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Southern Nuclear Operating Company
Vogtle Electric Generating Plant – Units 1&2

License Amendment Request to Revise Technical Specification 1.1
and Add 5.5.23 to Use Online Monitoring Methodology

Ladies and Gentlemen:

Pursuant to the provisions Section 50.90 of Title 10 Code of Federal Regulations (CFR), Southern Nuclear operating Company (SNC) hereby requests a license amendment to Vogtle Electric Generating Plant (VEGP) Unit 1 renewed operating license NFP-68 and Unit 2 renewed operating license NFP-81. The proposed amendment revises Technical Specification (TS) 1.1, "Use and Application Definitions" and adds TS 5.5.23 "Online Monitoring Program." SNC proposes to use online monitoring (OLM) methodology as the technical basis to switch from time-based surveillance frequency for channel calibrations to a condition-based calibration frequency based on OLM results. The proposed change is based on the NRC-approved topical report AMS-TR-0720R2-A, "Online Monitoring Technology to Extend Calibration Intervals of Nuclear Plant Pressure Transmitters."

SNC requests approval of the proposed amendment within one year from the acceptance of this submittal. The proposed changes would be implemented within 90 days after issuance of the amendments.

In accordance with 10 CFR 50.91, a copy of this application is being provided to the designated Georgia Official.

This letter contains no regulatory commitments.

If you have any questions, please contact Amy Chamberlain at 205.992.6361.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 21st day of December 2022.

Cheryl A. Gayheart
Regulatory Affairs Director
Southern Nuclear Operating Company

CAG/kgl/cg

Enclosure: Evaluation of the Proposed Change

cc: Regional Administrator, Region II
NRR Project Manager – Vogtle 1 & 2
Senior Resident Inspector – Vogtle 1 & 2
State of Georgia Environmental Protection Division
RType: CVC7000

ENCLOSURE

Evaluation of Proposed Change

Subject: Non-Voluntary License Amendment Request: Technical Specification Revision to Adopt WCAP-17661-P-A, "Improved RAOC and CAOC F_Q Surveillance Technical Specifications"

1. SUMMARY DESCRIPTION

Pursuant to the provisions Section 50.90 of Title 10 Code of Federal Regulations (CFR), Southern Nuclear Operating Company (SNC) hereby requests a license amendment to Vogtle Electric Generating Plant (VEGP) Unit 1 renewed operating license NFP-68 and Unit 2 renewed operating license NFP-81. The proposed amendment revises Technical Specification (TS) 1.1, "Use and Application Definitions" and adds TS 5.5.23 "Online Monitoring Program." SNC proposes to use online monitoring (OLM) methodology as the technical basis to switch from time-based surveillance frequency for channel calibrations to a condition-based calibration frequency based on OLM results.

2. DETAILED DESCRIPTION

2.1 Background

OLM technologies have been developed and validated for condition monitoring applications in a variety of process and power industries. The application to optimized maintenance of instrumentation and control (I&C) systems including online drift monitoring and assessment of dynamic failure modes of transmitters. Analysis and Measurement Services (AMS) Topical Report (TR) AMS-TR-0720R2-A, "Online Monitoring Technology to Extend Calibration Intervals of Nuclear Plant Pressure Transmitters" (Refs. 1 and 2) focused on the application of OLM for monitoring drift of pressure, level, and flow transmitters in nuclear power plants. The TR addressed the following topics:

- Advances in OLM implementation technology to extend transmitter calibration intervals
- Experience with OLM implementation in nuclear facilities
- Comparison between OLM results and manual calibrations
- Transmitter failure modes that can be detected by OLM
- Related regulatory requirements and industry standards and guidelines
- Procedures for implementation of OLM methodology
- Changes that must be made to existing technical specifications to adopt OLM

AMS-TR-0720R2-A provided the NRC with the information needed to approve the AMS OLM methodology for implementation in nuclear power plants. The TR is intended to be used by licensees to support plant-specific technical specification changes to switch from time-based calibration frequency of pressure, level, and flow transmitters to a condition-based calibration frequency based on OLM results and to develop procedures to assess dynamic failure modes of pressure sensing systems using the noise analysis technique.

The NRC staff determined that the methodology outlined in the AMS OLM TR for applying OLM techniques to pressure, level, and flow transmitters can be used to provide reasonable assurance that required TS instrument calibration requirements for transmitters will be maintained. This determination was based on the NRC staff finding that OLM techniques: a) are effective at identifying instrument calibration drift during plant operation, b) provide an acceptable means of identifying when manual transmitter calibration using traditional calibration methods are needed, and c) will maintain an acceptable level of performance that is traceable to calibration prime standards.

The NRC staff found that implementation of an OLM program in accordance with the approved AMS OLM TR provides an acceptable alternative to periodic manual calibration surveillance requirements upon implementation of the application-specific action items (ASAI) in Section 4.0 of its safety evaluation. The ASAIs are addressed in Section 3.4 below.

2.2 System Design and Operation

The transmitters to be included in the Online Monitoring Program provide input to the Reactor Trip System (RTS) and Engineered Safety Feature Actuation System (ESFAS) and are used for Post-Accident Monitoring (PAM) and the Remote Shutdown System.

The RTS initiates a unit shutdown, based on the values of selected unit parameters, to protect against violating the core fuel design limits and Reactor Coolant System (RCS) pressure boundary during anticipated operational occurrences and to assist the Engineered Safety Features Systems in mitigating accidents. The RTS instrumentation is identified in TS Table 3.3.1-1.

The ESFAS initiates necessary safety systems, based on the values of selected unit parameters, to protect against violating core design limits and the RCS pressure boundary, and to mitigate accidents. The ESFAS instrumentation is identified in TS Table 3.3.2-1.

The primary purpose of the PAM instrumentation is to display unit variables that provide information required by the control room operators during accident situations. This information provides the necessary support for the operator to take the manual actions for which no automatic control is provided and that are required for safety systems to accomplish their safety functions for Design Basis Accidents. The PAM instrumentation is identified in TS Table 3.3.3-1.

The Remote Shutdown System provides the operator with sufficient instrumentation and controls to place and maintain the unit in a safe shutdown condition from a location other than the control room. This capability is necessary to protect against the possibility that the control room becomes inaccessible. The Remote Shutdown System instrumentation is addressed in TS 3.3.4.

The RTS, ESFAS, PAM and Remote Shutdown System transmitters were evaluated in accordance with the methodology in AMS-TR-0720R2-A. The transmitters to be included in the OLM program and the bases for their selection can be found in AMS report SNO2201R2, “OLM Amenable Transmitters Report for Vogtle Units 1 and 2” (Ref. 3).

Switching from time-based surveillance frequency for channel calibrations to a condition-based calibration frequency will not create any physical changes to the plant. The change will not impact how the plant operates. SNC will use condition-based frequency to determine when transmitter calibrations are needed instead of performing calibrations based on a calendar frequency. Existing calibration methods will be used when the need for transmitter calibration is determined.

2.3 Reason for the Proposed Change

SNC is proposing to use the NRC-approved OLM methodology described in AMS-TR-0720R2-A. The use of the NRC-approved OLM methodology ensures that plant safety is maintained by demonstrating that transmitters are functioning correctly. The OLM methodology encompasses environmental and process conditions in the assessment of transmitter calibration.

The use of condition-based monitoring for transmitter calibration provides additional safety benefits, As described in AMS-TR-0720R2-A. The use of OLM will result in elimination of unnecessary transmitter calibration and associated opportunities for human errors. Elimination of unnecessary calibrations will also reduce calibration-induced damage to transmitters and other plant equipment. The use of OLM provides for timely detection of out-of-calibration transmitters. It eliminates occupational exposure and human error opportunities related to calibration activities that were unnecessary. Experience has shown that human errors during calibration of transmitters that did not require recalibration has resulted in additional repairs.

2.4 Description of the Proposed Change

SNC proposes to change TS 1.1 “Use and Application Definitions” definition of CHANNEL CALIBRATION.

Current TS 1.1

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, and trip functions. 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.

Proposed TS 1.1

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 (excluding transmitters in the Online Monitoring Program), alarm, interlock, and trip functions. 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.

SNC proposes to change TS 1.1 “Use and Application Definitions” definition of ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME.

Current TS 1.1

ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME - The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF 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 the methodology for verification have been previously reviewed and approved by the NRC, or the components have been evaluated in accordance with an NRC approved methodology.

Proposed TS 1.1

ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME - The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF 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 the methodology for verification have been previously reviewed and approved by the NRC (including transmitters in the Online Monitoring Program), or the components have been evaluated in accordance with an NRC approved methodology.

SNC proposes to change TS 1.1 “Use and Application Definitions” definition of REACTOR TRIP SYSTEM (RTS) RESPONSE TIME.

Current TS 1.1

REACTOR TRIP SYSTEM (RTS) RESPONSE TIME - The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage. 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 the methodology for verification have been previously reviewed and approved by the NRC, or the components have been evaluated in accordance with an NRC approved methodology.

Proposed TS 1.1

REACTOR TRIP SYSTEM (RTS) RESPONSE TIME - The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage.

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 the methodology for verification have been previously reviewed and approved by the NRC (including transmitters in the Online Monitoring Program), or the components have been evaluated in accordance with an NRC approved methodology.

SNC proposes to add TS 5.5.23 "Online Monitoring Program" to TS 5.5 "Programs and Manuals," as shown below.

Proposed TS 5.5.23

Online Monitoring Program

This program provides controls to determine the need for calibration of pressure, level, and flow transmitters using condition monitoring based on drift analysis. It also provides a means for in-situ dynamic response assessment using the noise analysis technique to detect failure modes that are not detectable by drift monitoring.

The Online Monitoring Program must be implemented in accordance with AMS-TR-0720R2-A, "Online Monitoring Technology to Extend Calibration Intervals of Nuclear Plant Pressure Transmitters" (proprietary version). The program shall include the following elements:

a. Implementation of online monitoring for transmitters that have been evaluated in accordance with a NRC approved methodology during the plant operating cycle.

    1. Analysis of online monitoring data to identify those transmitters that require a calibration check and those that can do not require a calibration check.

    2. Performance of online monitoring using noise analysis to assess in-situ dynamic response of transmitters that can affect response time performance.

    3. Calibration checks of identified transmitters no later than during the next scheduled refueling outage.

    4. Documentation of the results of the online monitoring data analysis.

b. Performance of a calibration check for any transmitter where the online monitoring was not implemented during the plant operating cycle no later than during the next scheduled refueling outage.

c. Performance of calibration checks for transmitters at the specified backstop frequencies.

d. The provisions of Surveillance Requirement 3.0.3 are applicable to the required calibration checks specified in items a.3, b, and c above.

The proposed TS changes are an adaptation from the illustrative changes presented in AMS-TR-0720R2-A that simplify the required plant-specific changes. The proposed Definition changes eliminated the need to modify the Channel Calibration and Response Time Surveillance Requirements. The proposed

Online Monitoring Program description was reorganized to better align with the OLM implementation activities.

3. TECHNICAL EVALUATION

3.1 OLM Implementation Process Development

This section describes the steps that were performed to implement the OLM program for VEGP Units 1 and 2 by following the steps identified in AMS-TR-0720R2-A Section 11.1.1. This work is documented in two AMS reports: SNO2201R2, "OLM Amenable Transmitters Report for Vogtle Units 1 and 2," (Ref. 3) and SNO2202R1, "OLM Analysis Methods and Limits Report for Vogtle Units 1 and 2" (Ref. 4).

SNO2201R2 addresses steps 1-6, from AMS-TR-0720R2-A Section 11.1.1. These steps were designed to arrive at a list of transmitters that can be included in an OLM program and determine how to obtain OLM data. The RTS, ESFAS, PAM, and Remote Shutdown System transmitters to be included in the OLM program and the bases for their selection can be found in SNO2201R2 (Ref. 3).

3.1.1 Determine if Transmitters are Amenable to OLM

AMS-TR-0720R2-A Chapter 12 includes Table 12.4 that lists the nuclear grade transmitter models that are amenable to OLM. Any transmitter model that is not listed in this table should only be added to the OLM program if it can be shown by similarity analysis that its failure modes are the same as the listed transmitter models or otherwise detectable by OLM.

3.1.2 List Transmitters in Each Redundant Group

This step establishes how to group the transmitters and evaluates the redundancy of each group.

3.1.3 Determine if OLM Data Covers Applicable Setpoints

This step evaluates the OLM data for each group to determine if it covers applicable setpoints. Additional details are described in AMS-TR-0720R2-A Chapter 14.

3.1.4 Calculate Backstops

A backstop, as described in AMS-TR-0720R2-A Chapter 13, must be established for each group of redundant transmitters amenable to OLM as a defense against common mode drift. The backstop identifies the maximum period between calibrations without calibrating at least one transmitter in a redundant group.

3.1.5 Establish Method of Data Acquisition

OLM data is normally available in the plant computer or an associated data historian. If data is not available from the plant computer or historian, a custom data acquisition system including hardware and software must be employed to acquire the data.

3.1.6 Specify Data Collection Duration and Sampling Rate

OLM data must be collected during startup, normal operation, and shutdown periods at the highest sampling rate by which the plant computer takes data. AMS-TR-0720R2-A Chapter 15 describes a process to determine the minimum sampling rate for OLM data acquisition to monitor for transmitter drift. AMS-TR-0720R2-A Chapter 8 describes a process to help determine the optimal sampling rate and minimum duration of OLM data collection.

SNO2202R1 addresses steps 7-8, from AMS-TR-0720R2-A Section 11.1.1 These steps address the calculation of the OLM limits and establish the methods of OLM data analysis.

3.1.7 Identify Data Analysis Methods

OLM implementations must employ both simple averaging and parity space methods for data analysis as described in AMS-TR-0720R2-A Chapter 6.

3.1.8 Establish OLM Limits

OLM limits must be established as described in AMS-TR-0720R2-A Chapter 7 for each group of redundant transmitters. Calculation of OLM limits must be based on combining uncertainties of components of each instrument channel from the transmitter in the field to the OLM data storage.

The second report provides the OLM Limit calculations for the transmitters that are amenable to OLM at VEGP Unit 1 and Unit 2.

3.2 OLM Program Implementation

This section summarizes the steps that must be followed to implement the OLM program for transmitter drift monitoring at VEGP Units 1 and 2 in accordance with AMS-TR-0720R2-A. The steps described in this section are repeated at each operating cycle at VEGP Units 1 and 2 to identify the transmitters that should be scheduled for a calibration check using data from periods of startup, normal operation, and shutdown. Additional details regarding the OLM Program Implementation discussed in this section are contained in AMS Report SNO2203R1, “OLM Drift Monitoring Implementation Report for Vogtle Units 1 and 2” (Ref. 5).

AMS-TR-0720R2-A Section 11.1.2 identifies eleven steps that must be followed each operating cycle to identify the transmitters that should be scheduled for a calibration check at the ensuing outage. Table 1 provides a mapping between AMS-TR-0720R2-A Section 11.1.2 and the LAR section where the item is addressed. Implementation of these steps is performed using the AMS Bridge and the AMS Calibration Reduction System (CRS) software programs that were developed by AMS under their 10 CFR Part 50 Appendix B software Quality Assurance (QA) program.

Table 1. Mapping to AMS-TR-0720R2-A Section 11.1.2

Item	Step	Step Number in Section 11.1.2 of AMS-TR-0720R2-A	LAR Section
1	Retrieve OLM Data	9	3.2.1
2	Perform Data Qualification	10	3.2.2
3	Select Appropriate Region of Any Transient Data	11	3.2.3
4	Perform Data Analysis	12	3.2.4
5	Plot the Average Deviation for Each Transmitter	13	3.2.5
6	Produce a Table for Each Group That Combines All Results	14	3.2.6
7	Determine OLM Results for Each Transmitter	15	3.2.7
8	Address Uncertainties in the Unexercised Portion of Transmitter Range	16	3.2.8
9	Select Transmitters to Be Checked for Calibration as a Backstop	17	3.2.9
10	Perform Dynamic Failure Mode Assessment	18	3.2.10
11	Produce a Report of Transmitters Scheduled for Calibration Check	19	3.2.11

3.2.1 Retrieve OLM Data

The first step in performing transmitter drift monitoring is to retrieve the OLM data. OLM data must be retrieved during periods of startup, normal operation, and shutdown. The method of data acquisition, data collection duration, sampling rate, and list of sensors whose data will be retrieved have been established as described in Section 3.1 of this document. The OLM data for VEGP Units 1 and 2 will be retrieved using the AMS Bridge software which will retrieve data from the Southern Nuclear Maintenance and Diagnostic (M&D) center historian and produce binary data files that are compatible with the AMS Calibration Reduction System (CRS) software. AMS procedure OLM2201, “Procedure for Online Monitoring Data Retrieval,” has been developed for performing the data retrieval using the AMS Bridge software (Ref. 6).

3.2.2 Perform Data Qualification

OLM data retrieved from plant historians sometimes contains anomalies such as spikes, missing data, stuck data, and saturated data. The portion of data containing these anomalies should be excluded, filtered, and/or cleaned prior to analysis. The AMS CRS software provides functionality for these tasks and will be used to perform data qualification. AMS procedure OLM2202, “Procedure for Performing Online Monitoring Data Qualification and Analysis,” has been developed for performing data qualification and analysis using the AMS CRS software (Ref. 7).

3.2.3 Select Appropriate Region of Any Transient Data

The AMS CRS software provides means to select the regions of transient data as described in Step 11 of Section 11.1.2 of AMS-TR-0720R2-A and will be used to perform these selections. This activity is part of OLM data analysis and is addressed in the data qualification and analysis procedure

3.2.4 Perform Data Analysis

Several tasks that must be performed in OLM data analysis for startup, normal operation, and shutdown data including:

1. Calculate the process estimate.
2. Calculate the deviation of each transmitter from the process estimate and plot the outcome.
3. Partition the deviation data into region(s) by percent of span.
4. Calculate and plot the average deviation for each region versus percent of span.
5. Select appropriate process estimation techniques, filtering parameters, and remove any outliers.
6. Determine if average deviations exceed OLM limits for any region.
7. Review, document, and store the details and results of analysis.

The AMS CRS software provides functionality for performing these tasks and will be used to perform OLM data analysis. Detailed steps for performing OLM data analysis are provided in the data qualification and analysis procedure.

3.2.5 Plot the Average Deviation for Each Transmitter

The AMS CRS software provides functionality for plotting the average deviation for each transmitter as described in Step 13 of Section 11.1.2 of AMS-TR-0720R2-A and will be used to perform this task. This activity is part of OLM data analysis and is addressed in detail in the data qualification and analysis procedure.

3.2.6 Produce a Table for Each Group That Combines All Results

The AMS CRS software provides functionality for producing a table for each group of redundant transmitters that combines all results as described in Step 14 of Section 11.1.2 of AMS-TR-0720R2-A and will be used to perform this task. This activity is part of OLM data analysis and is addressed in detail in the data qualification and analysis procedure.

3.2.7 Determine OLM Results for Each Transmitter

OLM results must be produced by the OLM analyst upon completion of data analysis for a complete operating cycle. The AMS CRS software provides functionality for producing these results as described in Step 15 of Section 11.1.2 of AMS-TR-0720R2-A and will be used to perform this task. This activity is part of OLM data analysis and is addressed in detail in the data qualification and analysis procedure.

3.2.8 Address Uncertainties in the Unexercised Portion of Transmitter Range

The AMS CRS software provides functionality for addressing uncertainties in the unexercised portion of the transmitter ranged as described in Step 16 of Section 11.1.2 of AMS-TR-0720R2-A and will be used to perform this task. This activity is part of OLM data analysis and is addressed in detail in the data qualification and analysis procedure.

3.2.9 Select Transmitters to Be Checked for Calibration as a Backstop

The AMS procedure OLM2202 is also used for maintaining the backstops for OLM. It provides detailed steps for selecting transmitters to be checked for calibration as a backstop as described in Step 17 of Section 11.1.2 of AMS-TR-0720R2-A.

3.2.10 Perform Dynamic Failure Mode Assessment

As described in Step 18 of Section 11.1.2 of AMS-TR-0720R2-A, dynamic failure mode assessment must be performed using the noise analysis technique to cover dynamic failures that are not detectable by the OLM process for transmitter drift monitoring. Details on how this will be addressed for VEGP Units 1 and 2 is described in LAR Section 3.3.

3.2.11 Produce a Report of Transmitters Scheduled for Calibration Check

The results of OLM analysis must be compiled in a report and independently reviewed. The transmitters that have been flagged must be scheduled for a calibration check at the next opportunity. The AMS CRS software provides functionality for producing this report and will be used to perform this task. This activity is part of OLM data analysis and is addressed in detail in the data qualification and analysis procedure.

3.3 OLM Noise Analysis Implementation

Some licensees have extended or eliminated transmitter response time testing requirements with NRC approval based, in part, on the performance of manual calibrations. Manual calibrations will not be performed except on transmitters that are flagged by OLM. The noise analysis methodology is provided in this document to enable licensees to assess the dynamic failure modes of transmitters that are not covered by the OLM process for transmitter drift monitoring.

This section summarizes the steps that must be followed to implement the noise analysis technique for transmitter dynamic failure mode assessment at VEGP Units 1 and 2 in accordance with AMS-TR-0720R2-A. Additional details regarding the implementation of the noise analysis technique discussed in this section are provided in AMS Report SNO2204R1, "Noise Analysis Technique Implementation for Vogtle Units 1 and 2" (Ref. 8).

As described in Section 11.3.3 of AMS-TR-0720R2-A, six steps must be followed to assess dynamic failure modes of pressure transmitters. Table 2 provides a mapping of the six steps in Section 11.3.3 of AMS-TR-0720R2-A and the section where they are addressed in this document. Implementation of these steps is performed using qualified noise data acquisition equipment and software programs that were developed by AMS under their 10 CFR Part 50 Appendix B software Quality Assurance (QA) program.

For VEGP Units 1 and 2, the transmitters with response time requirements have been identified in AMS Report SNO2201R2 (Ref. 3).

Table 2. Mapping to AMS-TR-0720R2-A Section 11.3.3

Item	Step	Step Number in Section 11.3.3 of AMS-TR-0720R2-A	LAR Section
1	Select Qualified Noise Data Acquisition Equipment	1	3.3.1
2	Connect Noise Data Acquisition Equipment to Plant Signals	2	3.3.2
3	Collect and Store Data for Subsequent Analysis	3	3.3.3
4	Screen Data for Artifacts and Anomalies	4	3.3.4
5	Perform Data Analysis	5	3.3.5
6	Review and Document Results	6	3.3.6

3.3.1 Select Qualified Noise Data Acquisition Equipment

The first step in performing noise analysis is to select qualified noise data acquisition equipment. This equipment must have a valid calibration traceable to the National Institute of Standards and Technology and meet a set of performance criteria detailed Step 1 of Section 11.3.3 of AMS-TR-0720R2-A. The equipment used to acquire data at VEGP Units 1 and 2 will be the AMS OLM data acquisition system which is comprised of hardware and software that has been developed and tested using AMS 10 CFR Part 50 Appendix B hardware and software QA program.

3.3.2 Connect Noise Data Acquisition Equipment to Plant Signals

AMS Procedure NPS1501, "Procedure for Noise Data Collection from Plant Sensors," is used for the connection of the noise data acquisition equipment for performing noise analysis testing (Ref. 9). This procedure identifies the locations for connection to process signals as well as the qualified personnel who may connect the data acquisition system at these locations. The noise data acquisition system should be connected to as many transmitters as allowed by the number of data acquisition channels and the plant procedures. Multiple transmitters (e.g., up to 32) can be tested simultaneously to reduce the test time. Each data acquisition channel must be connected to the transmitter current loop as shown in Section 11.3.3 of AMS-TR-0720R2-A.

3.3.3 Collect and Store Data for Subsequent Analysis

The noise data should be collected during normal plant operation at full temperature, pressure, and flow and analyzed in real time or stored to be analyzed later. However, noise data taken at other conditions is acceptable as long as there is enough process fluctuation with sufficient amplitude and frequency content to drive the transmitters to reveal their dynamic characteristics. Noise data collection will be performed using AMS OLM Data Acquisition software which has been developed and tested using AMS software V&V program which conforms to 10 CFR Part 50 Appendix B. The use of this software for noise data acquisition is addressed in the AMS procedure for performing noise analysis testing (Ref. 9).

3.3.4 Screen Data for Artifacts and Anomalies

Noise data may contain anomalies that must be excluded, filtered, and/or cleaned prior to data analysis. AMS Procedure NAR2201, “Procedure for Performing Dynamic Failure Mode Assessment Using Noise Analysis,” is used for performing noise analysis data analysis (Ref. 10) and will be performed using AMS noise analysis software.

3.3.5 Perform Data Analysis

Noise data analysis will be performed as described in Section 11.3.3 Step 5 in AMS-TR-0720R2-A using AMS noise analysis software. General data analysis steps for the analyst as well as detailed steps for performing noise data analysis are also provided in the AMS procedure for performing noise analysis data analysis (Ref 10).

3.3.6 Review and Document Results

Results of noise data analysis will be reviewed and approved by qualified personnel and documented in a report. This process is detailed in the AMS procedure for performing noise analysis data analysis (Ref 10).

3.4 Application Specific Action Items from AMS OLM TR

The NRC approval of the AMS OLM TR required implementation of the ASAIs in Section 4.0 of its safety evaluation. Five ASAIs were identified, and each is addressed below.

ASAI 1 – Evaluation and Proposed Mark-up of Existing Plant Technical Specifications

> *When preparing a license amendment request to adopt OLM methods for establishing calibration frequency, licensees should consider markups that provide clear requirements for accomplishing plant operations, engineering data analysis, and instrument channel maintenance. Such TS changes would need to include appropriate markups of the TS tables describing limiting conditions for operation and surveillance requirements, the technical basis for the changes, and the administrative programs section.*

Response to ASAI 1: The proposed changes to the VEGP Units 1 and 2 Technical Specifications are identified in Section 2.4 and shown in Attachments 1 and 2. The proposed changes modify applicable Definitions and adds a new program for OLM in the Administrative Controls. No changes to the Technical Specification tables describing Limiting Conditions for Operation or Surveillance Requirements were necessary.

ASAI 2 - Identification of Calibration Error Source

> *When determining whether an instrument can be included in the plant OLM program, the licensee shall evaluate calibration error source in order to account for the uncertainty due to multiple instruments used to support the transfer of transmitter signal data to the data collection system. Calibration errors identified through OLM should be attributed to the transmitter until testing can be performed on other support devices to correctly determine the source of calibration error and reallocate errors to these other loop components.*

Response to ASAI 2: Calibration error is evaluated as part of the calculation of OLM limits as described in Section 3.1.8. The calculation of OLM limits is based on combining uncertainties of components of each instrument channel from the transmitter in the field to the OLM data storage. The OLM data assessment methods described in Section 3.2.7 include guidance to consider calibration errors identified through OLM as coming from the transmitter until testing can be performed on other support devices to correctly determine the source of calibration error and reallocate errors to these other loop components.

ASAI 3 - Response Time Test Elimination Basis

> *If the plant has eliminated requirements for performing periodic RT testing of transmitters to be included in the OLM program, then the licensee shall perform an assessment of the basis for RT test elimination to determine if this basis will remain valid upon implementation of the OLM program and to determine if the RT test elimination will need to be changed to credit the OLM program rather than the periodic calibration test program.*

Response to ASAI 3: VEGP Units 1 and 2 previously eliminated requirements for performing periodic response time testing based on the periodic calibration of transmitters that are proposed to be included in the OLM program. VEGP Units 1 and 2 proposes to change the basis for response time test elimination to the methodology described in Section 3.3, which is which is based on the noise analysis methodology described in Section 11.3 of the AMS OLM TR.

ASAI 4 - Use of Calibration Surveillance Interval Backstop

> *In its application for a license or license amendment to incorporate OLM methods for establishing calibration surveillance intervals, applicants or licensees should describe how they intend to apply backstop intervals as a means for mitigating the potential that a process group could be experiencing undetected common mode drift characteristics.*

Response to ASAI 4: The SNC OLM program adopts the calibration surveillance interval backstop methods described in Section 3.2.9, which is based on the backstop methodology described in Section 13 of the AMS OLM TR.

Updated Final Safety Analysis Report (UFSAR) Section 1.9.118.2 will be modified to add the following discussion:

> Online monitoring using an NRC-approved methodology is used to switch from time-based calibration frequency of pressure, level, and flow transmitters to a condition-based calibration frequency based on OLM results. The online monitoring methodology is also used to assess dynamic failure modes of pressure-type sensing systems using the noise analysis technique to support the use allocations for transmitter response times in lieu of response time tests.

UFSAR Section 7.1.2.7 will be modified to add the following discussion:

E. Reference 7 provides the basis and methodology for using online monitoring to switch from time-based calibration frequency of pressure, level, and flow transmitters to a condition-based calibration frequency based on OLM results. The online monitoring methodology is also used to assess dynamic failure modes of pressure-type sensing systems using the noise analysis technique to support the use allocations for transmitter response times in lieu of response time tests. Transmitters included in the Online Monitoring program are listed in Table 7.1.1-1.

UFSAR Section 7.1.2.8 will be modified to add the following discussion:

7. Hashemian, H. M., Shumaker, B. D., and Morton, G. W., "Online Monitoring Technology to Extend Calibration Intervals of Nuclear Plant Pressure Transmitters," AMS-TR-0720R2-A, August 2021

ASAI 5 - Use of Criteria other than in AMS OLM TR for Establishing Transmitter Drift Flagging Limit

> *In its application for a license or license amendment to incorporate OLM methods for establishing calibration surveillance intervals, applicants or licensees should describe whether they intend to adopt the criteria within the AMS OLM TR for flagging transmitter*

> *drift or whether they plan to use a different methodology for determining this limit.*

Response to ASAI 5: The SNC OLM program adopts the two averaging techniques (i.e., simple average and parity space) described in Section 6 of the AMS OLM TR for flagging transmitter drift.

4. REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

10 CFR 50.36 Technical Specifications. Part (3) of this regulation sets the governing requirements for the inclusion of Surveillance Requirements in the Technical Specifications included in the Operating License for a commercial nuclear power plant.

> *(3) Surveillance requirements. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.*

SNC proposes to use the AMS OLM methodology as the technical basis to support plant-specific Technical Specification changes to switch from time-based surveillance frequency for channel calibrations to a condition-based calibration frequency based on OLM results.

10 CFR Part 50 Appendix A. General Design Criterion 21, “Protection System Reliability and Testability,” requires, in part, that plant protection systems be designed to permit periodic testing during reactor operation, including a capability to test channels independently to determine failures and losses of redundancy that may have occurred.

> *Criterion 21, Protection System Reliability and Testability. The protection system shall be designed for high functional reliability and in-service testability commensurate with the safety functions to be performed. Redundancy and independence designed into the protection system shall be sufficient to assure that (1) no single failure results in loss of the protection function and (2) removal from service of any component or channel does not result in loss of the required minimum redundancy unless the acceptable reliability of operation of the protection system can be otherwise demonstrated. The protection system shall be designed to permit periodic testing of its functioning when the reactor is in operation, including a capability to test channels independently to determine failures and losses of redundancy that may have occurred.”*

SNC proposes to use the AMS OLM methodology as the technical basis to support plant-specific Technical Specification changes to switch from time-based surveillance frequency for channel calibrations to a condition-based calibration frequency based on OLM results. The OLM methodology is also be used to assess dynamic failure modes of pressure sensing systems.

Regulatory Guide 1.118, Revision 3. Regulatory Guide 1.118, Revision 3, “Periodic Testing of Electric Power and Protection Systems,” endorses “with qualification” the IEEE Standard 338-1987, “IEEE Standard Criteria for the Periodic Surveillance Testing of Nuclear Power Generating Station Safety Systems”.

AMS proposes to use the AMS OLM methodology as the technical basis to support plant-specific Technical Specification changes to switch from time-based surveillance frequency for channel calibrations to a condition-based calibration frequency based on OLM results.

VEGP UFSAR Section 1.9.118 reflects the use of IEEE Standard 338-1977. This standard contains the following requirements related to calibration:

> *6.3.3 Channel Calibration Verification Tests.* A channel *calibration verification test should prove that with a known precise input, the channel gives the required output, analog, or bistable. Additionally, in analog channels, linearity and hysteresis may be checked. If the required output is achieved, the test is acceptable. If the required output is not achieved (for example, the bistable trip did not occur at the required set point or the analog output was out of tolerance) or saturation or foldover is observed and adjustment or alignment of gain, bias, trip set, etc., is required, the test is unacceptable. Adjustment or alignment procedures are maintenance activities and are outside the scope of this standard. Test results, however, shall be recorded in accordance with ANSI/ANS 3.2-1982, or the equivalent. Following maintenance or other appropriate disposition of the unacceptable results, a successful rerun of the channel calibration verification test shall be performed.*
>
> *6.5.2 Changes to Test Interval. The effect of testing intervals on performance of equipment shall be reevaluated periodically to determine if the interval used is an effective factor in maintaining equipment in an operational status. The following shall be considered:*
>
> - *History of equipment performance, particularly experienced failure rates and potential significant increases in failure rates.*
> - *Corrective action associated with failures.*
> - *Performance of equipment in similar plants or environment, or both.*
> - *Plant design changes associated with equipment.*
> - *Detection of significant changes of failure rates.*
>
> *Test intervals may be changed to agree with plant operational modes provided it can be shown that such changes do not adversely affect desired performance of the equipment being tested. Tests need not be performed on systems or equipment when they are not required to be operable or are tripped. If tests*

> *are not conducted on such systems, they shall be performed prior to returning the system to operation.*

SNC proposes to use the AMS OLM methodology as the technical basis to support plant-specific Technical Specification changes to switch to time-based surveillance frequency for channel calibrations to a condition-based calibration frequency based on the OLM results for a given transmitter.

IEEE Standard 338-2012. This standard contains the following requirements related to calibration:

> *5.3.3.2 On-line monitoring. On-line monitoring (OLM) techniques enable the determination of portions of an instrument channel's status during plant operation. This methodology is an acceptable input for establishing calibration frequency of those monitored portions of instrument channels without adversely affecting reliability.*
>
> *Continuous monitoring shall be employed, e.g., through the plant computer. Periodic manual testing is either a maintenance or surveillance task and is not on-line monitoring.*
>
> *On-line monitoring shall ensure that setpoint calculation assumptions and the safety analysis assumptions remain valid.*

SNC proposes to use the AMS OLM methodology as the technical basis to support plant-specific Technical Specification changes to switch to time-based surveillance frequency for channel calibrations to a condition-based calibration frequency based on the OLM results for a given transmitter.

4.2 Precedent

No identical precedent was identified. The SNC license amendment request is based the NRC-approved Analysis and Measurement Services Corporation Topical Report AMS-TR-0720R2, “Online Monitoring Technology to Extend Calibration Intervals of Nuclear Plant Pressure Transmitters” (Refs. 1 and 2).

4.3 No Significant Hazards Consideration Determination Analysis

Southern Nuclear Operating Company (SNC) has evaluated the proposed changes to the Technical Specifications (TS) using the criteria in 10 CFR 50.92 and has determined that the proposed changes do not involve a significant hazards consideration.

The proposed changes revise TS 1.1, “Use and Application Definitions” and add TS 5.5.23 “Online Monitoring Program.” SNC proposes to use online monitoring (OLM) methodology as the technical basis to switch from time-based surveillance frequency for channel calibrations to a condition-based calibration frequency based on OLM results. Switching from time-based surveillance frequency for channel calibrations to a condition-based calibration frequency will not create any physical changes to the plant. The use of the NRC-approved OLM methodology ensures that plant safety is maintained by demonstrating that transmitters are functioning correctly.

As required by 10 CFR 50.91(a), the SNC analysis of the issue of no significant hazards consideration is presented below:

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

   Response: No

   The proposed change uses online monitoring (OLM) methodology as the technical basis to switch from time-based surveillance frequency for channel calibrations to a condition-based calibration frequency based on OLM results. Switching from time-based surveillance frequency for channel calibrations to a condition-based calibration frequency will not create any physical changes to the plant. The use of the NRC-approved OLM methodology ensures that plant safety is maintained by demonstrating that transmitters are functioning correctly.

   The proposed changes do not adversely affect accident initiators or precursors, and do not alter the design assumptions, conditions, or configuration of the plant or the manner in which the plant is operated or maintained.

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

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

   Response: No

   The change does not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. Existing calibration methods will be used when the need for transmitter calibration is determined. The change does not alter assumptions made in the safety analysis but ensures that the transmitters operate as assumed in the accident analysis. The proposed change is 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 accident previously evaluated.

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

   Response: No

   The change does not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. The change does not alter assumptions made in the safety analysis but ensures that the transmitters operate as assumed in the accident analysis. The proposed change is consistent with the safety analysis assumptions. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

4.4 Conclusions

In conclusion, based on the considerations discussed above, SNC concludes: (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 the health and safety of the public.

5. ENVIRONMENTAL CONSIDERATION

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 Part 20, and 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 effluent 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. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6. REFERENCES

1. Analysis and Measurement Services Corporation letter to NRC dated August 20, 2021, “Submittal of -A Version of Analysis and Measurement Services Corporation Topical Report AMS-TR-0720R2, ‘Online Monitoring Technology to Extend Calibration Intervals of Nuclear Plant Pressure Transmitters’ (Docket No. 99902075),” (ADAMS Accession No. ML21235A493).
2. NRC Form 896, AMS Topical Report -A Verification, dated September 22, 2021 (ADAMS Accession No. ML21237A490).
3. AMS Report SNO2201R2, “OLM Amenable Transmitters Report for Vogtle Units 1 and 2,” AMS Corporation, December 2022.
4. AMS Report SNO2202R1, “OLM Analysis Methods and Limits Report for Vogtle Units 1 and 2,” AMS Corporation, December 2022.
5. AMS Report SNO2203R1, “OLM Drift Monitoring Implementation Report for Vogtle Units 1 and 2,” December 2022.
6. AMS Procedure OLM2201, “Procedure for Online Monitoring Data Retrieval,” AMS Corporation, December 2022.
7. AMS Procedure OLM2202, “Procedure for Performing Online Monitoring Data Qualification and Analysis,” AMS Corporation, December 2022
8. AMS Report SNO2204R1, "Noise Analysis Technique Implementation for Vogtle Units 1 and 2,” AMS Corporation, December 2022.
9. AMS Procedure NPS1501, “Procedure for Noise Data Collection from Plant Sensors,” AMS Corporation, March 2015.
10. AMS Procedure NAR2201, “Procedure for Performing Dynamic Failure Mode Assessment Using Noise Analysis,” AMS Corporation, December 2022.

Attachment 1

Vogtle Electric Generating Plant – Units 1 and 2

(8 total pages including cover page)

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.

Term	Definition
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 (excluding transmitters in the Online Monitoring Program), alarm, interlock, and trip functions. 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.

(continued)

1.1 Definitions (continued)

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, 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. 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.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or other 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.
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 EPA Federal Guidance Report No. 11, “Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion,” EPA-520/1-88-020, September 1988.

(continued)

1.1 Definitions (continued)

Ē - AVERAGE DISINTEGRATION ENERGY	Ē shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives > 14 minutes, making up at least 95% of the total noniodine activity in the coolant.
ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME	The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF 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 the methodology for verification have been previously reviewed and approved by the NRC (including transmitters in the Online Monitoring Program), or the components have been evaluated in accordance with an NRC approved methodology.
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, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank;

2. LEAKAGE into the containment 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; or

(continued)

1.1 Definitions

LEAKAGE
(continued)

3. Reactor Coolant System (RCS) LEAKAGE through a steam generator to the Secondary System (primary to secondary LEAKAGE);

b. Unidentified LEAKAGE
All LEAKAGE (except RCP seal water injection or leakoff) that is not identified LEAKAGE;

c. Pressure Boundary LEAKAGE

LEAKAGE (except primary to secondary LEAKAGE) through a nonisolable fault in an RCS component body, pipe wall, or vessel wall.

MASTER RELAY TEST — A MASTER RELAY TEST shall consist of energizing each master relay and verifying the OPERABILITY of each relay. The MASTER RELAY TEST shall include a continuity check of each associated slave relay.

MODE — A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, 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, train, 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, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

PHYSICS TESTS — PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are:

(continued)

1.1 Definitions

PHYSICS TESTS (continued)	a. Described in Chapter 14 of the FSAR; b. Authorized under the provisions of 10 CFR 50.59; or c. Otherwise approved by the Nuclear Regulatory Commission.
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, Cold Overpressure Protection System (COPS) arming temperature and the nominal PORV setpoints for the COPS, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.6. Unit operation within these operating limits is addressed in individual specifications.
QUADRANT POWER TILT RATIO (QPTR)	QPTR shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater.
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 3625.6 MWt.
REACTOR TRIP SYSTEM (RTS) RESPONSE TIME	The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage. 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 the methodology for verification have been previously reviewed and approved by the NRC (including transmitters in the Online Monitoring Program), or the components have been evaluated in accordance with an NRC approved methodology.

(continued)

5.5 Programs and Manuals

5.5.22 Risk Informed Completion Time Program

g. (continued)

1. The RICT calculation shall be adjusted to numerically account for the increased possibility of CC failure, in accordance with RG 1.177, as specified in Section A-1.3.2.1 of Appendix A of the RG. Specifically, when a component fails, the CC failure probability for the remaining redundant components shall be increased to represent the conditional failure probability due to CC failure of these components, in order to account for the possibility the first failure was caused by a CC mechanism.

OR

2. Prior to exceeding the front stop, RMAs not already credited in the RICT calculation shall be implemented. These RMAs shall target the success of the redundant and/or diverse structures, systems, or components (SSC) of the failed SSC and, if possible, reduce the frequency of initiating events which call upon the function(s) performed by the failed SSC. Documentation of RMAs shall be available for NRC review.

h. A RICT entry is not permitted, or a RICT entry made shall be exited, for any condition involving a TS loss of function if a PRA Functionality determination that reflects the plant configuration concludes that the LCO cannot be restored without placing the TS inoperable trains in an alignment which results in a loss of functional level PRA success criteria.

5.5.23 Online Monitoring Program

This program provides controls to determine the need for calibration of pressure, level, and flow transmitters using condition monitoring based on drift analysis. It also provides a means for in-situ dynamic response assessment using the noise analysis technique to detect failure modes that are not detectable by drift monitoring.

The Online Monitoring Program must be implemented in accordance with AMS-TR-0720R2-A, "Online Monitoring Technology to Extend Calibration Intervals of Nuclear Plant Pressure Transmitters" (proprietary version). The program shall include the following elements:

a. Implementation of online monitoring for transmitters that have been evaluated in accordance with a NRC approved methodology during the plant operating cycle.

(continued)

1) Analysis of online monitoring data to identify those transmitters that require a calibration check and those that do not require a calibration check,

2) Performance of online monitoring using noise analysis to assess in-situ dynamic response of transmitters that can affect response time performance,

3) Calibration checks of identified transmitters no later than during the next scheduled refueling outage, and

4) Documentation of the results of the online monitoring data analysis.

b. Performance of a calibration check for any transmitter where the online monitoring was not implemented during the plant operating cycle no later than during the next scheduled refueling outage.

c. Performance of calibration checks for transmitters at the specified backstop frequencies.

d. The provisions of Surveillance Requirement 3.0.3 are applicable to the required calibration checks specified in items a.3, b, and c above.

(continued)

Attachment 2

Vogtle Electric Generating Plant – Units 1 and 2

(8 total pages including cover page)

1.0 USE AND APPLICATION

1.1 Definitions

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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 (excluding transmitters in the Online Monitoring Program), alarm, interlock, and trip functions. 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.

(continued)

1.1 Definitions (continued)

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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, 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. 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.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or other 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.
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 EPA Federal Guidance Report No. 11, “Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion,” EPA-520/1-88-020, September 1988.

(continued)

1.1 Definitions (continued)

Ē - AVERAGE DISINTEGRATION ENERGY	Ē shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives > 14 minutes, making up at least 95% of the total noniodine activity in the coolant.
ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME	The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF 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 the methodology for verification have been previously reviewed and approved by the NRC (including transmitters in the Online Monitoring Program), or the components have been evaluated in accordance with an NRC approved methodology.
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. <u>Identified LEAKAGE</u>

1. LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank;

2. LEAKAGE into the containment 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; or

(continued)

1.1 Definitions

LEAKAGE
(continued)

3. Reactor Coolant System (RCS) LEAKAGE through a steam generator to the Secondary System (primary to secondary LEAKAGE);

b. Unidentified LEAKAGE
All LEAKAGE (except RCP seal water injection or leakoff) that is not identified LEAKAGE;

c. Pressure Boundary LEAKAGE

LEAKAGE (except primary to secondary LEAKAGE) through a nonisolable fault in an RCS component body, pipe wall, or vessel wall.

MASTER RELAY TEST

A MASTER RELAY TEST shall consist of energizing each master relay and verifying the OPERABILITY of each relay. The MASTER RELAY TEST shall include a continuity check of each associated slave relay.

MODE

A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, 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, train, 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, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

PHYSICS TESTS

PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are:

(continued)

1.1 Definitions

PHYSICS TESTS (continued)	a. Described in Chapter 14 of the FSAR; b. Authorized under the provisions of 10 CFR 50.59; or c. Otherwise approved by the Nuclear Regulatory Commission.
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, Cold Overpressure Protection System (COPS) arming temperature and the nominal PORV setpoints for the COPS, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.6. Unit operation within these operating limits is addressed in individual specifications.
QUADRANT POWER TILT RATIO (QPTR)	QPTR shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater.
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 3625.6 MWt.
REACTOR TRIP SYSTEM (RTS) RESPONSE TIME	The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage. 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 the methodology for verification have been previously reviewed and approved by the NRC (including transmitters in the Online Monitoring Program), or the components have been evaluated in accordance with an NRC approved methodology.

(continued)

5.5 Programs and Manuals

5.5.22 Risk Informed Completion Time Program

g. (continued)

2. The RICT calculation shall be adjusted to numerically account for the increased possibility of CC failure, in accordance with RG 1.177, as specified in Section A-1.3.2.1 of Appendix A of the RG. Specifically, when a component fails, the CC failure probability for the remaining redundant components shall be increased to represent the conditional failure probability due to CC failure of these components, in order to account for the possibility the first failure was caused by a CC mechanism.

OR

2. Prior to exceeding the front stop, RMAs not already credited in the RICT calculation shall be implemented. These RMAs shall target the success of the redundant and/or diverse structures, systems, or components (SSC) of the failed SSC and, if possible, reduce the frequency of initiating events which call upon the function(s) performed by the failed SSC. Documentation of RMAs shall be available for NRC review.

h. A RICT entry is not permitted, or a RICT entry made shall be exited, for any condition involving a TS loss of function if a PRA Functionality determination that reflects the plant configuration concludes that the LCO cannot be restored without placing the TS inoperable trains in an alignment which results in a loss of functional level PRA success criteria.

5.5.23 Online Monitoring Program

This program provides controls to determine the need for calibration of pressure, level, and flow transmitters using condition monitoring based on drift analysis. It also provides a means for in-situ dynamic response assessment using the noise analysis technique to detect failure modes that are not detectable by drift monitoring.

(continued)

5.5 Programs and Manuals

5.5.23 Online Monitoring Program (continued)

The Online Monitoring Program must be implemented in accordance with AMS-TR-0720R2-A, "Online Monitoring Technology to Extend Calibration Intervals of Nuclear Plant Pressure Transmitters" (proprietary version). The program shall include the following elements:

a. Implementation of online monitoring for transmitters that have been evaluated in accordance with a NRC approved methodology during the plant operating cycle.

    1) Analysis of online monitoring data to identify those transmitters that require a calibration check and those that can do not require a calibration check,

    2) Performance of online monitoring using noise analysis to assess in-situ dynamic response of transmitters that can affect response time performance,

    3) Calibration checks of identified transmitters no later than during the next scheduled refueling outage, and

    4) Documentation of the results of the online monitoring data analysis.

b. Performance of a calibration check for any transmitter where the online monitoring was not implemented during the plant operating cycle no later than during the next scheduled refueling outage.

c. Performance of calibration checks for transmitters at the specified backstop frequencies.

d. The provisions of Surveillance Requirement 3.0.3 are applicable to the required calibration checks specified in items a.3, b, and c above.

Attachment 3

Vogtle Electric Generating Plant – Units 1 and 2

(9 total pages including cover page)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.9

SR 3.3.1.9 is the performance of a TADOT. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

The SR is modified by a Note that excludes verification of setpoints from the TADOT. Since this SR applies to RCP undervoltage and underfrequency relays, setpoint verification requires elaborate bench calibration and is accomplished during the CHANNEL CALIBRATION.

SR 3.3.1.10

CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the unit specific setpoint methodology. The difference between the current "as-found" values and the previous test "as-left" values must be consistent with the drift allowance used in the setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. Operating experience has shown these components usually pass the Surveillance when performed on the 18 month Frequency.

Alternately, the CHANNEL CALIBRATION Frequency for pressure, level, and flow transmitters may be determined in accordance with the Online Monitoring Program to Extend Transmitter Calibration Intervals implemented in accordance with AMS-TR-0720R2-A (Ref. 15). In cases where ONLINE MONITORING cannot be performed during the monitoring period, the transmitter would need to be calibrated within the interval specified based on the Surveillance Frequency Control Program measured since the last valid Online Monitoring Program assessment.

SR 3.3.1.10 is modified by a Note stating that this test shall include verification that the time constants are adjusted to the prescribed values where applicable.

SR 3.3.1.10 is modified by two Notes as identified in Table 3.3.1-1. The first Note requires evaluation of channel performance for the condition where the as-found setting for the

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.15 (continued)

Response time may be verified by actual response time tests in any series of sequential, overlapping, or total channel measurements; or by the summation of allocation sensor, signal processing, and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) in place, onsite, or offsite (e.g., vendor) test measurements, or (3) using vendor engineering specifications. WCAP-13632-P-A Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," (Ref. 12), provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test.

WCAP-14036-P Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," (Ref. 13), provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning and actuation logic response times must be verified prior to placing the component in operational service and re-verified following maintenance that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and

Alternately, the use of the allocated RTS RESPONSE TIME for transmitters in the Online Monitoring Program to Extend Transmitter Calibration Intervals is supported by the performance of ONLINE MONITORING using the 'noise analysis' technique to detect dynamic failures modes that can affect transmitter response time.

the components that were previously evaluated in Ref. 12 and Ref. 13, provided that the components have been evaluated in accordance with the NRC approved methodology as discussed in Attachment 1 to TSTF-569, "Methodology to Eliminate Pressure Sensor and Protection Channel (for Westinghouse Plants only) Response Time Testing," (Ref. 14).

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

(continued)

BASES

REFERENCES (continued)

8. WCAP-14333-P-A, Rev. 1, October 1998.

9. WCAP-10271-P-A, Supplement 1, May 1986.

10. WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.

11. WCAP-15376-P-A, Rev. 1, March 2003.

12. WCAP-13632-P-A Revision 2, “Elimination of Periodic Sensor Response Time Testing Requirements,” January 1996.

13. WCAP-14036-P-A Revision 1, “Elimination of Periodic Protection Channel Response Time Tests,” October 1998.

14. Attachment 1 to TSTF-569, “Methodology to Eliminate Pressure Sensor and Protection Channel (for Westinghouse Plants only) Response Time Testing.”

15. AMS-TR-0720R2-A, "Online Monitoring Technology to Extend Calibration Intervals of Nuclear Plant Pressure Transmitters."

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.7

SR 3.3.2.7 is the performance of a CHANNEL CALIBRATION.

CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to measured parameter within the necessary range and accuracy.

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the unit specific setpoint methodology. The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

This SR is modified by a Note stating that this test should include verification that the time constants are adjusted to the prescribed values where applicable. The steam line pressure-low and steam line pressure negative rate-high functions have time constants specified in their setpoints.

SR 3.3.2.4 is modified by two Notes as identified in Table 3.3.2-1. The first Note requires evaluation of channel performance for the condition where the as-found setting for the channel setpoint is outside its as-found tolerance but conservative with respect to the Allowable Value. Evaluation of channel performance will verify that

Alternately, the CHANNEL CALIBRATION Frequency for pressure, level, and flow transmitters may be determined in accordance with the Online Monitoring Program to Extend Transmitter Calibration Intervals implemented in accordance with AMS-TR-0720R2-A (Ref. 20). In cases where ONLINE MONITORING cannot be performed during the monitoring period, the transmitter would need to be calibrated within the interval specified based on the Surveillance Frequency Control Program measured since the last valid Online Monitoring Program assessment.

conservative than the NTSP is used in the plant surveillance procedures (field setting), the as-left and as-found tolerances, as applicable, will be applied to the surveillance procedure setpoint. This will ensure that sufficient margin to the Safety Limit and/or Analytical Limit is maintained. If the as-left channel setting cannot be returned to a setting within the as-left tolerance of the NTSP, then the channel shall be declared inoperable.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.7 (continued)

The second Note also requires that the methodologies for calculating the as-left and the as-found tolerances be in NMP-ES-033-006, Vogtle Setpoint Uncertainty Methodology and Scaling Instructions.

SR 3.3.2.8

This SR ensures the individual channel ESF RESPONSE TIMES are less than or equal to the maximum values assumed in the accident analysis. Response Time testing acceptance criteria are included in the FSAR, Chapter 7 (Ref. 3). Individual component response times are not modeled in the analyses. The analyses model the overall or total elapsed time, from the point at which the parameter exceeds the Trip Setpoint value at the sensor, to the point at which the equipment in both trains reaches the required functional state (e.g., pumps at rated discharge pressure, valves in full open or closed position).

For channels that include dynamic transfer functions (e.g., lag, lead/lag, rate/lag, etc.), the response time test may be performed

Alternately, the use of the allocated ESF RESPONSE TIME for transmitters in the Online Monitoring Program to Extend Transmitter Calibration Intervals is supported by the performance of ONLINE MONITORING using the 'noise analysis' technique to detect dynamic failures modes that can affect transmitter response time.

Response time may be verified by actual response time tests in any series of sequential, overlapping, or total channel measurements; or by the summation of allocated sensor, signal processing, and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from:

(1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) inplace, onsite, or offsite (e.g., vendor) test measurements, or (3) using vendor engineering specifications. WCAP-13632-P-A Revision 2, “Elimination of Pressure Sensor Response Time Testing Requirements” (Reference 11), provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test.

(continued)

BASES

REFERENCES (continued)

18. WCAP-16294-NP-A, Rev. 1, “Risk-Informed Evaluation of Changes to Technical Specification Required Action Endstates for Westinghouse NSSS PWRs,” June 2010.

19. Attachment 1 to TSTF-569, “Methodology to Eliminate Pressure Sensor and Protection Channel (for Westinghouse Plants only) Response Time Testing.”

20. AMS-TR-0720R2-A, "Online Monitoring Technology to Extend Calibration Intervals of Nuclear Plant Pressure Transmitters."

4. AMS-TR-0720R2-A, "Online Monitoring Technology to Extend Calibration Intervals of Nuclear Plant Pressure Transmitters."

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.3.2

CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to measured parameter with the necessary range and accuracy. This SR is modified by a Note that excludes neutron detectors. The calibration method for neutron detectors is specified in the Bases of LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation." The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

Alternately, the CHANNEL CALIBRATION Frequency for pressure, level, and flow transmitters may be determined in accordance with the Online Monitoring Program to Extend Transmitter Calibration Intervals implemented in accordance with AMS-TR-0720R2-A (Ref. 4). In cases where ONLINE MONITORING cannot be performed during the monitoring period, the transmitter would need to be calibrated within the interval specified based on the Surveillance Frequency Control Program measured since the last valid Online Monitoring Program assessment.

REFERENCES

1. Safety Evaluation Report related to the operation of the Vogtle Electric Generating Plant, Units 1 and 2, NUREG-1137, Supplement No. 2, Section 7.5, May 1986.

2. Regulatory Guide 1.97, Rev. 2.

3. NUREG-0737, Supplement 1, "TMI Action Items."

3. AMS-TR-0720R2-A, "Online Monitoring Technology to Extend Calibration Intervals of Nuclear Plant Pressure Transmitters."

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.2

SR 3.3.4.2 verifies each required Remote Shutdown System control circuit and transfer switch performs the intended function. This verification is performed from the remote shutdown panel and locally, as appropriate. Operation of the equipment from the remote shutdown panel is not necessary. The surveillance may be satisfied by performance of a continuity check. This will ensure that if the control room becomes inaccessible, the unit can be placed and maintained in MODE 3 from the remote shutdown panel and the local control stations. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program. Any change in the scope or frequency of this SR requires reevaluation of STI Evaluation number 417332, in accordance with the Surveillance Frequency Control Program.

SR 3.3.4.3

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 19.

2. STI Evaluation 417332.

Alternately, the CHANNEL CALIBRATION Frequency for pressure, level, and flow transmitters may be determined in accordance with the Online Monitoring Program to Extend Transmitter Calibration Intervals implemented in accordance with AMS-TR-0720R2-A (Ref. 3). In cases where ONLINE MONITORING cannot be performed during the monitoring period, the transmitter would need to be calibrated within the interval specified based on the Surveillance Frequency Control Program measured since the last valid Online Monitoring Program assessment.

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