce the same acute dose to the whole body as the combined activities of noble gas nuclides Kr-85m, Kr-85, Kr-87, Kr-88, Xe-131m, Xe-133m, Xe-133, Xe-135m, Xe-135, and Xe-138 actually present. If a specific noble gas nuclide is not detected, it should be assumed to be present at the minimum detectable activity. The determination of DOSE EQUIVALENT XE-133 shall be performed using effective dose conversion factors for air submersion listed in Table III.1 of EPA Federal Guidance Report No. 12, "External Exposure to Radionuclides in Air, Water, and Soil," 1993.
INSERVICE TESTING PROGRAM	The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f).



THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.
TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT)	A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of required alarm, interlock, display, and trip functions. The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the required accuracy. <u>The TADOT may be performed by means of any series of sequential, overlapping, or total channel steps, and each step must be performed within the Frequency in the Surveillance Frequency Control Program for the devices included in the step.</u>

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