# 2.0 Design Certification ITAAC

Design Certification ITAAC in this COLA are based on the ABWR design certification material contained in the reference ABWR DCD, Tier 1, Chapters 2 and 3. The total scope of the design certification material, including ITAAC, is provided in Tier 1 material in COLA Part 2. The Tier 1 ITAAC are incorporated by reference (IBR) with the exception of the ITAAC that are modified by the following departures.

STD DEP T1 2.2-1 (Table 2.2.7)

STD DEP T1 2.2-2 (Table 2.2.1)

STD DEP T1 2.2-4 (Table 2.2.1)

STD DEP T1 2.4-1 (Table 2.4.1)

STD DEP T1 2.4-3

STD DEP T1 2.12-1 (Table 2.12.1, Table 2.12.12, Table 2.12.14)

STD DEP T1 2.12-2 (Table 2.12.15)

STD DEP T1 2.14-1 (Table 2.3.3, Table 2.14.8, Table 2.15.5.c)

STD DEP T1 3.4-1 (Table 2.2.11, Table 2.7.5, Table 3.4)

## Tier 1 Subsection 2.2.1 Rod Control and Information System

### Table 2.2.1 Rod Control and Information System

| Inspections, Tests, Analyses and Acceptance Criteria | | |
|---|---|---|
| **Design Commitment** | **Inspection, Tests, Analyses** | **Acceptance Criteria** |
| 8. The RCIS provides an automatic control rod withdrawal block in response to:<br>a. A signal from the NMS MRBM at above the low power setpoint.<br>b. A signal from the CRD System FMCRD hollow piston/ball nut separation switches (withdrawal block applies only to separated control rod **if selected with the RPS mode switch in Startup Mode or Run Mode).**<br>c. A signal from the RPS Mode Switch when in Refuel Mode that only permits the two control rods associated with the same HCU being withdrawn from the core at anytime. | *8. Tests will be conducted on the RCIS using simulated signals from the NMS MRBM at above low power setpoint; and from the FMCRD separation switches* **and Startup and Run Mode positions of RPS Mode Switch***; and from control rods of the same HCU and Refuel Mode position of RPS Mode Switch.* | *8.* A control rod withdrawal block signal occurs upon receipt of simulated signals from:<br>a NMS MRBM at above the low power setpoint,<br>b FMCRD separation switches (withdrawal block is only applicable to separated control rod **if selected with the RPS mode switch in Startup Mode or Run Mode**),<br>c An attempt to withdraw a control rod, when the RPS mode switch is in Refuel Mode and the two control rods associated with the same HCU are withdrawn. |
| 11. The RCIS is powered by two non-Class 1E uninterruptible supplies. | 11. Tests will be performed on the as-built RCIS by providing a test signal in only one non- Class 1E uninterruptible power supply at a time. | 11. The test signal exists ~~in only one control channel at a time~~ **in only the one power supply.** |

## Tier 1 Subsection 2.2.7 Reactor Protection System

### Table 2.2.7 Reactor Protection Sytstem

| Inspections, Tests, Analyses and Acceptance Criteria | | |
|---|---|---|
| **Design Commitment** | **Inspections, Tests, Analyses** | **Acceptance Criteria** |
| 5. RPS initiates an RIP trip on receipt of either a turbine stop valve closure or a low turbine control valve oil pressure signal when reactor power is above 40% (from ~~a turbine first stage~~ **NMS STP** signal). | 5. Test will be conducted on the as-built RPS using simulated turbine stop valve position, turbine control valve oil pressure and ~~turbine first stage pressure~~ **NMS STP** signals. | 5. The RPS initiates an RIP trip on receipt of either a simulated signals indicating turbine stop valve closure or low control valve oil pressure when reactor power is above 40%. |

## Tier 1 Subsection 2.2.11 ~~*Process Computer System*~~ Plant Computer Functions (PCFs)

### Table 2.2.11 ~~*Process Computer System*~~ Plant Computer Functions

| Inspections, Tests, Analyses and Acceptance Criteria | | |
|---|---|---|
| **Design Commitment** | **Inspections, Tests, Analyses** | **Acceptance Criteria** |
| 1. The **PICS** equipment ~~comprising~~ **performing** the ~~PCS~~ **PCFs** is defined in Section 2.2.11. | 1. Inspections of the as-built system will be conducted. | 1. The as-built ~~PCS~~ **PICS equipment implementing the PCFs** conforms with the description in Section 2.2.11. |
| 2. The ~~PCS~~ **PCFs** ~~provides~~ **provide** LPRM calibration and fuel operating thermal limits data to the ATLM function of the RCIS. | 2. Tests of the as-built ~~PCS~~ **PCFs** will be conducted using simulated plant input signals. | 2. LPRM calibration and fuel thermal limits data are received by the ATLM function of the RCIS. |
| 3. In the event that abnormal conditions develop in the plant during operations in the automatic mode, the ~~PCS~~ **PCFs** automatically ~~reverts~~ **revert** to the manual operating mode. | 3. Tests of the as-built ~~PCS~~ **PCFs** will be conducted using simulated abnormal plant input signals, while the ~~PCS~~ **PCFs** ~~is~~ **are** in the automatic operating mode. | 3. Upon receipt of the abnormal plant input signals, the ~~PCS~~ **PCFs** automatically ~~reverts~~ **revert** to the manual operating mode. |

## Tier 1 Subsection 2.3.3 Containment Atmospheric Monitoring System

### Table 2.3.3 Containment Atmospheric Monitoring System

| Inspections, Tests, Analyses and Acceptance Criteria | | |
|---|---|---|
| **Design Commitment** | **Inspections, Tests, Analyses** | **Acceptance Criteria** |
| 2. Operation of ~~each~~ CAMS **oxygen/hydrogen monitoring equipment** ~~division~~ can be activated manually by the operator or automatically. | 2. Tests ~~of each division~~ of the as-built CAMS **oxygen/hydrogen monitoring equipment** will be conducted using manual controls and simulated automatic initiation signals. | 2. ~~Each~~ CAMS ~~division~~ **oxygen/hydrogen monitoring equipment** is activated upon receipt of the test signals. |
| 3. Each CAMS division **of radiation channels** is powered from its respective divisional Class 1E power source. In the CAMS, independence is provided between Class 1E divisions, and between Class 1E divisions and non-Class 1E equipment. | 3.<br>a. Tests will be performed on **each of** the CAMS **radiation channels** by providing a test signal to only one Class 1E division at a time.<br>b. Inspection of the as-built **Class 1E radiation channels** ~~divisions in the CAMs~~ will be performed. | 3.<br>a. The test signal exists only in the Class 1E division under test in the CAMS.<br>b. In the CAMS, physical separation or electrical isolation exists between Class 1E divisions. Physical separation or electrical isolation exists between these Class 1E divisions and non-Class 1E equipment. |

# Tier 1 Subsection 2.4 Core Cooling Systems

## Table 2.4.1 Residual Heat Removal System

Inspections, Tets, Analyses and Acceptance Criteria

| Design Commitment | Inspections, Tests, Analyses | Acceptance Criteria |
|---|---|---|
| 7. In the augmented fuel pool cooling mode, the RHR tube side heat exchanger flow rate ~~for Divisions B or C~~ is no less than 350 $m^3/h$ (heat exchanger heat removal capacity in this mode is bounded by suppression pool cooling requirements). | 7. Tests will be performed to determine system flow rate through each heat exchanger in the augmented fuel pool cooling mode. Inspections and analyses shall be performed to verify that the augmented fuel pool cooling mode is bounded by suppression pool cooling requirements. | 7. The RHR tube side heat exchanger flow rate is greater than or equal to 350 $m^3/h$ in the augmented fuel pool cooling mode. Heat exchanger heat removal capacity in this mode is bounded by suppression pool cooling requirements. |

## Tier 1 Subsection 2.4.4 Reactor Core Isolation Cooling System

STD DEP T1 2.4-3

The Reactor Core Isolation Cooling System (RCIC) alternate design description was provided in ABWR Licensing Topical Report NEDE- 32999P, “Advanced Boiling Water Reactor (ABWR) with Alternate RCIC Turbine-Pump Design,” dated December 2006. This information on pages C-4 through C-6 of the Licensing Topical Report is incorporated by reference.

## Tier 1 Subsection 2.7.5 ~~Multiplexing System~~ Data Communication

### Table 2.7.5 Essential Multiplexing System

| Inspections, Tests, Analyses and Acceptance Criteria | | |
|---|---|---|
| **Design Commitment** | **Inspections, Tests, Analyses** | **Acceptance Criteria** |
| 1. The equipment ~~comprising the Multiplexing System~~ **providing the ECFs and NECFs** is defined in Section 2.7.5. | 1. Inspection of the as-built ~~EMS and NEMS~~ **equipment implementing the ECFs and the NECFs** will be conducted. | 1. The as-built ~~EMS and NEMS~~ conform **equipment implementing the ECFs and NECFs conforms** with the description in Section 2.7.5. |
| 2. ~~EMS~~ **The ECFs** ~~uses~~ **use** ~~a~~ deterministic communications protocol. | 2. Tests of the ~~EMS~~ **ECFs** communications ~~protocol~~ **protocols** will be conducted in a test facility. | 2. ~~EMS~~ **The ECFs** ~~uses~~ **use** a deterministic communications ~~protocol~~ **protocols.** |
| 3. Data communications from ~~EMS~~ **equipment implementing the ECFs** to non-safety-related systems or devices ~~uses~~ **use** an isolating transmission medium and buffering devices. Data cannot be transmitted from the non-safety-related side to ~~EMS~~ **equipment implementing the ECFs.** | 3. Tests on the ~~EMS~~ **ECFs** ~~data communications~~ will be conducted in a test facility. | 3. ~~EMS communications~~ **Equipment implementing the ECFs** only permits data transfer from the ~~EMS~~ **safety-related** to the non-safety-related systems or devices. **Control** or timing signals are not exchanged between ~~EMS~~ **safety-related** and non- safety-related systems or devices. |
| 4. ~~The EMS~~ **Equipment implementing the ECFs** features automatic self-test and automatically ~~reconfigures after detecting~~ **accommodates single** failure ~~of one channel~~ (either a cable break or device failure) within a division. The ~~system returns to~~ **ECFs continue** normal ~~operation~~ **function** after ~~reconfiguration~~ **the error is detected** with no interruption of data communication. | 4. Tests will be conducted on each as-built ~~EMS~~ division of **equipment implementing the ECFs** by individually simulating the following, while simultaneously transmitting and monitoring test data streams:<br>a. Single cable break.<br>b. Loss of one ~~RMU~~ **local area cabinet implementing the ECFs.**<br>c. Loss of one ~~CMU~~ **control area cabinet implementing the ECFs.** | 4. There is no loss of ~~EMS~~ **essential** data communication as a result of the fault. Fault occurrence is displayed in the main control room. |

## Tier 1 Subsection 2.7.5 ~~*Multiplexing System*~~ Data Communication

### Table 2.7-5 Essential Multiplexing System (Continued)

| Inspections, Tests, Analyses and Acceptance Criteria | | |
|---|---|---|
| **Design Commitment** | **Inspections, Tests, Analyses** | **Acceptance Criteria** |
| 5. Loss of data communications in a division of ~~*EMS*~~ **equipment implementing the ECFs** does not cause transient or erroneous data to occur at system outputs. | 5. Tests will be performed in one division of ~~*EMS*~~ **equipment implementing the ECFs** at a time. While simulated input signals are being transmitted cable segments in redundant paths will be disconnected and ~~*EMS*~~ **the ECFs** outputs monitored. | 5. Data communication is lost without generation of transient or erroneous signals. |
| 6. Each of four ~~*EMS*~~ divisions **of equipment implementing the ECFs** is powered from its respective division's **uniterruptible** Class 1E ~~DC division~~ vital AC power. ~~*In the EMS*~~ **For the ECFs**, independence is provided between Class 1E divisions, and between Class 1E divisions and non-Class 1E equipment. | 6.<br>a. Tests will be performed on ~~*EMS*~~ **equipment implementing the ECFs** by providing a test signal in only one Class 1E division at a time.<br>b. Inspection of the as-installed Class 1E divisions ~~*in the EMS*~~ will be performed. | 6.<br>a. The test signal exists only in the Class 1E division under test in the ~~*EMS*~~ **equipment implementing the ECFs**.<br>b. ~~*In the EMS*~~ **For equipment implementing the ECFs**, physical separation or electrical isolation exists between Class 1E divisions. Physical separation or electrical isolation exists between these Class 1E divisions and non-Class 1E equipment. |
| 7. Main control room alarms and displays provided for the ~~*EMS*~~ **ECFs** are as defined in Section 2.7.5. | 7. Inspections will be performed on the main control room alarms and displays for the ~~*EMS*~~ **ECFs**. | 7. Alarms and displays exist or can be retrieved in the main control room as defined in Section 2.7.5. |

## Tier 1 Subsection 2.12.1 Electrical Power Distribution System

### Table 2.12.1 Electric Power Distribution System

| Inspections, Tests, Analyses and Acceptance Criteria | | |
|---|---|---|
| **Design Commitment** | **Inspections, Tests, Analyses** | **Acceptance Criteria** |
| 11. EPD System interrupting devices (circuit breakers and fuses) are coordinated **to the maximum extent possible,** so that the circuit interrupter closest to the fault opens before other devices. | 11. Analyses for the as-built EPD System to determine circuit interrupting device coordination will be performed. | 11. Analyses for the as-built EPD System exist and conclude that**, to the maximum extent possible,** the analyzed circuit interrupter closest to the fault will open before other devices. |
| 22. The EPD System supplies an operating voltage at the terminals of the Class 1E utilization equipment that is within the utilization equipment's voltage tolerance limits. | 22.<br>a. Analyses for the as-built EPD System to determine voltage drops will be performed.<br>~~b. Tests of the as-built Class 1E EPD System will be conducted by operating connected Class 1E loads at their analyzed minimum voltage.~~<br>**b. Type tests at manufacturer«s shop will be performed for the operating voltage range of the Class 1E electrical equipment.** | 22.<br>a. Analyses for the as-built EPD System exist and conclude that the analyzed operating voltage supplied at the terminals of the Class 1E utilization equipment is within the utilization equipment's voltage tolerance limits, as determined by their nameplate ratings.<br>~~b. Connected Class 1E loads operate at their analyzed minimum voltage, as determined by the voltage drop analyses.~~<br>**c. Manufacturer«s type test reports exist and conclude that the operating range is within the tested voltage range for the Class 1E electrical equipment.** |
| | **c. System preoperational tests will be conducted of the as-built Class 1E EPD System.** | **c. The test voltages from preoperational test reports are compared against system voltage analysis of the as-built Class 1E EPD system. The results of comparison conclude that the available voltage is within the operating range for the as-installed equipment.** |

## Tier 1 Subsection 2.2.2 Direct Current Power Supply

### Table 2.12.12 Direct Current Power Supply

| Inspections, Tests, Analyses and Acceptance Criteria | | |
|---|---|---|
| **Design Commitment** | **Inspections, Tests, Analyses** | **Acceptance Criteria** |
| 8. Class 1E DC electrical distribution system circuit interrupting devices (circuit breakers and fuses) are coordinated **to the maximum extent possible,** so that the circuit interrupter closest to the fault opens before other devices. | 8. Analyses for the as-built Class 1E DC electrical distribution system to determine circuit interrupting device coordination will be performed. | 8. Analyses for the as-built Class 1E DC electrical distribution system circuit interrupting devices exist and conclude that**, to the maximum extent possible,** the analyzed circuit interrupter closest to the fault will open before other devices. |

## Tier 1 Subsection 2.2.13 Direct Current Power Supply

### Table 2.12.12 Direct Current Power Supply (Continued)

| Inspections, Tests, Analyses and Acceptance Criteria | | |
|---|---|---|
| Design Commitment | Inspections, Tests, Analyses | Acceptance Criteria |
| 11. The Class 1E DC electrical distribution system supplies an operating voltage at the terminals of the Class 1E utilization equipment that is within the utilization equipment's voltage tolerance limits. | 11.<br>a. Analyses for the as-built Class 1E DC electrical distribution system to determine system voltage drops will be performed.<br>~~b. Tests of the as-built Class 1E DC system will be conducted by operating connected Class 1E loads at less than or equal to the minimum allowable battery voltage and at greater than or equal to the maximum battery charging voltage.~~ | 11.<br>a. Analyses for the as-built Class 1E DC electrical distribution system exist and conclude that the analyzed operating voltage supplied at the terminals of the Class 1E utilization equipment is within the utilization equipment's voltage tolerance limits, as determined by their nameplate ratings.<br>~~b. Connected as-built Class 1E loads operate at less than or equal to the minimum allowable battery voltage and at greater than or equal to the maximum battery charging voltage.~~ |
| | **b. Type tests at manufacturer's shop will be performed for the operating voltage range of the Class 1E DC electrical equipment.** | **b. Manufacturer's type test reports exist and conclude that the operating range is within the tested voltage range for the Class 1E DC electrical equipment.** |
| | **c. System preoperational tests will be conducted on the as-built Class 1E DC system.** | **c. The test voltages from preoperational test reports are compared against system voltage analysis of the as-built Class 1E EPD system. The results of comparison conclude that the available voltage is within the operating range for the as-installed DC equipment.** |

# Tier 1 Subsection 2.12.14 Vital AC Power Supply

## Table 2.12.14 Vital AC Power Supply

| Inspections, Tests, Analyses and Acceptance Criteria | | |
|---|---|---|
| **Design Commitment** | **Inspections, Tests, Analyses** | **Acceptance Criteria** |
| 10. Class 1E Vital AC Power Supply system interrupting devices (circuit breakers and fuses) are coordinated **to the maximum extent possible,** so that the circuit interrupter closest to the fault opens before other devices. | 10. Analyses for the as-built Class 1E distribution system to determine circuit interrupting device coordination will be performed. | 10. Analyses for the as-built Class 1E Vital AC Power Supply system circuit interrupting devices (circuit breakers and fuses) coordination exist and conclude that**, to the maximum extent possible,** the analyzed circuit interrupter closest to the fault will open before other devices. |

## Tier 1 Subsection 2.12.15 Instrument and Control Power Supply

### Table 2.12.15 Instrument and Control Power Supply

| Inspections, Tests, Analyses and Acceptance Criteria | | |
|---|---|---|
| **Design Commitment** | **Inspections, Tests, Analyses** | **Acceptance Criteria** |
| 9. Class 1E Instrument and Control Power Supply system interrupting devices (circuit breakers and fuses) are coordinated **to the maximum extent possible,** so that the circuit interrupter closest the fault opens before other devices. | 9. Analyses for the as-built Class 1E distribution system to determine circuit interrupting device coordination will be performed. | 9. Analyses for the as-built Class 1E Instrument and Control Power Supply system circuit interrupting devices (circuit breakers and fuses) coordination exist and conclude that**, to the maximum extent possible,** the analyzed circuit interrupter closest to the fault will open before other devices. |

## Tier 1 Subsection 2.14.8 Flammability Control System

STD DEP T1 2.14-1

The Flammability Control System (FCS) was eliminated in accordance with page B-17 (Table 2.14.8) of ABWR Licensing Topical Report NEDE-33330P, "Advanced Boiling Water Reactor (ABWR) Hydrogen Recombiner Requirements Elimination," dated, May 2007. The information in the Licensing Topical Report is incorporated by reference.

## Tier 1 Subsection 2.15.5 HVAC System

STD DEP T1 2.14-1

The Flammability Control System (FCS) was eliminated in accordance with page B-20 (Table 2.15.5c) of ABWR Licensing Topical Report NEDE-33330P, "Advanced Boiling Water Reactor (ABWR) Hydrogen Recombiner Requirements Elimination," dated, May 2007. The information in the Licensing Topical Report is incorporated by reference.

# Tier 1 Subsection 3.4 Instrument and Control

## Table 3.4 Instrumentation and Control

| Inspections, Tests, Analyses and Acceptance Criteria | | |
|---|---|---|
| **Design Commitment** | **Inspections, Tests, Analyses** | **Acceptance Criteria** |
| ***Safety System Logic and Control*** | | |
| 3. The ~~DTM, TLU~~ **equipment implementing the DTF, TLF,** and OLUs for RPS and MSIV in each of the four instrumentation divisions are powered from their respective divisional Class 1E AC sources. The ~~DTMs and SLUs~~ **equipment implementing the DTF and SLF for** ESF ~~1 and ESF 2~~ in Divisions I, II, and III are powered from their respective divisional Class 1E DC sources, as ~~are~~ **is** the **equipment implementing the** ESF ~~DTMs~~ **DTF** in Division IV. In SSLC, independence is provided between Class 1E divisions and between Class 1E divisions and non-Class 1E equipment. | 3.<br>a. Tests will be performed on SSLC-by providing a test signal to the I&C equipment in only one Class 1E division at a time.<br>b. Inspection of the as-installed Class 1E divisions in SSLC will be performed. | 3.<br>a. The test signal exists only in the Class 1E division under test in SSLC.<br>b. In SSLC, physical separation or electrical isolation exists between Class 1E divisions. Physical separation or electrical isolation exists between these Class 1E divisions and non-Class 1E equipment. |
| 4. SSLC provides the following bypass functions:<br>a. Division-of-sensors bypass<br>b. Trip logic output bypass<br>c. ESF output channel bypass**, where applied** | 4. Tests will be performed on the as-built SSLC as follows:<br>a(1) Place one division of sensors in bypass. Apply a trip test signal in place of each sensed parameter that is bypassed. At the same time, apply a redundant trip signal for each parameter in each other division, one division at a time. Monitor the voted trip output ~~at~~ **from** each ~~TLU and SLU~~ **equipment component that implements a TLF or SLF**. Repeat for each division.<br>a(2) For each division in bypass, attempt to place each other division in division-of- sensors bypass, one at a time. | 4. Results of bypass tests are as follows:<br>a(1) No trip change occurs at the voted trip output ~~of~~ **from** each ~~TLU and SLU~~ **equipment component that implements a TLF or SLF**. Bypass status is indicated in main control room.<br>a(2) Each division not bypassed cannot be placed in bypass, as indicated at OLU output; bypass status in main control room indicates only one division of sensors is bypassed. |

## Table 3.4 Instrumentation and Control

### Inspections, Tests, Analyses and Acceptance Criteria

| Design Commitment | Inspections, Tests, Analyses | Acceptance Criteria |
|---|---|---|
| 4. (continued) | 4. (continued) | 4. (continued) |
| | b(1) Place one division in trip-logic-output bypass. Operate manual auto-trip test switch. Monitor the trip output at the RPS OLU. Operate manual auto-isolation test switch. Monitor the trip output at the MSIV OLU. Repeat for each division. | b(1) No trip change occurs at the trip output of the RPS OLU or MSIV OLU, respectively. Bypass status is indicated in main control room. |
| | b(2) For each division in bypass, attempt to place the other divisions in trip-logic- output bypass, one at a time. | b(2) Each division not bypassed cannot be placed in bypass, as indicated at OLU output; bypass status in main control room indicates only one trip logic output is bypassed. |
| | c~~(1)~~ Apply common test signal to any one pair of ~~*dual-SLU*~~ **redundant SLF** signal inputs. Monitor test signal at ~~*voted 2-out-of-2*~~ output ~~*in RMU area*~~ **from equipment performing the ECF in local areas**. Remove power from **equipment performing** one ~~*SLU*~~ **SLF**, restore power, then remove power from **equipment performing** other ~~*SLU*~~ **SLF**. Repeat test for all pairs of ~~*dual SLUs*~~ **redundant sets of equipment implementing a SLF** in each division. | ~~(1)~~ Monitored test output signal does not ~~*change state*~~ **initiate the system function** when power is removed from ~~*either SLU*~~ **the equipment performing any single SLF**. Bypass status and loss of power to ~~*SLU*~~ **equipment performing the SLF** are indicated in main control room. |
| | ~~*c(2) Disable auto-bypass circuit in bypass unit. Repeat test c(1), but operate manual ESF loop bypass switch for each affected loop.*~~ | ~~*c(2) Monitored test output signal is lost when power is removed from either SLU, but is restored when manual bypass switch is operated. Bypass status, auto-bypass inoperable, and loss of power to SLU are indicated in main control room.*~~ |

# Table 3.4 Instrumentation and Control

| Inspections, Tests, Analyses and Acceptance Criteria | | |
|---|---|---|
| **Design Commitment** | **Inspections, Tests, Analyses** | **Acceptance Criteria** |
| **Setpoint Methodology** | | |
| 13. Setpoints for initiation of safety-related functions are determined, documented, installed and maintained using a process that establishes a plan for:<br>a. Specifying requirements for documenting the bases for selection of trip setpoints.<br>b. Accounting for instrument inaccuracies, uncertainties, and drift.<br>c. Testing of instrumentation setpoint dynamic response.<br>d. Replacement of setpoint-related instrumentation.<br><br>The setpoint methodology plan requires that activities related to instrument setpoints be documented and stored in retrievable, auditable files. | 13. Inspections will be performed of the setpoint methodology plan used to determine, document, install, and maintain instrument setpoints. | *13. The setpoint methodology plan is in place. The plan generates requirements for:*<br>a. Documentation of data, assumptions, and methods used in the bases for selection of trip setpoints.<br>b. Consideration of instrument channel inaccuracies (including those due to analog-to-digital converters, signal conditioners, **and** temperature compensation circuits, ~~and multiplexing and demultiplexing components)~~, instrument calibration uncertainties, instrument drift, and uncertainties due to environmental conditions (temperature, humidity, pressure, radiation, EMI, power supply variation), measurement errors, and the effect of design basis event transients are included in determining the margin between the trip setpoint and the safety limit.<br>c. The methods used for combining uncertainties.<br>Use of written procedures for preoperational testing and tests performed to satisfy the Technical Specifications.<br>e. Documented evaluation of replacement instrumentation which is not identical to the original equipment. |