ITAAC Maintenance Examples References

Threshold 1

ABWR ITAAC 2.2.4 3c

Design Commitment
The SLC System delivers at least 189 L/min of solution with either pump operating when the reactor pressure is less than or equal to 8.72 MPaA.

Inspection, Test, or Analysis
Tests will be conducted on the as-built SLC System using installed controls, power supplies, and other auxiliaries. Demineralized water will be injected from the storage tank into the reactor with one pump running against a discharge pressure of greater than or equal to 8.72 MPaA.

Acceptance Criteria
The SLC System injects greater than or equal to 189 L/min into the reactor with either pump running against a discharge pressure greater than or equal to 8.72 MPaA.

ABWR ITAAC 2.2.4 3h

Design Commitment
The SLC pumps have sufficient NPSH.

Inspection, Test, or Analysis
Tests will be conducted on the as-built SLC System by injecting demineralized water using both SLC System pumps from the storage tank to the RPV with the storage tank at the low level (pump trip level) and a temperature of greater than or equal to 43 degrees centigrade.

Acceptance Criteria
The available NPSH exceeds the NPSH required as demonstrated by the SLC System injection greater than or equal to 378 liters/minute.

PS – ITAAC #5, NUREG-0800 Standard Review Plan 14.3.12 Physical Security Hardware

Design Commitment
Isolation Zones and exterior areas within the protected area are provided with illumination to permit observation of abnormal presence or activity of persons or vehicles.

Inspections, Tests, or Analysis
Inspections of the Illumination on isolation zones and exterior areas of the protected area will be performed.

Acceptance Criteria
Illumination in isolation zones and exterior areas within the protected area is 0.2 foot candles measured horizontally at ground level or, alternatively, sufficient to permit observation.

Threshold 2

AP1000 ITAAC 2.1.2.2b

Design Commitment
The piping identified in Table 2.1.2-2 as ASME Code Section III is designed and constructed in accordance with ASME Code Section III requirements.

Inspection, Test, or Analysis
Inspection will be conducted of the as-built components as documented in the ASME design reports.

Acceptance Criteria
The ASME code Section III design reports exist for the as-built piping identified in Table 2.1.2-2 as ASME Code Section III.

AP1000 ITAAC 2.3.6.9bii

Design Commitment
The RNS provides heat removal from the reactor coolant during shutdown operations.

Inspection, Test, or Analysis
Testing will be performed to confirm that the RNS can provide flow through the RNS heat exchangers when the pump suction is aligned to the RCS hot leg and the discharge is aligned to both PXS DVI lines with the RCS at atmospheric pressure.

Acceptance Criteria
Each RNS pump provides at least 1400 gpm net flow to the RCS when the hot leg water level is at an elevation 15.5 inches ± 2 inches above the bottom of the hot leg.

Threshold 3

AP-1000 ITAAC 2.1.2.7aii

Design Commitment: 7.a) The Class 1E equipment identified in Table 2.1.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

Inspections, Tests, or Analysis
Inspection will be performed of the as-installed Class 1E equipment and the associated wiring, cables, and terminations located in a harsh environment.

AC: A report exists and concludes that the as-installed Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.1.2-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

AP-1000 ITAAC 2.1.2.3b

Design Commitment: Pressure boundary welds in piping identified in Table 2.1.2-2 as ASME Code Section III meet ASME Code Section III requirements.

Inspections, Tests, or Analysis
Inspection of the as-built pressure boundary welds will be performed in accordance with the ASME Code Section III.

AC: A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds.

ESBWR ITAAC 2.3-1 Item 5.1

Planning Standard
10 CFR 50.47(b)(8) – Adequate emergency facilities and equipment to support the emergency response are provided and maintained.
EP Program Elements
5.1 The licensee has established a technical support center (TSC) and onsite operations support center (OSC). [H.1] ITAAC element addressed in: COL EP II.H.1

Inspections, Tests, or Analysis
5.1 An inspection of the as-built TSC and OSC will be performed.
Acceptance Criteria
5.1.1 A report exists that confirms the TSC has at least 174 square meters (1875 square feet) of floor space.
5.1.2 A report exists that confirms the following communications equipment has been provided in the TSC and voice transmission and reception have been accomplished:

a. NRC systems:
(1) Emergency Notification System (ENS)
(2) Health Physics Network (HPN)
(3) Reactor Safety Counterpart Link (RSCL)
(4) Protective Measures Counterpart Link (PMCL)
(5) Management Counterpart Link (MCL)
b. Dedicated telephone to EOF
c. Dedicated telephone to control room
d. Dedicated telephone to OSC

5.1.3 A report exists that confirms the TSC has been located in the Electrical Building.
5.1.4 A report exists that confirms the TSC includes radiation monitors and a ventilation system with a high efficiency particulate air (HEPA) and charcoal filter.
5.1.5 A report exists that confirms back-up electrical power supply is available for the TSC.
5.1.6 A report exists that confirms the OSC is in a location separate from the control room.
5.1.7 A report exists that confirms the following communications equipment has been provided in the OSC and voice transmission and reception have been accomplished:
· Dedicated telephone to control room
· Dedicated telephone to TSC
· Plant page system (voice transmission only)

ABWR ITAAC 2.3.3 Item 3

ITAAC Statement

The ITAAC stated below represents an NRC approved departure from the ABWR DCD.

Design Commitment

Each CAMS division of radiation channels is powered from its respective divisional Class 1E power source. In the CAMS, independence is provided between Class1E divisions, and between Class 1E divisions and non-Class 1E equipment.

Inspections, Tests, or Analysis
Item 3a - 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.
Item 3b - Inspection of the as-built Class 1E radiation channels will be performed.
Acceptance Criteria

Item 3a – The test signal exists only in the Class 1E division under test in the CAMS.
Item 3b – 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.

Threshold 4

Plant	Licensing Basis	Inspection, Test, and Acceptance (ITA)	Acceptance Criteria	ITAAC Maintenance issue
Plant X, Unit 1	Part 10 COLA ITAAC, Emergency	8.1	8.1.1, part B, “Notifications”, part 4,	Licensee failed to perform maintenance. The original FEMA design report had

	Planning ITAAC, Table 3.8-1		"Demonstrate the capability of the public alert and notification system to operate properly for public notifications when required in accordance with EPIPs".	incorporated the licensee's requirement to perform this maintenance
Plant Y, Unit 3	Part 10 COLA ITAAC, Emergency Planning ITAAC, Table 3.8-1	5.1	5.1.3, A report exists that confirms back-up electrical power supply was available for the TSC.	Licensee has switched source of back-up power, from battery (eight hours) to diesel generators (thirty-six hours)

AP1000 ITAAC 2.5.2-8 Item10

Design Commitment

Setpoints are determined using a methodology which accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.

Inspections, Tests, or Analysis
Inspection will be performed for a document that describes the methodology and input parameters used to determine the PMS setpoints.

Acceptance Criteria

A report exists and concludes that the PMS setpoints are determined using a methodology which accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.

AP1000 ITAAC 3.3.6.7d

Design Commitment
ITAAC Table 3.3.6 (7d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables

Inspection, Test, or Analysis

Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following:

Within the main control room and remote shutdown room, the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.

Within other plant areas (limited hazard areas), the minimum separation is defined by one of the following:

The minimum vertical separation is 5 feet and the minimum horizontal separation is 3 feet.

The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables <2/0 AWG.

For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.

For configurations involving an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway.

For configuration involving enclosed raceways, the minimum separation is 1 inch in both horizontal and vertical directions.

Where minimum separation distances are not maintained, the circuits are run in enclosed raceways or barriers are provided.

Separation distances less than those specified above and not run in enclosed raceways or provided with barriers are based on analysis

Non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is considered as associated circuits and subject to Class 1E requirements.

Acceptance Criteria

Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the followings:

Within the main control room and remote shutdown room, the vertical separation is 3 inches or more and the horizontal separation is 1 inch or more.

Within other plant areas (limited hazard areas), the separation meets one of the following:

The vertical separation is 5 feet or more and the horizontal separation is 3 feet or more except.

The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables <2/0 AWG.

For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.

For configurations that involve an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the raceway.

For configurations that involve enclosed raceways, the minimum vertical and horizontal separation is 1 inch.
Where minimum separation distances are not met, the circuits are run in enclosed raceways or barriers are provided.
A report exists and concludes that separation distances less than those specified above and not provided with enclosed raceways or barriers have been analyzed.
Non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is treated as Class 1E wiring.