Public Meeting to Discuss Issues Related To U.S. EPR Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) and RAI 469

Rockville, Maryland

July 26, 2012

EPR™

by AREVA

AREVA

Purpose and Background

- **Purpose**
  - **Working meeting to come to closure on a consistent set of wording to use for similar groups of ITAAC and unique ITAAC**
  - **Review planned schedule for U.S. EPR FSAR RAI 469 closure and concur on interaction points**

- **Background - NRC identified a number of consistency and inspectability issues with the ITAAC in RAI 469**

- **General Issues**
  - **ITA should specify activities that verify construction quality and not just a review of construction records or supplementing reports**
  - **“Inspectability” (lack of inspection specificity) concerns remain**
  - **Inconsistency in use of Tier 1 definitions**
    - Prescribed use of “inspection”, “test”, or “analyses” terminology
    - Need for validating “as-built” construction conditions

Purpose and Background

- **Specific Issues**
  - Application and consistency of the U.S. EPR ITAAC related to the ASME Boiler & Pressure Vessel Code requirements
  - ITAAC word usage or inspection criteria that are not clear or sufficiently detailed to allow a common, shared understanding of what is required to complete and accept the ITAAC
  - ITAAC omit the term, “as-built”, where it appears to be needed for proper interpretation of where the subject component testing may be conducted
  - ITAAC references to tables or other documents should be specific and appropriate to the detailed criteria that require verification
  - Review of construction records is not an adequate ITAAC when the construction/fabrication itself should be subject to verification
  - Use of specific words (like inspection, test, or analysis) or conditions (design basis versus system operating) should comport with their proper usage and intent
  - Miscellaneous comments, e.g., ITAAC numbering, redundancy question, interpretation issue, mismatch, word usage

AREVA Approach for Resolution

- "Organize" the ITAAC to facilitate consistency changes
  - Create a "Master" list of ITAAC
  - Group similar ITAAC and sort table by group
  - Groups established based on Tier 1 subsystem headings (e.g., buildings, arrangement, mechanical, etc.) – see "List of ITAAC Groups"
  - Subgroups established based on similar design commitments within a group
  - Develop model ITAAC for each group to address NRC identified concerns
  - Next Action: Revise ITAAC within the group based on the model ITAAC
    - Evaluate NRC feedback during this meeting and update model ITAAC
    - Apply the language and approach consistently to each item within the group

AREVA Approach for Resolution

- **Model ITAAC Approach should include:**
  - **ASME Code items**
    - Side by side comparison to other design certification Tier 1 to identify precedent
  - **Ambiguous acceptance criteria**
    - When AC was not sufficiently detailed due to design status, an analysis added to document AC
    - Eliminate superfluous usage of adjectives and adverbs
  - **Use of “as-built”**
    - Definition of “as-built” revised per RAI 358 to match NEI 08-01 Rev. 4
    - NRC expects that verifications will be performed in the final, in-place location of the SSC except in cases where it is technically justifiable to perform the verification elsewhere.
  - **Reference to Construction drawings**
    - References to construction drawings removed
    - When AC was not sufficiently detailed due to design status, an analysis added to document AC

AREVA Approach for Resolution (cont'd)

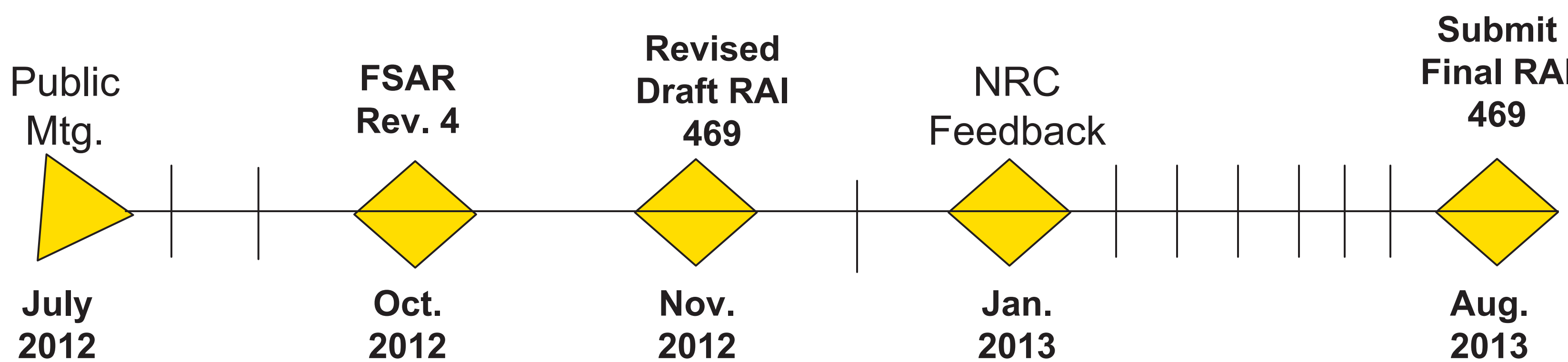
- **Review of records vs. verification of activities**
  - Revised to require validation of activity, not existence of records
- **Use of inspection, test, or analyses or specific conditions**
  - Revised to require validation of activity, not existence of records
- **Miscellaneous**
  - Revised ITAAC for readability and consistency

Path to Closure

- Working Meeting to Review Each Model ITAAC
- Revise ITAAC consistent with model and incorporate revised ITAAC into U.S. EPR FSAR Rev. 4 (Oct. 2012)
- Submit revised draft of RAI 469 – "clean" version (Nov. 2012)

Interaction Opportunities

- **NRC/AREVA Interaction Opportunities**
  - **Telecons**
    - NRC staff proposes telecons to provide feedback after revised Draft RAI 469 submitted
- **Timeline**



Summary/Next Steps

- Reach agreement on a consistent set of wording to use for similar groups of ITAAC
- Revised ITAAC to be included in FSAR Rev. 4
- Revised Draft response to RAI 469
- Receive NRC Feedback

List of ITAAC Groups

- **1.0 Buildings**

B1 Basic configuration

B2 Seismic Category I structure design and construction

B3 Seismic Category I structure key dimensions

B4 Site grade level

B5 Flooding related

B6 Miscellaneous inspection

B7 Miscellaneous test

B8 Miscellaneous analysis

B9 Miscellaneous combination of ITA

- **2.0 Arrangement**

A1 Functional arrangement

A2 Location of equipment

A3 Physical separation

A4 Miscellaneous inspection

List of ITAAC Groups

- **3.0 Mechanical Design Features**

M01 Seismic Category I component design basis loads
M02 ASME Code Section III piping design
M02 ASME Code Section III piping design reconciliation
M03 ASME Code Section III piping fabrication, installation, and inspection
M04 ASME Code Section III piping weld non-destructive examination
M05 ASME Code Section III piping hydrostatic test
M06 ASME Code Section III component design
M06 ASME Code Section III component design reconciliation
M07 ASME Code Section III component fabrication, installation, and inspection
M08 ASME Code Section III component weld non-destructive examination
M09 ASME Code Section III component hydrostatic test
M10 ASME AG-1 Code component design
M11 ASME AG-1 Code component fabrication, including welding requirements
M12 ASME AG-1 Code component installation, inspection, and testing
M13 Check valve testing
M14 Class 1E valve testing
M15 Class 1E damper testing
M16 Pump and valve functional design and qualification
M17 Containment isolation valve location
M18 Miscellaneous combination of ITA

List of ITAAC Groups

- **4.0 I&C Design Features, Displays, and Controls**

I01 Displays in MCR and RSS
I02 Controls on PICS in MCR and RSS
I03 Class 1E equipment subjected to EMI, RFI, ESD, and power surges
I04 Communication independence
I05 Electrical isolation between Class 1E and non-Class 1E equipment
I06 Locking mechanisms on cabinet doors
I07 I&C system lifecycle design phases
I08 I&C system failure modes and effects analysis
I09 Distinct identification of I&C divisions
I10 I&C system sources of input signals
I11 I&C system recipients of output signals
I12 Hardwired disconnects between SU and MSI
I13 I&C system maintenance bypass
I14 I&C system automatic signals
I15 I&C system interlocks
I16 PACS module
I17 Pre-defined messages
I18 Miscellaneous Inspection
I19 Miscellaneous test
I20 Miscellaneous analysis
I21 Miscellaneous combination of ITA

List of ITAAC Groups

- **5.0 Electrical Power Design Features**

E01 Class 1E components powered from the Class 1E Division in a normal or alternate feed condition

E02 Independence between divisions without alternate feed

E03 Independence between divisions with alternate feed

E04 Electrical isolation of non-safety loads

E05 Inverter sizing

E06 Equipment sizing

E07 Cable and bus sizing

E08 Coordination of interrupting devices

E09 Equipment fault current rating

E10 Battery charger loading

E11 Diesel generator output rating

E12 Miscellaneous inspection

E13 Miscellaneous test

E14 Miscellaneous analysis

E15 Miscellaneous combination of ITA

List of ITAAC Groups

6.0 Environmental Qualifications

Q1 Component harsh environmental qualification
Q2 Component mild environmental qualification

7.0 Other Inspection, Testing, & Analysis ITAAC

S1 Containment isolation valve location
S2 Pump NPSH
S3 Heat exchanger capacity
S4 Pump flow test capability
S5 Equipment cooling
S6 Pump flow related
S7 Volume related
S8 Relief valve capacity
S9 Valve fail safe
S10 Crane single failure
S11 Miscellaneous inspection
S12 Miscellaneous test
S13 Miscellaneous analysis
S14 Miscellaneous combination of ITA

Attachments

- Model ITAAC
- Non-Model ITAAC

1.0 BUILDINGS

GRP	Sect	No.	Commitment	ITA	AC
B1	Model		The basic configuration of the YYY structures separates the ## YYY by an internal hazards separation barrier so that the impact of internal hazards, including fire, flood, high energy line break and missile impact, is contained within the YYY of hazard origination. Figure x.x.x-x through Figure x.x.x-x identify the internal hazards separation barrier.	a. An inspection of the basic configuration of the YYY structures will be performed. b. A fire protection analysis will be performed. c. Inspection of barriers, doors, dampers, and penetrations existing within the internal hazards protective barriers separating the ## YYY will be performed. d. Tests of dampers that separate the ## YYY will be performed using test signals. e. A post-fire safe shutdown analysis will be performed. f. An internal flooding analysis for the YYY will be performed. g. An inspection of the YYY features identified in the internal flooding analysis in part (f) that maintain the impact of the internal flooding to the YYY of origin will be performed.	a. The basic configuration of the YYY structures provides separation as shown on Figure x.x.x-x through Figure x.x.x-x. b. The fire protection analysis concludes that barriers, doors, dampers, and penetrations existing within the internal hazards protective barriers have a minimum 3-hour fire rating and mitigate the propagation of smoke to the extent that safe shutdown is not adversely affected. c. The configuration of fire barriers, doors, dampers and penetrations that separate the ## YYY agrees with the fire protection analysis. d. Dampers that separate the ## YYY close on receipt of a signal. e. The post-fire safe shutdown analysis concludes that at least one success path is available for safe shutdown. f. The internal flooding analysis for the YYY concludes that the impact of internal flooding is contained within the YYY of origin. g. The YYY flood protection features that maintain the impact of internal flooding to the YYY of origin are installed and agree with the flooding analysis.

1.0 BUILDINGS

B2	Model		The YYY structures are Seismic Category I and are designed and constructed to withstand design basis loads, as specified below, without loss of structural integrity and safety related functions. • Normal plant operation (including dead loads, live loads, lateral earth pressure loads, equipment loads, hydrostatic, hydrodynamic, and temperature loads). • Internal events (including internal flood loads, accident pressure loads, accident thermal loads, accident pipe reactions, and pipe break loads, including reaction loads, jet impingement loads, cubicle pressurization loads, and missile impact loads). • External events (including wind, rain, snow, flood, tornado, tornado-generated missiles and earthquake).	a. An analysis of the YYY structures for the design basis loads will be performed. b. Deviations from the design will be analyzed.	a. A report concludes that the YYY structures will withstand the design basis loads specified without loss of structural integrity or safety-related functions. b. A report reconciles deviations to the design.
B3	Model		The YYY structures have key dimensions specified in Table x.x.x-x.	a. An inspection of key dimensions of the YYY structures will be performed. b. Deviations from the design will be analyzed.	a. The dimensions of the YYY structures conform to the key dimensions specified in Table x.x.x-x. b. A report reconciles deviations to the design.
B4	Model		The ZZZ site grade level is located between 12 inches and 18 inches below the finish floor elevation at ground entrances.	An inspection of the ZZZ site grade level will be performed.	The ZZZ site grade level is located between 12 inches and 18 inches below finish floor elevation at ground entrances.

2.0 ARRANGEMENT

A1	Model		The functional arrangement of the ZZZ is as shown on Figure x.x.x-1.	An inspection of the as-built system will be performed.	The as-built ZZZ conforms to the functional arrangement as shown on Figure x.x.x-1.
A2	Model		The location of the ZZZ equipment is as listed in Table x.x.x-1.	An inspection will be performed.	The ZZZ equipment listed in Table x.x.x-1 is located as listed in Table x.x.x-1.
A3	Model		Physical separation exists between divisions of the ZZZ located in the YYY Buildings as shown on Figure x.x.x-1.	An inspection will be performed.	The divisions of the ZZZ are located in separate YYY Buildings as shown on Figure x.x.x-1.

3.0 MECHANICAL DESIGN FEATURES

M01	Model		Components identified as Seismic Category I in Table x.x.x-x can withstand seismic design basis loads without a loss of the function listed in Table x.x.x-x	a. Type tests, analyses, or a combination of type tests and analyses will be performed on the components identified as Seismic Category I in Table x.x.x-x using analytical assumptions, or under conditions, which bound the Seismic Category I design requirements. b. Inspections will be performed of the components identified as Seismic Category I in Table x.x.x-x to verify that the components, including anchorage, are installed per seismic qualification report (SQDP, EQDP, or analyses) requirements.	a. Seismic qualification reports (SQDP, EQDP, or analyses) conclude that the components identified as Seismic Category I in Table x.x.x-x can withstand seismic design basis loads without a loss of the function listed in Table x.x.x-x including the time required to perform the listed function. b. Inspection reports conclude that the components identified as Seismic Category I in Table x.x.x-x, including anchorage, are installed per seismic qualification reports (SQDP, EQDP, or analyses) requirements.
M02	Model		XXX piping shown as ASME Code Section III on Figure x.x.x-x is designed in accordance with ASME Code Section III requirements.	Analysis of the ASME Code Section III Design Reports (NCA-3550) and associated reference documents will be performed. {{DAC}}	ASME Code Section III Design Reports (NCA-3550) conclude that the design of XXX piping shown as ASME Code Section III on Figure x.x.x-x complies with ASME Code Section III requirements. {{DAC}}
M02	Model		XXX piping shown as ASME Code Section III on Figure x.x.x-x is reconciled in accordance with an ASME Code Section III design requirements.	Analyses of the ~~piping shown as ASME Code Section III on Figure x.x.x-x using~~ ASME Code Design Reports (NCA-3550) for the piping shown as ASME Code Section III on Figure x.x.x-x will be performed.	For XXX piping shown as ASME Code Section III on Figure x.x.x-x, ASME Code Data Reports (N-5) conclude that design reconciliation (NCA-3554) has been completed in accordance with the ASME Code Section III for the system. The report(s) document the results of the reconciliation analysis.
M03	Model		XXX piping shown as ASME Code Section III on Figure x.x.x-x is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.	An inspection of the piping shown as ASME Code Section III on Figure x.x.x-x will be performed.	For XXX piping shown as ASME Code Section III on Figure x.x.x-x, ASME Code Data Report(s) (certified, when required by ASME Code) and inspection reports (including N–5 Data Reports where applicable) conclude that the piping is fabricated, installed, and inspected in accordance with ASME Code Section III requirements.

M04	Model		Pressure boundary welds in XXX piping shown as ASME Code Section III on Figure x.x.x-x meet ASME Code Section III non-destructive examination requirements.	Inspections of pressure boundary welds will be performed in accordance with ASME Code Section III requirements.	ASME Code Section III Data Reports conclude that non-destructive examination of pressure boundary welds in XXX piping shown as ASME Code Section III on Figure x.x.x-x comply with ASME Code Section III requirements.
M05	Model		XXX piping shown as ASME Code Section III on Figure x.x.x-x retains pressure boundary integrity at design pressure.	Hydrostatic tests will be performed.	For XXX piping shown as ASME Code Section III on Figure x.x.x-x, ASME Code Section III Data Reports conclude that hydrostatic test results comply with ASME Code Section III requirements.
M06	Model		Components listed in Table x.x.x-x as ASME Code Section III are designed in accordance with ASME Code Section III requirements.	Analysis of ASME Code Section III Design Reports (NCA-3550) and associated reference documents will be performed.	ASME Code Section III Design Reports (NCA-3550) conclude that the design of components listed as ASME Code Section III in Table x.x.x-x complies with ASME Code Section III requirements.
M06	Model		Components listed in Table x.x.x-x as ASME Code Section III are reconciled in accordance with ASME Code Section III design requirements.	Analyses of ASME Code Design Reports (NCA-3550) for components listed as ASME Code Section III in Table x.x.x-x will be performed.	For components listed as ASME Code Section III in Table x.x.x-x, ASME Code Data Reports (N-5) conclude that design reconciliation (NCA-3554) has been completed in accordance with the ASME Code Section III for the ~~as-built~~ system. The report(s) document the results of the reconciliation analysis.
M07	Model		Components listed in Table x.x.x-x as ASME Code Section III are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.	An inspection of components listed in Table x.x.x-x as ASME Code Section III will be performed.	For components listed in Table x.x.x-x as ASME Code Section III, ASME Code Data Report(s) (certified, when required by ASME Code) and inspection reports (including N–5 Data Reports where applicable) conclude that the components are fabricated, installed, and inspected in accordance with ASME Code Section III requirements.
M08	Model		Pressure boundary welds on components listed in Table x.x.x-x as ASME Code Section III meet ASME Code Section III non-destructive examination requirements.	Inspections of pressure boundary welds will be performed in accordance with ASME Code Section III requirements.	For components listed as ASME Code Section III in Table x.x.x-x, ASME Code Section III Data Reports conclude that non-destructive examination of pressure boundary welds comply with ASME Code Section III requirements.

3.0 MECHANICAL DESIGN FEATURES

M09	Model		Components listed in Table x.x.x-x as ASME Code Section III retain pressure boundary integrity at design pressure.	Hydrostatic tests will be performed.	For components listed as ASME Code Section III in Table x.x.x-x, ASME Code Section III Data Reports conclude that hydrostatic test results comply with ASME Code Section III requirements.
M10	Model		Components listed in Table x.x.x-x as ASME AG-1 Code are designed in accordance with ASME AG-1 Code requirements.	An analysis will be performed of ASME AG-1 Code Design Verification Reports.	ASME AG-1 Code Design Verification Reports (AA-4400) conclude that the design of components listed as ASME AG-1 Code in Table x.x.x-x complies with ASME AG-1 Code requirements.
M11	Model		Components listed in Table x.x.x-x as ASME AG-1 Code are fabricated in accordance with ASME AG-1 Code requirements, including welding requirements.	Inspections will be performed.	For components listed as ASME AG-1 Code in Table x.x.x-x, reports conclude that the component is fabricated in accordance with ASME AG-1 Code requirements, including welding requirements.
M12	Model		Components listed in Table x.x.x-x as ASME AG-1 Code are installed, inspected, and tested in accordance with ASME AG-1 Code requirements.	Inspections and tests will be performed.	For components listed in Table x.x.x-x as ASME AG-1 Code~~ in Table x.x.x-x~~, reports conclude that the component is installed, inspected, and tested in accordance with ~~meets~~ ASME AG-1 Code ~~inspection and testing~~ requirements.
M13	Model		Check valves listed in Table x.x.x-x will function to change position as listed in Table x.x.x-x under system operating conditions.	Tests will be performed for the operation of the check valves listed in Table x.x.x-x.	The check valves change position as listed in Table x.x.x-x under system operating conditions.
M14	Model		Class 1E valves listed in Table x.x.x-x will function to change position as listed in Table x.x.x-x under system operating conditions.	Tests will be performed for the operation of the valves listed in Table x.x.x-x.	The valves change position as listed Table x.x.x-x under system operating conditions.
M15	Model		Class 1E dampers listed in Table x.x.x-x will function to change position as listed in Table x.x.x-x under system operating conditions.	Tests will be performed for the operation of the dampers listed in Table x.x.x-x.	The dampers change position as listed in Table x.x.x-x under system operating conditions.

3.0 MECHANICAL DESIGN FEATURES

M16	Model		Valves listed in Table x.x.x-x will be functionally designed and qualified such that each valve is capable of performing its intended function for a full range of system differential pressure and flow, ambient temperatures, and available voltage (as applicable) under conditions ranging from normal operating to design-basis accident conditions.	Tests or type tests of the valves listed in Table x.x.x-x will be performed.	A test report concludes that the valves listed in Table x.x.x-x function under conditions ranging from normal operating to design-basis accident conditions.
M17	Model		Containment isolation valves are located close to containment penetrations.	a. An analysis will be performed. b. Inspection of the location of containment isolation valves will be performed. Deviations to the design location of containment isolation valves will be reconciled to the design analysis.	a. An analysis concludes that the containment isolation valves listed in Table x.x.x-x are located as close to the containment penetrations as practical with consideration of the following: – Access for inspection of welds. – Containment leak testing. – Replacement. – Valve maintenance. b. A report concludes that deviations to the design location of containment isolation valves have been reconciled.

I01	Model		Displays listed in Table x.x.x-x are indicated in the MCR and the RSS.	a. Tests will be performed in the MCR using test signals. b. Tests will be performed in the RSS using test signals.	a. Displays listed in Table x.x.x-x are indicated in the MCR. b. Displays listed in Table x.x.x-x are indicated in the RSS.
I02	Model		Controls on the PICS in the MCR and the RSS perform the function listed in Table x.x.x-x.	a. Tests will be performed using controls on the PICS in the MCR. b. Tests will be performed using controls on the PICS in the RSS.	a. Controls on the PICS in the MCR perform the function listed in Table x.x.x-x. b. Controls on the PICS in the RSS perform the function listed in Table x.x.x-x.
I03	Model		Class 1E XXXX equipment listed in Table x.x.x-x can function when subjected to EMI, RFI, ESD, and power surges.	Type tests or type tests and analyses will be performed.	Equipment identified as Class 1E in Table x.x.x-x can function when subjected to EMI, RFI, ESD, and power surges.
I04	Model		Communications independence is provided between the ## XXXX divisions.	Tests using test signals, analyses, or a combination of tests using test signals and analyses will be performed.	Communications independence between the XXXX divisions is provided by: • The XXXX function processors do not interface directly with a network. Separate communication modules interface directly with the network. • Separate send and receive data channels are used in both the communications module and the XXXX function processor. • The XXXX function processors operate in a strictly cyclic manner. • The XXXX function processors operate asynchronously from the XXXX communications module.

I04	Model		Communications independence is provided between XXXX equipment and non-Class 1E equipment.	Tests using test signals, analyses, or a combination of tests using test signals and analyses will be performed on the XXXX equipment.	Communications independence between XXXX equipment and non-Class 1E equipment is provided by: • Data communications between XXXX function processors and non-Class 1E equipment is through a Monitoring and Service Interface (MSI). • The MSI does not interface directly with a network. Separate communication modules interface directly with the network. • Separate send and receive data channels are used in both the communications module and the MSI. • The MSI operates in a strictly cyclic manner. • The MSI operates asynchronously from the communications module. • The XXXX uses a hardware device to ensure that unidirectional signals are sent to non-safety-related I&C systems.
I05	Model		Electrical isolation is provided on connections between XXXX equipment and non-Class 1E equipment.	a. Analyses will be performed to determine the test specification for electrical isolation devices on connections between XXXX equipment and non-Class 1E equipment. b. Type tests, analyses, or a combination of type tests and analyses will be performed on the electrical isolation devices between XXXX equipment and non-Class 1E equipment. c. Inspections will be performed on connections between XXXX equipment and non-Class 1E equipment.	a. A test plan provides the test specification for determining whether a device is capable of preventing the propagation of credible electrical faults on connections between XXXX equipment and non-Class 1E equipment. b. A report concludes that the Class 1E isolation devices used between XXXX equipment and non-Class 1E equipment prevent the propagation of credible electrical faults. c. Class 1E electrical isolation devices exist on connections between XXXX equipment and non-Class 1E equipment.

I06	Model		Locking mechanisms are provided on the XXXX cabinet doors. Opened XXXX cabinet doors are indicated in the MCR.	a. An inspection will be performed. b. A test will be performed. c. A test will be performed.	a. Locking mechanisms exist on the XXXX cabinet doors. b. The locking mechanisms on the XXXX cabinet doors operate properly. c. Opened XXXX cabinet doors are indicated in the MCR when a XXXX cabinet door is in the open position.
I07	Model		The XXXX system design and application software are developed using a process composed of six lifecycle phases, with each phase having outputs which must conform to the requirements of that phase. The six lifecycle phases are the following: 1) Basic Design Phase. 2) Detailed Design Phase. 3) Manufacturing Phase. 4) System Integration and Testing Phase. 5) Installation and Commissioning Phase. 6) Final Documentation Phase.	a. Analyses will be performed to verify that the outputs for the XXXX basic design phase conform to the requirements of that phase. b. Analyses will be performed to verify that the outputs for the XXXX detailed design phase conform to the requirements of that phase. c. Analyses will be performed to verify that the outputs for the XXXX manufacturing phase conform to the requirements of that phase. d. Analyses will be performed to verify that the outputs for the XXXX system integration and testing phase conform to the requirements of that phase. e. Analyses will be performed to verify that the outputs for the XXXX installation and commissioning phase conform to the requirements of that phase. f. Analyses will be performed to verify that the outputs for the XXXX final documentation phase conform to the requirements of that phase.	a. A report concludes that the outputs conform to requirements of the basic design phase of the XXXX. b. A report concludes that the outputs conform to requirements of the detailed design phase of the XXXX. c. A report concludes that the outputs conform to the requirements of the manufacturing phase of the XXXX. d. A report concludes that the outputs conform to the requirements of the system integration and testing phase of the XXXX. e. A report concludes that the outputs conform to the requirements of the installation and commissioning phase of the XXXX. f. A report concludes that the outputs conform to the requirements of the final documentation phase of the XXXX.

I08	Model		The XXXX is designed so that safety-related functions required for an AOO or PA are performed in the presence of the following: • Single detectable failures within the XXXX. • Failures caused by the single failure. • Failures and spurious system actions that cause or are caused by the AOO or PA requiring the safety function.	A failure modes and effects analysis will be performed on the XXXX at the level of replaceable modules and components.	A report concludes that the XXXX is designed so that safety-related functions required for an AOO or PA are performed in the presence of the following: • Single detectable failures within the XXXX. • Failures caused by the single failure. • Failures and spurious system actions that cause or are caused by the AOO or PA requiring the safety function.
I09	Model		The equipment for each XXXX division is distinctly identified and distinguishable from other identifying markings placed on the equipment, and the identifications do not require frequent use of reference material.	Inspections will be performed on the XXXX equipment to verify that the equipment for each XXXX division is distinctly identified and distinguishable from other markings placed on the equipment and that the identifications do not require frequent use of reference material.	The equipment for each XXXX division is distinctly identified and distinguishable from other identifying markings placed on the equipment, and the identifications do not require frequent use of reference material.
I10	Model		The XXXX receives input signals from the sources listed in Table x.x.x-x.	A test will be performed using test signals.	The XXXX receives input signals from the sources listed in Table x.x.x-x.
I11	Model		The XXXX provides the output signals to the recipients listed in Table x.x.x-x.	A test will be performed using test signals.	The XXXX provides output signals to the recipients listed in Table x.x.x-x.
I12	Model		Hardwired disconnects exist between the SU and each divisional MSI of the XXXX. The hardwired disconnects prevent the connection of the SU to more than a single division of the XXXX.	a. Inspections will be performed. b. Tests will be performed.	a. Hardwired disconnects exist between the SU and each divisional MSI of the XXXX. b. The hardwired disconnects prevent the connection of the SU to more than a single division of the XXXX.

I13	Model		The XXXX is capable of performing its safety function when XXXX equipment is in maintenance bypass. Bypassed XXXX equipment is indicated in the MCR.	a. A test of the XXXX will be performed using test signals to verify the maintenance bypass functionality. b. A test will be performed using test signals to verify the existence of indications in the MCR when XXXX equipment is in maintenance bypass (inoperable).	a. The XXXX can perform its safety functions when XXXX equipment is in maintenance bypass. b. Bypassed XXXX equipment is indicated in the MCR.
I14	Model		The XXXX generates automatic ZZZ signals for the input variables listed in Table x.x.x-x.	A test will be performed on the XXXX using test signals.	The XXXX generates an ZZZ signal after the test signal reaches the trip limit for the input variables listed in Table x.x.x-x. The ZZZ signals remain following removal of the test signal. The ZZZ signals are removed when test signals that represent the completion of the ZZZ function are present. Deliberate operator action is required to return the XXXX to normal.
I15	Model		Interlocks for the XXXX initiate the following: a. Opening b. Opening c. Opening	Tests will be performed using test signals.	The following interlocks respond as specified below when activated by a test signal: a. Opening b. Opening c. Opening
I16	Model		Equipment listed as being controlled by a PACS module in Table x.x.xx responds to the state requested and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.	A test will be performed using test signals.	Equipment listed as being controlled by a PACS module in Table x.x.xx responds to the state requested and provides drive monitoring signals back to the PACS module. The PACS module will protect the equipment by terminating the output command upon the equipment reaching the requested state.

I17	Model		During data communication, the PS function processors receive only the pre-defined messages for that specific function processor. Other messages are ignored.	a. An analysis will be performed. b. A test will be performed.	a. A report determines the test specification for the PS function processors to verify that only pre-defined messages for that specific function processor and other messages are ignored. b. A report concludes that the PS function processors receive only the pre-defined messages for that specific function processor. Other messages are ignored.

5.0 ELECTRICAL POWER DESIGN FEATURES

E01	Model		The components designated as Class 1E in Table x.x.x-x are powered from the Class 1E division as listed in Table x.x.x-x in a normal or alternate feed condition.	a. Testing will be performed by providing a test signal in each normally aligned division. b. Testing will be performed by providing a test signal in each division with the alternate feed aligned to the divisional pair.	a. The test signal provided in the normally aligned division is present at the respective Class 1E components identified in Table x.x.x-x. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E components identified in Table x.x.x-x.
E02	Model		Without an alternate feed installed, independence is maintained between the ## XXXX divisions.	Testing will be performed by providing a test signal in each XXXX division, one division at a time.	Without an alternate feed installed, the test signal exists only in the XXXX division under test, when a test signal is applied in each XXXX division.
E03	Model		With the alternate feed installed from EPSS division W to division X, independence is maintained between the load group created by divisions W and X, and the load group created by divisions Y and Z. EPSS divisions Y and Z are independent of each other.	Testing will be performed by providing a test signal in each EPSS division, one division at a time, while the alternate feed is installed from EPSS division W to division X.	a. A test signal exists only in the load group created by Class 1E divisions W and X when the test signal is provided in Class 1E division W or X. b. A test signal exists only in the division under test when the test signal is provided in Class 1E division Y or Z.
E04	Model		Non-safety-related loads connected to the XXXX are electrically isolated from the XXXX by an isolation device.	a. Type tests, analyses, or a combination of type tests and analyses of the isolation devices will be performed. b. An inspection will be performed.	a. The isolation devices used between the XXXX and non-safety-related loads are qualified to provide electrical isolation. b. A qualified electrical isolation device exists between non-safety-related loads connected to the XXXX, and the XXXX.
E05	Model		The XXXX inverters are sized to power the design XXXX loads on the respective supplied MCC.	a. An analysis will be performed. b. An inspection will be performed.	a. Analysis concludes each XXXX inverter rating is greater than the analyzed load requirements. b. The ratings of the XXXX inverters meet the analysis criteria.

5.0 ELECTRICAL POWER DESIGN FEATURES

E06	Model		XXXX switchgear, load centers, MCCs, and transformers, listed in Table x.x.x-x and their feeder breakers and load breakers, are sized to supply their load requirements.	a. An analysis will be performed. b. An inspection will be performed.	a. Equipment sizing analyses conclude that ratings for XXXX switchgear, load centers, MCCs, and transformers, listed in Table x.x.x-x and their feeder breakers and load breakers, are greater than their analyzed load requirements. b. The ratings of XXXX switchgear, load centers, MCCs, and transformers, listed in Table x.x.x-x and their feeder breakers and load breakers, meet the analysis criteria.
E07	Model		XXXX cables and buses are sized to supply their assigned load requirements.	a. An analysis will be performed. b. An inspection will be performed.	a. Equipment sizing analyses conclude XXXX cables and buses are sized to supply analyzed load requirements. b. The ratings of XXXX cables and buses meet the analysis criteria.
E08	Model		XXXX interrupting devices (e.g., circuit breakers and fuses) are coordinated so that the circuit interrupting device closest to the fault open before other devices.	a. An analysis will be performed. b. An inspection will be performed.	a. Equipment protection and coordination analyses conclude that for the XXXX interrupting devices (e.g., circuit breakers and fuses) are coordinated so that the circuit interrupting device closest to the fault open before other devices. b. The ratings of XXXX interrupting devices (e.g., circuit breakers and fuses) meet the analysis criteria.
E09	Model		XXXX switchgear, load centers, MCCs, and transformers, listed in Table x.x.x-x, are rated to withstand fault currents for the time required to clear the fault from its power source.	a. An analysis will be performed. b. An inspection will be performed.	a. Short-circuit analyses conclude that current capability for XXXX switchgear, load centers, MCCs, and transformers, listed in Table x.x.x-x, is greater than the analyzed fault currents for the time required to clear the fault from its power source as determined by circuit interrupting device coordination analysis. b. The ratings of XXXX switchgear, load centers, MCCs, and transformers, listed in Table x.x.x-x, meet the analysis criteria.

5.0 ELECTRICAL POWER DESIGN FEATURES

E09	Model		The feeder and load circuit breakers for XXXX switchgear, load centers, and MCCs are rated to interrupt fault currents.	a. An analysis will be performed. b. An inspection will be performed.	a. Short-circuit analyses conclude that current interrupting capability for XXXX switchgear, load center, and MCC feeder and load circuit breakers, is greater than the analyzed fault currents. b. The ratings of XXXX switchgear, load center, and MCC feeder and load circuit breakers meet the analysis criteria.
E10	Model		Each XXXX battery is able to provide power for starting and operating design loads for a minimum of two hours when the ac supply to the battery charger is lost.	a. An analysis will be performed. b. A battery discharge test will be performed.	a. Analysis concludes the XXXX battery is able to provide power for starting and operating analyzed design loads for a minimum time of two hours while battery terminal voltage remains above minimum voltage required for the design loads. b. The capacity of the XXXX battery is equal to or greater than the analyzed battery design duty cycle.
E10	Model		Each XXXX battery charger supplies assigned XXXX loads while maintaining the respective EUPS battery charged.	a. An analysis will be performed. b. A battery charger capacity test will be performed.	a. Analysis concludes each XXXX battery charger rating is greater than the analyzed load requirements. b. Each XXXX battery charger can maintain an output current that can supply the assigned XXXX loads while maintaining the respective XXXX battery charged.
E11	Model		Each XXDG output rating is greater than the analyzed loads assigned in the respective XXXX divisions.	a. An analysis will be performed. b. A test will be performed.	a. Analysis concludes each XXXDG output rating is greater than the analyzed loads assigned in the respective XXXX divisions. b. Each XXXDG provides an output power capacity greater than the analyzed loads.

6.0 ENVIRONMENTAL QUALIFICATIONS

Q1	Model		Components designated as harsh environment in Table x.x.x-x will perform the function listed in Table x.x.x-x under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions.	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components designated as harsh environment in Table x.x.x-x to perform the function listed in Table x.x.x-x under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions. b. Components designated as harsh environment in Table x.x.x-x will be inspected to verify installation in accordance with the EQDP requirements, and deviations will be reconciled.	a. EQDPs exist and conclude that the components designated as harsh environment in Table x.x.x-x can perform the function listed in Table x.x.x-x under normal environmental conditions, containment test conditions, anticipated operational occurrences, and accident and post-accident environmental conditions, including the time required to perform the listed function. b. Inspection reports exist and conclude that the components designated as harsh environment in Table x.x.x-x have been installed per the EQDP requirements and deviations have been reconciled.
Q2	Model		Components designated as mild environment in Table x.x.x-x will perform their function under normal environmental conditions, AOOs, and accident and post-accident environmental conditions.	a. Type tests or type tests and analysis will be performed to demonstrate the ability of the components designated as mild environment in Table x.x.x-x to perform their function normal environmental conditions, AOOs, and accident and post-accident environmental conditions. b. Components designated as mild environment Table x.x.x-x will be inspected to verify installation in accordance with the EQDP requirements, and deviations will be reconciled.	a. EQDPs conclude that components designated as mild environment in Table x.x.x-x can perform their function under normal environmental conditions, AOOs, and accident and post-accident environmental conditions, including the time required to perform their function. b. Inspection reports conclude that components designated as mild environment in Table x.x.x-x have been installed per the EQDP requirements and deviations have been reconciled.

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

S01	Model		Containment isolation valves listed in Table x.x.x-x close within the containment isolation response time following initiation of a containment isolation signal.	Tests will be performed using test signals.	Containment isolation valves listed in Table x.x.x-x close within 60 seconds after receipt of an isolation test signal from the PACS module.
S02	Model		The pumps listed in Table x.x.x-x have NPSHA that is greater than NPSHR at system run-out flow.	Tests and analyses will be performed.	The pumps listed in Table x.x.x-x have NPSHA that is greater than NPSHR at system run-out flow.
S03	Model		The ZZZ heat exchangers listed in Table x.x.x-x have the capacity to transfer the design heat load to the WWW.	Tests and analyses will be performed.	Each ZZZ heat exchanger has the capacity to transfer a heat load of at least #### BTU/hr to the WWW via the heat exchangers listed in Table x.x.x-x.
S04	Model		The ZZZ has provisions to allow flow testing of the ZZZ pumps during plant operation.	Tests will be performed.	The ZZZ pump flow test line recirculates at least ### gpm back to the ZZZ.
S05	Model		The ZZZ provides recirculation cooling to maintain design temperatures in the hot mechanical rooms in the WWW Buildings, while operating in a design basis accident alignment.	a. An analysis will be performed. b. Tests and analysis of the ZZZ cooling units will be performed.	a. Each ZZZ cooling coil is capable of providing design cooling requirements. Each ZZZ air inlet heater is capable of providing design heating capacity, while operating in a design basis accident alignment. b. The ZZZ is capable of providing cooling to maintain design temperatures in the WWW Buildings, while operating in a design basis accident alignment. Each ZZZ fan is capable of meeting the design air flow requirements, while operating in a design basis accident alignment.
S06			Pump Flow Related		
S07			Volume Related		
S08	Model		XXX provide relief capacity.	Tests will be performed.	Each XXX provides relief capacity ≥ #### lbm/hr at #### psig.

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

S09	Model		Valves listed in Table x.x.x-x fail to the position as shown in Table x.x.x-x on loss of power.	Tests will be performed.	Following loss of power, the valves listed in Table x.x.x-x fail to the position as shown in Table x.x.x-x.
S10	Model		The XXX is designed such that a single failure will not result in the loss of the capability of the crane to safely retain the load.	Tests, inspections and analyses will be performed on the XXX to confirm: a. The receiving system is designed to preclude a load drop in the event of a rope failure. b. Is equipped with two holding brakes. c. Has been rated load tested at a minimum of 125% of the rated load. d. Has been full-load tested at a minimum of 100% rated load. e. Has been no load tested to verify proper operation of limit switches, interlock and stop settings. f. Critical welds have been non-destructively tested.	The following tests, inspections and analyses have been successfully completed for the XXX so that a single failure will not result in the loss of the capability of the crane to safely retain the load. A report concludes that the: a. Receiving system is designed to preclude a load drop in the event of a rope failure. b. XXX is equipped with two holding brakes. c. XXX has passed rated load testing at a minimum of 125% of the rated load. d. XXX has passed full-load testing at a minimum of 100% rated load. e. XXX has passed no load testing to verify proper operation of limit switches, interlock and stop settings. f. Critical welds have passed non-destructive testing.

1.0 BUILDINGS

GRP	Sect	No.	Commitment	ITA	AC
B5			Flooding Related		
B5	2.1.1.4	3.6	NI ~~Seismic Category I~~ structural walls or floors having exterior penetrations located below grade elevation are protected against external flooding by watertight seals.	An inspection of NI ~~Seismic Category I~~ exterior structural wall and floor penetrations located below grade elevation will be performed.	Watertight seals exist for exterior penetrations of NI ~~Seismic Category I~~ structural walls and floors located below grade elevation.
B5	2.1.1.8	2.2	As shown on Figure 2.1.1-4, a flooding barrier is provided to prevent ingress of water into the core melt spreading area. Penetrations within the core melt water ingression barrier are protected by watertight seals. Doors within the core melt water ingression barrier are watertight doors.	Inspection of the core melt water ingression barrier will be performed.	The RCB provides a spreading area water ingression barrier as shown on Figure 2.1.1-4. Penetrations ~~and doors~~ within the core melt water ingression barrier are protected by watertight seals. Doors within the core melt water ingression barrier are water~~-~~tight doors.
B5	2.1.1.8	2.10	Essential equipment required for plant shutdown located in the RCB and RBA is located above the internal flood level.	a. An internal flood analysis for the RCB and RBA will be performed. b. An ~~walkdown~~ inspection of the ~~essential equipment in the~~ RB and RBA ~~required for plant shutdown~~ will be performed.	a. ~~Completion of t~~The internal flood analysis for the RCB and RBA ~~concludes~~ defines the essential equipment required for plant shutdown ~~is located above~~ and the internal flood level in the RCB and RBA. b. Essential equipment in the RB and RBA required for plant shutdown is located above the internal flood level.
B5	2.1.5	3.6	ESWB structural walls or floors having exterior penetrations located below grade elevation are protected against external flooding by watertight seals.	An inspection of ESWB exterior structural walls and floors located below grade will be performed.	Watertight seals exist for exterior penetrations of ESWB structural walls and floors located below grade elevation.

1.0 BUILDINGS

GRP	Sect	No.	Commitment	ITA	AC
B6			Miscellaneous Inspection		
B6	2.1.1.4	3.3	The NI structures include safety-significant radiation barriers for normal operation and post-accident radiation shielding as described listed in Table 2.1.1-3.	An inspection of the as-built NI structures safety-significant radiation barriers will be performed.	The as-built NI structures safety-significant radiation barriers that provide normal operation and post-accident radiation shielding are as described listed in Table 2.1.1-3.
B6	2.1.1.8	2.1	Six rib support structures are provided at the bottom of the reactor cavity as shown on Figure 2.1.1-9.	Inspection of the reactor vessel cavity will be performed.	Six rib support structures are provided at the bottom of the reactor cavity as shown on Figure 2.1.1-9.
B6	2.1.1.8	2.3	Core melt cannot relocate to upper containment due to the existence of concrete barriers as shown on Figure 2.1.1-9.	Inspection of the RCB will be performed.	Concrete barriers are located within the RCB as shown on Figure 2.1.1-9.
B6	2.1.1.8	2.8	The following provisions are provided for water flow to the IRWST: • As shown on Figure 2.1.1-4, RCB rooms which are adjacent to the IRWST contain wall openings slightly above the floor to allow water flow into the IRWST. • As shown on Figure 2.1.1-5, RCB rooms which are directly above the IRWST, contain trapezoidal-shaped openings in the floor to allow water flow into the IRWST. The floor openings are protected by weirs and trash racks to provide a barrier against material transport into the IRWST.	Inspection of the RCB will be performed.	The as-built RCB configuration includes the following provisions: • As shown on Figure 2.1.1-4, the two rooms labeled Areas for MHSI, LHSI & SAHRS pipe penetrations contain wall openings slightly above the floor to allow water flow into the IRWST. • As shown on Figure 2.1.1-5, the RCB rooms, which are directly above the IRWST, labeled RCP Oil Collection Tank Areas for each loop contain trapezoidal-shaped openings in the floor. and The floor openings are provided with weirs and trash racks.
B6	2.1.1.8	2.9	RBA penetrations that contain high-energy pipelines, as described listed in Table 2.1.1-7, have guard pipes.	Inspection of the RBA will be performed.	RBA penetrations that contain high-energy pipelines, as described listed in Table 2.1.1-7, have guard pipes.

B6	2.1.1.8	2.11	The reactor pressure vessel, reactor coolant pumps, pressurizer, steam generators, and interconnecting RCS piping are insulated with reflective metallic insulation.	An inspection will be performed.	The reactor pressure vessel, reactor coolant pumps, pressurizer, steam generators, and interconnecting RCS piping are insulated with reflective metallic insulation.
B6	2.1.1.8	2.19	RCB ~~D~~doors with blowout panels listed in Table 2.1.1-6(a) are provided with missile restraint.	~~An inspection~~Inspections will be performed ~~to verify that the~~ of RCB doors with blowout panels.~~ are provided with a missile restraint.~~	The RCB doors with blowout panels listed in Table 2.1.1-6(a) have a missile restraint.
B6	2.1.1.8	2.20	RCB ~~V~~vent path areas provide ~~room (compartment)~~ pressure relief for the rooms listed in Table 2.1.1-6(b).	~~An inspection~~Inspections will be performed ~~to verify~~ of the total vent path area.	The ~~minimum~~ total vent path area is greater than or equal to the value listed in Table 2.1.1-6(b) for the corresponding room.~~s (compartments) listed.~~
B6	2.1.1.8	2.22	Deleted.~~The coatings in the RCB are design basis accident qualified.~~	Deleted.~~An inspection for the existence of a report foranalysis of the as-built coatings used in the RCB will be performed.~~	Deleted.~~A report exists and confirms the as-built concludes that the coatings used in the RCB are design basis accident qualified.~~
B6	2.1.1.11	2.3	The SFSP has a minimum depth from the bottom of the SFSP to the spent pool operating floor ~~that is confirmed after construction~~.	An inspection of the SFSP will be performed.	The SFSP has a minimum depth of 47 feet, 2 inches as measured from the bottom of the SFSP to the spent fuel pool operating floor.
B6	2.1.1.11	2.4	The SFSP includes no gates, openings, or drains below an elevation corresponding to the top of stored fuel assemblies.	An inspection of the SFSP will be performed.	The SFSP includes no gates, openings, or drains below 16 feet, 6-11/16 inches as measured from the bottom of the SFSP.
B6	2.1.1.11	2.5	The SFSP includes no piping that extends below an elevation of 10 feet above the top of the stored fuel assemblies.	An inspection of the SFSP will be performed.	The SFSP includes no piping that extends below 26 feet, 6-11/16 inches as measured from the bottom of the SFSP.

1.0 BUILDINGS

GRP	Sect	No.	Commitment	ITA	AC
B7			Miscellaneous Test		
B7	2.1.1.8	2.5	The RCB, including the liner plate and penetration assemblies, maintains its pressure boundary integrity at the design pressure.	A Structural Integrity Test of the RCB, including the liner plate and penetration assemblies, will be performed in accordance with ASME Code Section III.a. Inspections will be performed for the existence of ASME Code Section III Design Report(s) for the RCB liner plate and penetration assemblies. b. Inspections will be performed to verify the existence of RCB liner plate and penetration assemblies analyses which reconcile as-built deviations to the ASME Code Design Report as required by ASME Code Section III. c. Inspections of pressure boundary welds will be performed to verify that welding on the RCB liner plate and penetration assemblies is performed in accordance with ASME Code Section III requirements. d. A Structural Integrity Test of the RCB, including the liner plate and penetration assemblies, will be performed in accordance with ASME Code Section III. e. Pre-service Inspections on the RCB liner plate and penetration assemblies has been performed in accordance with ASME Code Section III.	a. ASME Code Section III Design Data Report(s) (NCA-3550) exist and conclude that for the RCB, including the liner plate and penetration assemblies, the Structural Integrity Test results comply with ASME Code Section III, Division 2, CC-6400 requirements at a test presssure of 115% of the design pressure of 62 psig. b. ASME Code Date Reports (NCA-8000) exist and conclude that Reconciliation (NCA-3554) of the as-built RCB liner plate and penetration assemblies with the Design Report (NCA-3550) has occurred. c. ASME Code Section III Data Reports exist and concludes that pressure boundary welding has been performed on the RCB liner plate and penetration assemblies in accordance with ASME Code Section III. d. ASME Code Data Report (CC-6500) exists and concludes the Structural Integrity Test performed on the RCB, including the liner plate and penetration assemblies meets the ASME Section III requirements at the design pressure of at least 62 psig. e. ASME Code Section III Data Reports exist and concludes that Pre-service NDE performed on the RCB liner plate and penetration assemblies meets ASME Section III requirements.

1.0 BUILDINGS

GRP	Sect	No.	Commitment	ITA	AC
B8			Miscellaneous Analysis		
B8	2.1.1.8	2.13	The RCB has a minimum containment free volume that is confirmed after construction.	During construction, dimensional deviations from the RCB and RB internal structures concrete outline drawings will be analyzed for impact on An analysis will be perfomed of the minimum containment free volume value.	The final RCB minimum containment free volume is greater than or equal to 2.755 x 10^6 ft^3 after all volumetric changes resulting from dimensional deviations to the RCB and RB internal structures concrete outline drawings have been reconciled.
B8	2.1.1.8	2.14	The RCB and RB internal structures have a minimum containment heat sink surface area value.	During construction, surface area dimensional deviations from the RCB and RB internal structures construction drawings will be analyzed for impact on An analysis will be perfomed of the minimum containment heat sink surface area value.	As-built deviations to the surface area dimensions shown on construction drawings have been reconciled against the The RCB and RB internal structures containment heat sink surface area is minimum value of greater than or equal to 699,633 ft^2.

1.0 BUILDINGS

GRP	Sect	No.	Commitment	ITA	AC
B9			Miscellaneous Combination of ITA		
B9	2.1.1.8	2.6	The RCB is a post-tensioned, pre-stressed concrete structure.	a. ~~Inspections will be performed for the existence~~ An analysis of ASME Code Section III Design Report~~(s)~~ for the RCB post-tensioned, pre-stressed concrete structure will be performed. b. Inspections will be performed for the existence of ASME Code Section III Construction Report~~(s)~~ for the RCB post-tensioned, pre-stressed concrete structure. c. ~~Inspections will be performed to verify the existence~~ An analysis of the RCB post-tensioned, pre-stressed concrete structure using as-designed and as-built information and ASME Code Design Report (NCA-3550) will be performed.~~analyses which reconcile as-built deviations to the ASME Code Design Report as required by ASME Code Section III.~~ ~~d. A Structural Integrity Test of the RCB post-tensioned, pre-stressed concrete structure will be performed in accordance with ASME Code Section III.~~ ~~e. Pre-service Inspections on the RCB post-tensioned, pre-stressed concrete structure has been performed in accordance with ASME Code Section III.~~	a. ASME Code Section III Design Report~~(s)~~ (NCA-3550) ~~exist~~ concludes that the design of ~~for~~ the RCB post-tensioned, pre-stressed concrete structure complies with ASME Code Section III, Division 2 requirements. b. ASME Code Section III Construction Report~~(s)~~ (NCA-3454) exists for the RCB post-tensioned, pre-stressed concrete structure. c. ASME Code Data Report~~s~~ (NCA-8000) ~~exist and~~ concludes that design ~~R~~reconciliation (NCA-3554) of the ~~as-built~~ RCB post-tensioned, pre-stressed concrete structure with the Design Report (NCA-3550) has occurred. The report(s) document the results of the reconciliation analysis. ASME Code Section III Design Report (NCA-3550) concludes that design reconciliation (NCA-3554) has been completed in accordance with the ASME Code Section III for the as-built system. The report(s) document the results of the reconciliation analysis. ~~d. ASME Code Data Report (CC-6500) exists and concludes that the Structural Integrity Test performed on the RCB post-tensioned, pre-stressed concrete structure meets ASME Section III requirements at the design pressure of 62 psig.~~ ~~e. ASME Code Section III Data Reports exist and concludes that Pre-Service Inspections on the RCB post-tensioned, pre-stressed concrete structure meets ASME Section III.~~

1.0 BUILDINGS

B9	2.1.1.8	2.15	The integrated leak rate from the RCB does not exceed the maximum allowable leakage rate.	a. An analysis will be perfomed that defines the RCB air mass. b. A test will be performed to evaluate the RCB leakage rate.	a. A report defines the RCB air mass. b. The RCB leakage rate does not exceed 0.25% of RCB air mass per day at a containment test pressure of 55 psig.
B9	2.1.1.8	2.18	RCB Ddoors and blowout panels provide pressure relief.	a. Type tests and as-built testsing will be performed for the swing doors to demonstrate the ability of the doors to open. b. Type tests will be performed to demonstrate the ability of the blowout panels to open. c. An inspection will be performed to verify the vent direction of doors.	a. The pressure at which the swing doors listed in Table 2.1.1-6(a) begins to open is less than or equal to 3.48 psid. b. The pressure at which the blowout panels listed in Table 2.1.1-6(a) open is less than or equal to 1.74 psid. c. The doors listed in listed in Table 2.1.1-6(a) provide the vent direction as identified.
B9	2.1.1.8	2.21	The RCB has a maximum volume of Microtherm insulation within the zone of influence.	a. An analysis will be perfomed that defines the zone of influence. b. An inspection of the as-built components and piping in the zone of influence will be performed.	a. A report defines the zone of influence inside the RCB. b. The as-built components and piping in the zone of influence will have less than or equal to 1 $ft^3$3 of Microtherm insulation.
B9	2.1.1.8	2.23	Coatings in the RCB are consistent with the GSI 191 DBA evaluation. RCB coatings in the zone of influence areas have a maximum qualified thickness.	Inspections and analyses of the as-built coatings used in containment will be conducted. a. An inspection for the existence of a reportAnalyses will be perfomed that defines the zone of influence and maximum qualified conating thickness. will be conducted. b. An inspection will be performed.for the existence of a report for the as-built coatings thickness used in the RCB within the zone of influence.	A report exists and concludes that the as-built coatings used in the containment are consistent with the safety injection suction strainer debris generation, debris transport, and downstream effects evaluations. a. A report exists that defines the zone of influence inside the RCB and maximum qualified coating thickness. b. A report exists and confirms the maximum thickness of the as-built The thickness of coatings in the RCB within the zone of influence are less than the maximum qualified thickness.

1.0 BUILDINGS

B9	2.1.1.8	2.26	Thermal properties of the RCB concrete mix design are as defined in the Construction Specification	a. Inspections will be performed for the existence of ASME Code Section III, Division 2 Construction Specification(s) defining the thermal properties of the RCB concrete mix design. b. Testing of the concrete mix design will be performed.	a. ASME Code Section III, Division 2, (CC-2230) test records exist for the RCB concrete mix design. b. ASME Code Section III, Division 2, (CC-2230) test records exist for the RCB concrete mix design and conclude that it meets the thermal properties specified.
B9	2.1.1.8	2.27	The IRWST has sufficient mass to compensate for water retention in the RCB and RB internal structures.	During construction, inspections will be performed and dimensional deviations from the RCB and RB internal structures will be analyzed for impact on the IRWST water retention mass.	Reconciliation of the dimensional deviations to the RCB and RB internal structures concludes that the water retention is less than or equal to 535,000 lbm.

2.0 ARRANGEMENT

GRP	Sect	No.	Commitment	ITA	AC
A4			Miscellaneous Inspection		
A4	3.6	2.1	Class 1E cables and cable raceways are marked according to their respective division color code.	An inspection will be performed.	As-built Class 1E cables and cable raceways are marked according to their respective color code.
A4	2.8.1	2.2	The axis of the turbine rotor shafts is positioned favorable to the Reactor Building and other essential such that safety-related structures, except for two of the four Essential Service Water Buildings and the two of the four Emergency Power Generating Buildings, such that the safety-related structures are located outside the turbine missile low-trajectory hazard zone as shown on Figure 2.8.1-2. The low-trajectory hazard zone is defined as an area bounded by lines that are inclined at 25 degrees to the turbine wheel planes and pass through the end wheels of the low pressure stages.	An inspection of the location of the axis of the turbine rotor shafts to verify that safety-related structures, except for two of the four Essential Service Water Buildings and two of the four Emergency Power Generating Buildings, are located outside the turbine low-trajectory hazard zone will be performed.	The location of the of the axis of the turbine rotor shafts is positioned such that favorable with respect to protection of No Ssafety-related structures, except for two of the four Essential Service Water Buildings and the two of the four Emergency Power Generating Buildings, from turbine missiles are located outside the turbine missile low-trajectory hazard zone.

3.0 MECHANICAL DESIGN FEATURES

GRP	Sect	No.	Commitment	ITA	AC
M18			Miscellaneous Combination of ITA		
M18	3.8	2.1	Systems, structures, and components that are required to be functional during and following an SSE are protected against or qualified to withstand the dynamic and environmental effects associated with postulated failures in Seismic Category 1 and non-safety-related piping systems.	a. A~~n as-designed~~ pipe break hazards analysis will be performed. {{DAC}} b. Inspections of ~~as-built~~ features for protection against pipe break will be performed. c. Analyses will be performed to reconcile deviations with the ~~as-designed~~ pipe break hazards analysis.	a. A pipe break hazards analysi~~e~~s ~~summary~~ exists that concludes the plant can be shut down safely and maintained in cold safe shutdown following a pipe break with loss of offsite power. For postulated pipe breaks, the pipe break hazards analysi~~e~~s confirms that: • Piping stresses in the RCB penetration area are within allowable stress limits. • Pipe whip restraints and jet shield designs for protection of the essential systems and components can mitigate pipe break loads. • Loads on safety-related SSCs are within design load limits. • SSCs are protected or qualified to withstand the dynamic and environmental effects of postulated failures, including cubicle pressurization effects. A summary of the dynamic analyses applicable to high-energy piping systems, including: • Sketches showing the location of the resulting postulated pipe ruptures, including identification of longitudinal and circumferential breaks; structural barriers, if any; restraint locations; and the constrained directions in each restraint. • A summary of the data developed to select postulated break locations, including, for each point, the calculated stress, the calculated primary plus

					secondary stress/stress intensity range, and the calculated cumulative usage factor. • For failure in the moderate-energy piping systems, descriptions showing how safety-related systems are protected from spray wetting, flooding, and other adverse environmental effects. {{DAC}} b. The required features for protection against pipe break exist. c~~b~~. Reconciliation of deviations to the as-designed pipe break hazards analysis have been performed and conclude that the plant can be shut down safely and maintained in cold safe shutdown following a pipe break with loss of offsite power.

GRP	Sect	No.	Commitment	ITA	AC
I18			Miscellaneous Inspection		
I18	2.4.1	4.9	The PS uses TXS system communication messages that are sent with a specific protocol.	~~Inspections~~ An inspection will be performed on PS equipment to verify that PS communication messages are sent with a specific protocol.	~~Inspections identify that the~~The TXS system communication messages use a specific protocol structure and message error determination. Messages are validated by the following series of checks: • Message header check contains the following: – Protocol version – Sender ID – Receiver ID – Message ID – Message type – Message length • Message age is monitored. • Message cyclic redundancy check is performed so that if one of the checks fails, the affected data are marked with an error status.
I18	2.4.4	4.21	SAS connections to the SICS are hardwired for manual grouped controls.	Inspections will be performed.	SAS connections to the SICS are hardwired for manual grouped controls.
I18	2.4.5	4.4	The input wiring from other I&C systems to the PACS is properly connected.	~~Inspections~~ An inspection will be performed to verify that the input wiring from other I&C systems to the PACS is properly connected.	The input wiring from the other I&C systems to the PACS is properly connected.

I18	2.4.26	4.11	The RPMS uses TXS system communication messages that are sent with a specific protocol.	An inspection will be performed on RPMS equipment to verify that RPMS communication messages are sent with a specific protocol.	The TXS system communication messages use a specific protocol structure and message error determination. Messages are validated by the following series of checks: • Message header check contains the following: - Protocol version - Sender ID - Receiver ID - Message ID - Message type - Message length • Message age is monitored. Message cyclic redundancy check is performed so that if one of the checks fails, the affected data are marked with an error status.

GRP	Sect	No.	Commitment	ITA	AC
I19			Miscellaneous Test		
I19	2.4.1	4.3	The permissives listed in Table 2.4.1-5 provide operating bypass capability for the corresponding PS functions.	a. ~~For~~ A test will be performed using test signals for each function listed as being bypassed by an inhibited permissive in Table 2.4.1-5.~~, tests will be performed to verify that each function is bypassed when test signals representing the corresponding inhibited permissive signal are present.~~ b. A test will be performed using test signals for ~~For~~ each function listed as being bypassed by a validated permissive in Table 2.4.1-5.~~, tests will be performed to verify that each function is bypassed when test signals representing the corresponding validated permissive signal are present.~~	a. The functions listed as being bypassed by inhibited permissives in Table 2.4.1-5 are bypassed when test signals representing the corresponding inhibited permissive are present. b. The functions listed as being bypassed by validated permissives in Table 2.4.1-5 are bypassed when test signals representing the corresponding validated permissive are present.
I19	2.4.4	4.23	Permissive P15 provides operating bypass capability for the following SAS functions: • Safety Injection and Heat Removal System - Automatic Trip of LHSI Pump (in RHR Mode) on Low Delta Psat. • Safety Injection and Heat Removal System - Automatic Trip of LHSI Pump (in RHR Mode) on Low Loop Level.	A test will be performed using test signals.	A report concludes that Permissive P15 provides operating bypass capability for the following SAS functions: • Safety Injection and Heat Removal System - Automatic Trip of LHSI Pump (in RHR Mode) on Low Delta Psat. • Safety Injection and Heat Removal System - Automatic Trip of LHSI Pump (in RHR Mode) on Low Loop Level.

I19	2.4.5	4.1	~~PS signals received by each priority module override other signals received by the priority module~~ The priority module prioritizes different system inputs in the following order from highest to lowest priority: • PS/DAS • SAS • SICS • PAS	~~Tests~~ A test will be performed using test signals ~~that verify PS signals received by each priority modules override other signals received by the priority module~~.	~~Test results exist and conclude that the~~The PS ~~signals received by each priority module override other signals received by the priority modules.~~A report concludes that the priority module prioritizes different system inputs in the following order from highest to lowest priority: • PS/DAS • SAS • SICS • PAS
I19	2.4.5	4.10	The capability of 100% combinatorial testing of the PACS priority module is provided to preclude a software common cause failure.	A type test will be performed using test signals. ~~on the PACS priority module to preclude consideration of a software common cause failure.~~	The capability of 100% combinatorial testing of the PACS priority module is provided to preclude a software common cause failure.~~A report exists and concludes that 100% combinatorial type testing on the PACS priority module has been successfully completed.~~
I19	2.4.6	3.2	A trouble signal indication is provided in the MCR upon a loss of either power source to ~~any~~ a LFCP or workstation.	~~Testing~~ A test will be performed using test signals.~~to verify the existence of a trouble signal indication in the MCR when either the primary or secondary power source is lost at any LFCP or workstation.~~	A trouble signal indication is provided in the MCR upon a loss of either power source to ~~any~~ a LFCP or workstation.
I19	2.4.8	2.1	~~Reactor Building (RB)~~Containment air cooler condensate flow rate ~~measurement indication~~ is ~~provided~~ indicated in the MCR. ~~RB fan cooler condensate collector flow indication is provided in the MCR.~~	Tests will be performed in the MCR using test signals.~~a. Analyses and tests will be performed to design RB cooler condensate flow measurement equipment.~~ ~~b. Test of the as-installed RB cooler condensate flow detection equipment will be performed.~~	Containment air cooler condensate flow rate is indicated in the MCR.~~a. A design report exists and concludes that the as-designed RB cooler condensate flow detection equipment can detect condensate flow of 0.5 gpm.~~ ~~b. The installed RB cooler condensate flow detection equipment can detect a flow of 0.5 gpm.~~

I19	2.4.8	2.2	MSL local humidity detection system indication is provided in the MCR.	Tests will be performed using test signals.a. Analyses and tests will be performed to design the MSL humidity detection equipment. b. Inspections of the installation of the MSL humidity detection equipment will be performed and deviations to the design report will be reconciled.	MSL local humidity is indicated in the MCR.a. A design report exists and concludes that the as-designed MSL humidity detection equipment can detect MSL leakage of 0.1 gpm. b. The installed MSL humidity detection equipment complies with the design and deviations have been reconciled.
I19	2.4.8	2.3	Containment air cooler condensate flow rate sensors support RCS leakage detection.	Tests will be performed using test signals.	Containment air cooler condensate flow rate sensors can detect a flow of 0.5 gpm.
I19	2.4.13	4.3	Each reactor trip contactor listed in Table 2.4.13-1 opens when an RT signal is received from the corresponding PS division.	Tests A test will be performed on the as-built reactor trip contactors using test signals.	Each reactor trip contactor listed in Table 2.4.13-1 opens in response to an RT test signal from the corresponding PS division.
I19	2.4.13	4.4	The CRDCS limits the RCCA bank withdrawal rate to a maximum value of 30 in per minute or less.	Tests A test will be performed using test signals.to determine the maximum RCCA bank withdrawal rate.	The CRDCS limits the RCCA bank withdrawal rate to a maximum value of 30 inches per minute or less.
I19	2.4.24	3.4	The DAS allows manual, system-level actuation of the functions listed in Table 2.4.24-3.	Tests A test will be performed on the DAS using test signals.	The DAS generates signals allowingallows manual actuation of the functions identified listed in Table 2.4.24-3.
I19	2.4.25	4.3	Bypassed or inoperable SCDS channel status information is retrievable in the MCR.	A test of the SCDS will be performed using test signals.	Bypassed or inoperable SCDS channels status information is retrievable indicated in the MCR.
I19	2.9.4	4.1	Deleted.Each monitor listed in Table 2.9.4-1 initiates a MCR alarm when the radiation level exceeds a preset limit.	Deleted.A test will be performed to verify that the MCR alarm is initiated when radiation level exceeds a preset limit.	Deleted.Each monitor listed in Table 2.9.4-1 initiates an MCR alarm when the radiation level exceeds a preset limit.
I19	2.9.5	3.3	Containment sump level sensors support RCS leakage detection.The sump has level sensors that can be used to monitor system leakage.	Tests will be performed using test signals.to verify RB sump level change capability.	Containment sump level sensors can detect a level increase of 0.5 gpm within one hour.Sump level change of 24 gallons is indicated in the MCR.

GRP	Sect	No.	Commitment	ITA	AC
I20			Miscellaneous Analysis		
I20	2.2.1	4.4	Instrumentation providing input to the uncertainty in power supports the power uncertainty assumed in the safety analysis.	A power uncertainty analysis using vendor certified instrument accuracies will be performed.	Power uncertainty analyses using vendor certified instrument accuracies is equal to or less than the power uncertainty assumed in the safety analysis.
I20	2.4.1	4.6	PS setpoints associated with the automatic RT signals listed in Table 2.4.1-2 and the automatic ESF signals listed in Table 2.4.1-3 are determined using a documented methodology that addresses • The determination of applicable contributors to instrumentation loop errors. • The method in which the errors are combined. • hHow the errors are applied to the design analytical limits.	a. An inspection will be performed to verify the existence of an documented methodology for determining the PS setpoints. b. An analysis will be performed to verify that the PS setpoints for the functions listed in Table 2.4.1-2 and Table 2.4.1-3 are determined using the documented methodology.	a. A documented methodology for determining PS setpoints exists. b. A report exists and concludes that the PS setpoints associated with the automatic RT signals listed in Table 2.4.1-2 and the automatic ESF signals listed in Table 2.4.1-3 are determined using a documented methodology: • (1) For the determination of applicable contributors to instrument loop error. • (2) For combining instrument loop errors. • (3) For how the errors are applied to the design analytical limits.

I20	2.4.1	4.22	The operational availability of each input variable listed in Table 2.4.1-2 and Table 2.4.1-3 can be confirmed during reactor operation including post-accident periods by one of the following methods: • By perturbing the monitored variable. • By introducing and varying, a substitute input of the same nature as the measured variable. • By cross-checking between channels that bear a known relationship to each other. • By specifying equipment that is stable and the period of time it retains its calibration during post-accident conditions.	An analysis will be performed to demonstrate that the operational availability of each input variable listed in Table 2.4.1-2 and Table 2.4.1-3 can be confirmed during reactor operation including post-accident periods. by one of the following methods: • By perturbing the monitored variable. • By introducing and varying, a substitute input of the same nature as the measured variable. • By cross-checking between channels that bear a known relationship to each other. • By specifying equipment that is stable and the period of time it retains its calibration during post-accident conditions.	A report exists and concludes that the operational availability of each input variable listed in Table 2.4.1-2 and Table 2.4.1-3 can be confirmed during reactor operation including post-accident periods by one of the following methods: • By perturbing the monitored variable. • By introducing and varying, a substitute input of the same nature as the measured variable. • By cross-checking between channels that bear a known relationship to each other. • By specifying equipment that is stable and the period of time it retains its calibration during post-accident conditions.

I20	2.4.4	4.15	The operational availability of each input variable listed in Table 2.4.4-2 can be confirmed during reactor operation including post-accident periods by one of the following methods: • By perturbing the monitored variable. • By introducing and varying, a substitute input of the same nature as the measured variable. • By cross-checking between channels that bear a known relationship to each other. • By specifying equipment that is stable and the period of time it retains its calibration during post-accident conditions.	Analysis will be performed to demonstrate that the operational availability of each input variable listed in Table 2.4.4-2 can be confirmed during reactor operation including post-accident periods. ~~by one of the following methods:~~ ~~• By perturbing the monitored variable.~~ ~~• By introducing and varying, a substitute input of the same nature as the measured variable.~~ ~~• By cross-checking between channels that bear a known relationship to each other.~~ • ~~By specifying equipment that is stable and the period of time it retains its calibration during post-accident conditions.~~	A report ~~exists and~~ concludes that the operational availability of each input variable listed in Table 2.4.4-2 can be confirmed during reactor operation including post-accident periods by one of the following methods: • By perturbing the monitored variable. • By introducing and varying, a substitute input of the same nature as the measured variable. • By cross-checking between channels that bear a known relationship to each other. • By specifying equipment that is stable and the period of time it retains its calibration during post-accident conditions.
I20	2.4.24	3.2	The technology used by the DAS is a technology that is not microprocessor based.	~~Inspection~~ An analysis will be performed. ~~to demonstrate that the technology in the DAS is a technology that is not microprocessor based.~~	The technology used by the DAS is a technology that is not microprocessor based.
I20	2.9.4	4.3	The Reactor Building radiation monitor~~, which~~ supports ~~reactor coolant pressure boundary~~ RCPB leakage detection.~~, is indicated in the MCR.~~	~~a. A test will be performed to verify radiation level information in the MCR.~~ ~~b.~~ An analysis will be performed. ~~to verify that the monitor sensitivity of 3E-10 µCi/cc correlates to an ability to detect a leakage increase of 1 gpm.~~	~~a. Radiation level indication is provided in the MCR for the Reactor Building radiation monitor listed in Table 2.9.4-1.~~ ~~b. A report exists and concludes that t~~The Reactor Building radiation monitor sensitivity of 3E-10 µCi/cc correlates to an ability to detect a leakage increase of 1 gpm.

I20	3.7	2.1	PAM indications are provided to perform Type A, B, and C accident management functions defined by the emergency procedures and licensing basis documents.	An analysis of emergency procedures and licensing basis documents will be performed to identify a list of PAM variables required for accident management functions.	A report exists that documents the PAM variables are provided for required accident management functions. The PAM variable list are documented in a table format that includes the following: • Variable name that indicates the variable function. • Variable Type (A, B, C). • Range. • Safety classification (1E or non-1E). • Environmental and Seismic Qualification. • Minimum number of instruments required. • Monitoring duration for the variable.

GRP	Sect	No.	Commitment	ITA	AC
I21			Miscellaneous Combination of ITA		
I21	2.4.1	4.7	Input variables from the SCDS listed in Table 2.4.1-2 and Table 2.4.1-3 provide the inputs for generating RT signals and ESF signals in Table 2.4.1-2 and the ESF signals in Table 2.4.1-3.	a. An analysis will be performed. on the PS software design to verify that the input variables from the SCDS listed in Table 2.4.1-2 and Table 2.4.1-3 provide the inputs for generating the RT signals in Table 2.4.1-2 and the ESF signals in Table 2.4.1-3. b. InspectionsAn inspection, tests, or a combinations of inspections and tests will be performed. on the PS equipment to verify that the input variables from the SCDS listed in Table 2.4.1-2 and Table 2.4.1-3 are connected to the correct input terminals of the PS as specified in the construction drawings.	a. A report exists and concludes that for each RT signal listed in Table 2.4.1-2 and each ESF signal listed in Table 2.4.1-3, the input variables from the SCDS associated with the signals are used in the PS software design for generating each signal. b. The input variables wiring from the SCDS listed in Table 2.4.1-2 and Table 2.4.1-3 are is connected to the correct input terminals of the PS. as specified in the construction drawings.

I21	2.4.1	4.24	The PS response time from sensor to ALU output, including sensor delay, for the RT signals listed in Table 2.4.1-2 and the ESF signals listed in Table 2.4.1-3 is less than the value required to satisfy the design basis safety analysis response time assumptions. The PS response time from sensor to PACS output, including sensor delay, for the ESF signals listed in Table 2.4.1-3, is less than the value required to satisfy the design basis safety analysis response time assumptions.	a. An analysis will be performed to determine the required response time from sensor to ALU output, including sensor delay for the RT functions., which supports the safety analysis response time assumptions for the RT signals listed in Table 2.4.1-2 and ESF signals listed in Table 2.4.1-3. An analysis will be performed to determine the required response time from sensor to PACS output, including sensor delay for the ESF functions. b. Tests, analyses, or a combination of tests and analyses will be performed on the DCSPS equipment that contributes to RT and ESF signal response times.	a. A report exists and identifies the required response time from sensor to ALU output, including sensor delay, which supports the safety analysis response time assumptions for the RT signals listed in Table 2.4.1-2. and A report exists and identifies the required response time from sensor to PACS output, including sensor delay, which supports the safety analysis response time assumptions for the ESF signals listed in Table 2.4.1-3. b. A report exists and concludes that PS response times are less than the value required to support the safety analysis response time assumptions for the RT signals listed in Table 2.4.1-2 and ESF signals listed in Table 2.4.1-3.
I21	2.4.1	4.26	PS self-test features are capable of detecting faults consistent with the requirements of the PS.	a. Analyses will be performed to determine the faults that require detection through self-test features. ba. Type tests, analyses or a combination of type tests and analyses will be performed to verify that faults requiring detection through self-test features are detected by the PS equipment. b. Type tests, analyses or a combination of type tests and analyses will be performed to verify that upon detection of faults through self-test features, the PS equipment responds according to the type of fault.	a. A report exists and identifies the faults that require detection through self-test features. ba. A report exists and concludes that the PS equipment is capable of detecting faults required to be detected by self-test features. b. A report concludes that upon detection of faults through self-test features, the PS equipment responds according to the type of fault.

I21	2.4.1	4.28	For each AOO or PA, a primary and secondary RT function using different sensors as input are identified and assigned to different PS subsystems.	a. An analysis will be performed to identify primary and secondary RT functions for each AOO or PA. b. An inspection will be performed to verify that for each AOO or PA, the primary and secondary RT functions using different sensors as input are assigned to different PS subsystems.	a. A report identifies the primary and secondary RT functions for each AOO or PA. b. For each AOO or PA, the primary and secondary RT functions using different sensors as input are assigned to different PS subsystems.
I21	2.4.4	4.20	SAS self-test features are capable of detecting and responding to faults consistent with the requirements of the SAS.	a. Type tests, analyses or a combination of type tests and analyses will be performed to verify that faults requiring detection through self-test features are detected by the SAS equipment. b. Type tests, analyses or a combination of type tests and analyses will be performed to verify that upon detection of faults through self-test features, the SAS equipment responds according to the type of fault.	a. A report concludes that the SAS equipment is capable of detecting faults required to be detected by self-test features. b. A report concludes that upon detection of faults through self-test features, the SAS equipment responds according to the type of fault.
I21	2.4.5	4.5	The capability for testing of the PACS is provided while retaining the capability of the PACS to accomplish its safety function. PACS divisions in test are indicated in the MCR.	a. ~~Testing~~ A test will be performed using test signals.~~to verify the capability for testing of the PACs is provided while retaining the capability to accomplish its safety function.~~ b. ~~Inspections~~ An inspection will be performed to verify the existence of indication in the MCR when a division of the PACS is placed in test.	a. The capability for testing of the PACS is provided while retaining the capability of the PACS to accomplish its safety functions. b. PACS divisions in test are indicated in the MCR.

I21	2.4.7	3.1	The SMS system can compute the CAV and provides a display of the CAV in the MCR.	a. Type tests, tests, analyses, or a combination of type tests, tests, and analyses ~~and tests~~ will be performed. ~~on the SMS.~~ b. ~~Inspections~~ Tests will be performed ~~for the existence or retrieve-ability of a display of CAV~~ in the MCR using test signals.	a. The SMS can compute the CAV. b. ~~Indication~~ Displays and alarms from CAV are indicated ~~can be retrieved~~ in the MCR.
I21	2.4.7	3.2	The SMS equipment has a dynamic range that allows measurement of the effects of seismic events.	Type tests, analyses or a combination of type tests and analyses of the SMS equipment will be performed.	The SMS has a dynamic range of at least 1000:1 zero-to-peak and is able to record at least 1.0 g zero-to-peak.
I21	2.4.7	3.3	The SMS equipment has bandwidth that allows measurement of the effects of seismic events.	Type tests, analyses or a combination of type tests and analyses of the SMS equipment will be performed.	The SMS has bandwidth of at least 0.2 to 50 Hertz.
I21	2.4.7	3.4	The SMS equipment has a sampling rate that allows measurement of the effects of seismic events.	Type tests, analyses or a combination of type tests and analyses of the SMS equipment will be performed.	The SMS has a sample rate of at least 200 samples per second in each of the three directions.
I21	2.4.7	3.5	The SMS equipment has a trigger rate that allows measurement of the effects of seismic events.	Type tests, analyses or a combination of type tests and analyses of the SMS equipment will be performed.	The SMS has an actuating level that is adjustable and within the range of 0.001g and 0.02g.
I21	2.4.8	2.4	MSL local humidity detection system supports main steam line leakage detection.	Tests, analyses, or combination of tests and analyses will be performed.	MSL local humidity detection system can detect MSL leakage of 0.1 gpm within 4 hours.
I21	2.7.6	4.1	The GFES provides the required suppression agent design concentration within the required discharge timeframe within the MCR sub-floor area enclosure.	Tests, analyses, or combination of tests and analyses will be performed. ~~to determine the GFES suppression agent concentration level and discharge times.~~	The discharge time for the GFES required to achieve 95 percent of the minimum design concentration for flame extinguishment based on a 20 percent safety factor does not exceed 10 seconds.
I21	2.7.6	4.2	The design concentration for the GFES within the MCR sub-floor area enclosure shall be maintained for a specified period of time.	Tests, analyses, or combination of tests and analyses will be performed. ~~to determine the GFES will maintain the required suppression agent concentration~~	The design concentration for the GFES within the MCR sub-floor area enclosure shall be maintained for at least 15 minutes

I21	2.8.1	3.2	The turbine generator has diverse and independent overspeed protection systems.	a. Inspections and analyses will be performed on the overspeed protection systems. b. Tests will be performed for operation of the overspeed and backup overspeed protection systems listed in Table 2.8.1-2.	a. A report ~~exists and~~ concludes that the turbine overspeed protection systems are diverse and independent by verifying: – Each system is designed and manufactured by a different vendor. – Software used to transform the analog speed signal into a digital signal is diverse between the two systems. – Components, process inputs and process outputs are not shared between the two systems. – The two systems are installed in separate cabinets. – The two systems are powered by separate power sources. b. Overspeed and backup overspeed turbine trips occur within the design limits for the systems listed in Table 2.8.1-2.
I21	3.7	3.1	~~The~~ PAM instrumentation ~~are~~ is designed and qualified based on the level of importance of the variable type that each instrument supports.	a. An analysis will be performed to determine the performance, design, and qualification criteria for each PAM instrument based on the level of importance of the variable type that each instrument supports. b. Inspections, tests, or analyses will be performed to verify that the PAM instrumentation meets the documented performance, design, and qualification criteria.	a. A report exists that documents the performance, design, and qualification, criteria for each PAM instrument. b. A report ~~exists and~~ concludes that the PAM instrumentation meets the documented performance, design, and qualification criteria.

GRP	Sect	No.	Commitment	ITA	AC
E12			Miscellaneous Inspection		
E12	2.5.3	4.1	The SBODGs are connected to the EPSS Class 1E buses through two in-series circuit breakers (one Class 1E circuit breaker at the Class 1E EPSS bus and one non-Class 1E circuit breaker at the non-Class 1E NPSS bus).	An inspection will be performed.	The SBODGs are connected to the EPSS Class 1E buses through two in-series circuit breakers (one Class 1E circuit breaker at the Class 1E EPSS bus and one non-Class 1E circuit breaker at the non-Class 1E NPSS bus).
E12	2.5.3	4.5	The electrical portions of the SBODG air start system are independent of the electrical portions of the EDG air start system.	An test inspection will be performed.	a. The SBODG air start system compressors are powered from the normal power supply system buses and are independent of the EDG air start system. b. The SBODG pilot air start solenoids are powered from the 12 hour uninterruptible power supply system buses and are independent of the EDG air start system.
E12	2.5.5	4.2	EAT power cables and instrumentation and control circuits are routed separately from NAT power cables and instrumentation and control circuits.	An inspection will be performed.	The EAT power cables and instrumentation and control circuits are routed separately from NAT power cables and instrumentation and control circuits.
E12	2.5.8	2.1	Surge arresters are provided for MSUs, NATs and EATs.	An inspection will be performed.	The surge arresters are provided for MSUs, NATs and EATs.
E12	2.5.8	2.2	The Mmain generator, EDG, and SBODG neutrals are connected to the station grounding grid.	An inspection will be performed.	The main generator, EDG, and SBODG neutrals are connected to the station grounding grid.
E12	2.5.8	2.3	AC distribution system transformer neutral points are connected to the station grounding grid.	An inspection will be performed.	The ac distribution system transformer neutral points are connected to the station grounding grid.
E12	2.5.8	2.4	The ground bus of ac distribution system switchgear, loads centers, and MCCs listed in Table 2.5.1-2 is connected to the station grounding grid.	An inspection will be performed.	The ground bus of the ac distribution system switchgear, load centers, and MCCs listed in Table 2.5.1-2 is connected to the station grounding grid.

5.0 ELECTRICAL POWER DESIGN FEATURES

E12	2.5.8	2.5	Plant instrumentation grounding system is connected to the station grounding grid.	An inspection will be performed.	The plant instrumentation grounding system is connected to the station grounding grid.
E12	2.5.9	3.2	Special emergency lighting in the MCR and RSS is powered by the EUPS.	An ~~test~~ inspection will be performed.	a. The special emergency lighting system provides lighting in the MCR and is powered from the EUPS. b. The special emergency lighting system provides lighting in the RSS and is powered from the EUPS.
E12	3.5	5.3	Deleted.~~Containment electrical penetrations routing Class 1E cables have only Class 1E cables or associated cables.~~	Deleted.~~Inspections will be performed~~	Deleted.~~Containment electrical penetrations routing Class 1E cables have only Class 1E cables or associated cables.~~

5.0 ELECTRICAL POWER DESIGN FEATURES

GRP	Sect	No.	Commitment	ITA	AC
E13			Miscellaneous Test		
E13	2.4.6	3.1	The PFAS is provided with both an electrically supervised primary and secondary power source that will transfer automatically to the secondary source upon loss of the primary source.	A test will be performed.Tests will be performed to verify the transfer of power of the PFAS from the primary source of power to the secondary source.	The PFAS is provided with an electrically supervised primary and secondary power source that will transfer automatically to the secondary source upon loss of the primary source.
E13	2.5.2	5.15	EUPS operating voltage remains within the terminal voltage range of the supplied safety-related equipment during the battery duty cycle.	An analysis test will be performed.	EUPS battery terminal voltage remains greater than minimum required terminal voltage after a period of no less than two hours with a discharge rate that is equal to or greater than the battery design duty cycle capacity.EUPS operating voltage remains within the terminal voltage range of the supplied safety-related equipment during the battery duty cycle.
E13	2.5.3	4.2	SBODG #1 is capable of connecting to EPSS Divisions 1 and 2.	A test will be performed using test signals.	SBODG #1 is capable of starting and being available to connect to EPSS Divisions 1 and 2 within 10 minutes of receiving a test signala simulated or actual station blackout.
E13	2.5.3	4.3	SBODG #2 is capable of connecting to EPSS Divisions 3 and 4.	A test will be performed using test signals.	SBODG #2 is capable of starting and being available to connect to EPSS Divisions 3 and 4 buses within 10 minutes of receiving a test signala simulated or actual station blackout.
E13	2.5.7	5.5	The reactor trip breakers open when a signal is provided to the shunt trip coil.	A test will be performed using test signals.	The reactor trip breakers open when the shunt trip coil is energized.

5.0 ELECTRICAL POWER DESIGN FEATURES

E13	2.5.9	3.3	The emergency lighting and special emergency lighting sub-systems provide illumination at the MCR and RSS workstations and safety-related panels.	A test will be performed.	a. The emergency lighting and special emergency lighting sub-systems provide at least 100 foot-candles illumination at the MCR workstations and at least 50 foot-candles at the safety-related panels. b. The emergency lighting and special emergency lighting sub-systems provide at least 100 foot-candles illumination at the RSS workstations. c. The special emergency lighting system provides at least ten foot-candles at the MCR operator workstation when it is the only MCR lighting system in operation. d. The special emergency lighting system provides at least ten foot-candles at the RSS operator workstation when it is the only RSS lighting system in operation.

5.0 ELECTRICAL POWER DESIGN FEATURES

GRP	Sect	No.	Commitment	ITA	AC
E14			Miscellaneous Analysis		
E14	2.2.1	5.3	The power supply arrangement is such that only two ~~emergency diesels~~EDGs are required to operate to supply power to the minimum number of PZR heaters.	An analysis will be performed.	An analysis ~~exists and~~ concludes that only two ~~emergency diesel generators~~EDGs are required to operate to supply power to the minimum number of emergency PZR heaters, which are rated at 144 kW per heater.
E14	2.5.2	5.19	Harmonic distortion does not prevent safety-related equipment from performing safety functions.	An analysis will be performed.	Analysis of the Class 1E buses concludes that total harmonic distortion does not exceed 5 percent voltage distortion on the Class 1E buses.

5.0 ELECTRICAL POWER DESIGN FEATURES

GRP	Sect	No.	Commitment	ITA	AC
E15			Miscellaneous Combination of ITA		
E15	2.5.1	6.3	The EPSS provides voltages at the supplied safety-related equipment during normal and accident conditions that exceed the minimum required operating voltage of that equipment.	a. An analysis will be performed. b. A test will be performed.	a. The analysis concludes the voltage at the supplied safety-related equipment during normal and accident conditions exceeds the minimum required operating voltage of that equipment. b. EPSS bus voltage measurements verify ~~analyzed~~ safety-related terminal voltages exceed the minimum required operating voltage for that equipment.

6.0 ENVIRONMENTAL QUALIFICATIONS

None

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

GRP	Sect	No.	Commitment	ITA	AC
S11			Miscellaneous Inspection		
S11	2.2.1	3.5	The steam outlet nozzles on the SGs include flow-limiting devices.	An inspection will be performed.	The flow area through each SG outlet nozzle flow-limiting device is a maximum of 1.39 ft^2.
S11	2.2.1	3.18	The RPV internals are provided with irradiation specimen guide baskets to hold capsules containing RPV material surveillance specimens.	An inspection will be performed.	Two guide baskets are provided, located on opposite sides of the RPV, and each guide basket includes provisions to hold two material surveillance capsules.
S11	2.2.2	7.7	The IRWST provides water to flood the spreading area.	An inspection will be performed of the IRWST and severe accident heat removal system piping to provide water to flood the spreading area.	The IRWST and interfacing severe accident heat removal system pipe configuration provides a flow path to the core spreading area.
S11	2.2.2	7.9	The IRWST has a trash rack located over each heavy floor opening.	a. An inspection will be performed for the existence of a trash rack over each heavy floor opening. b. An inspection will be performed to verify the maximum mesh grid opening of the trash rack.	a. A trash rack exists over each heavy floor opening to the IRWST. b. The trash rack has a maximum mesh grid opening of 4 x 4 inches.
S11	2.2.2	7.10	The IRWST has a weir located around each trash rack at the heavy floor opening.	~~a.~~ An inspection will be performed for the existence of a weir around each trash rack at the heavy floor opening. ~~b. An inspection will be performed to verify the height of the weir around each trash rack at the heavy floor opening.~~	~~a.~~ A weir exists around each trash rack at the heavy floor opening. ~~b. The weir has a minimum height of 2 inches.~~
S11	2.2.2	7.11	The IRWST has a weir located at the annular space wall openings.	~~a.~~ An inspection will be performed for the existence of a weir at the annular space wall openings. ~~b. An inspection will be performed to verify the height of the weir at the annular space wall openings.~~	~~a.~~ A weir exists at the annular space wall opening. ~~b. The weir has a minimum height of 4 inches.~~

S11	2.2.3	7.14	The SIS/RHRS includes high point vents to avoid gas accumulation in the SIS/RHRS.	An inspection will be performed of the SIS/RHRS.	High point vents are installed in the SIS/RHRS.
S11	2.2.4	7.5	EFWS cross-connections allow alignment of EFWS pump suction on all EFWS storage pools and pump discharge alignment with any SG.	An inspection will be performed.Inspections to confirm configuration per Figure 2.2.4-1 will be performed to demonstrate the EFWS cross-connections allow alignment of EFWS pump suction on all EFWS storage pools and pump discharge alignment with any SG.	The EFWS cross-connections allow the following system alignments: 1. EFWS pump suction to all EFWS storage pools. 2. EFWS pump discharge with any SG.
S11	2.3.2	2.1	The bottom of the reactor pit is lined with sacrificial concrete backed by refractory brick.	Inspections of the as-built reactor pit will be performedconducted.	The bottom of the reactor pit is lined with sacrificial concrete backed by refractory brick. in room number UJA11--001.
S11	2.3.2	2.2	The CMSS has a melt plug and gate.	Inspections of the as-built cavity gate will be performedconducted.	The CMSS has a melt plug and gate. in room number UJA11--001.
S11	2.3.2	2.3	The CMSS has a melt discharge channel.	Inspections of the as-built melt discharge channel will be performedconducted.	The CMSS has a melt discharge channel connecting rooms UJA11--001 and UJA04-002.
S11	2.3.2	2.4	The CMSS has a spreading room lined with sacrificial concrete.	Inspections of the as-built spreading room will be performedconducted.	The CMSS has a spreading room (UJA04--002) lined with sacrificial concrete.
S11	2.3.2	2.5	The floor and walls of the spreading room are provided with channels for cooling water.	Inspections of the as-built spreading room will be performedconducted.	The floor and walls of the spreading room (UJA04--002) are provided with channels for cooling water.
S11	2.5.3	3.1	The mechanical portions of the SBODG air start system are independent of the mechanical portions of the EDG air start system.	An inspection will be performed.	The mechanical portion of the SBODG air start system is located in the switchgear building and each EDG air start system is located in each EPGB.
S11	2.5.5	3.1	Each EAT and NAT has an oil containment system.	An inspection will be performed.	Each EAT and NAT has an oil containment system.
S11	2.5.5	3.2	Each EAT and NAT has a deluge fire protection system.	An inspection will be performed.	Each EAT and NAT has a deluge fire protection system.
S11	2.5.6	3.1	Each MSU has an oil containment system.	An inspection will be performed.	Each MSU has an oil containment system.

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

S11	2.5.6	3.2	Each MSU has a deluge fire protection system.	An inspection will be performed.	Each MSU has a deluge fire protection system.
S11	2.7.11	7.8	The inlet between the cooling tower basin and pump intake structure has a coarse and a fine debris screen for each ESW pump.	a. An inspection will be performed for the existence of a coarse and a fine debris screen at the inlet between the cooling tower basin and pump intake structure for each ESW pump. b. An inspection will be performed to verify the maximum mesh grid opening of the debris screens.	a. A coarse and a fine debris screen exists at the inlet between the cooling tower basin and pump intake structure for each ESW pump. b. The coarse debris screen ~~mesh is~~ has a maximum mesh grid opening of 2.x 2 inches. The fine debris screen ~~mesh is~~ has a maximum mesh grid opening of 0.5 x 0.5 inches.
S11	2.10.1	3.1	Deleted.	Deleted.	Deleted.
S11	2.10.1	3.2	The containment polar crane main hoist is equipped with a dual load path reeving system and redundant holding brakes.	An inspection of the ~~as-built~~ polar crane load train assembly will be performed.	The polar crane is equipped with a dual load path from the hook to the hoist brakes with each reeving system capable of holding the load independently.
S11	2.10.1	3.3	The auxiliary crane hoist is equipped with a dual load path reeving system and redundant holding brakes.	An inspection of the ~~as-built~~ auxiliary crane load train assembly will be performed.	The auxiliary crane is equipped with a dual load path from the hook to the hoist brakes with each reeving system capable of holding the load independently.
S11	2.10.1	4.5	Special lifting devices and slings used with the auxiliary crane and the main hoist of the polar crane for critical lifts have dual load paths or double safety factors.	~~Tests, i~~Inspections ~~and analyses~~ will be performed on the lifting components.	The ~~as-built~~ special lifting devices and slings have dual load paths or double safety factors.

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

GRP	Sect	No.	Commitment	ITA	AC
S12			Miscelleanous test		
S12	2.2.1	3.29	The RCP flywheel maintains its structural integrity during an overspeed event.	An ~~vendor~~ overspeed test will be performed.	Test results verify that there is no loss of structural integrity at 125 percent of the ~~maximum~~ motor synchronous speed of ~~the motor~~1200 rpm.
S12	2.2.1	7.2	The RCPs have rotational inertia to provide coast down flow of reactor coolant as listed in Table 2.2.1-4 on loss of power to the pump motors.	Tests will be performed.	The RCPs provide the minimum coastdown flow as listed ~~on~~ in Table 2.2.1-4.
S12	2.2.1	7.4	RCP standstill seal system (SSSS) can be engaged when the RCP is stopped.	Tests ~~Testing~~ will be performed.	The SSSS can be engaged when the RCP is stopped.
S12	2.2.1	7.5	PSRVs listed in Table 2.2.1-2 open within the time assumed in the safety analyses.	Tests ~~Testing~~ will be performed using test signals.	Each PSRV~~s~~ opens within 0.70 seconds (including pilot valve opening time) after receipt of a test signal from the PACS module.
S12	2.2.1	7.6	PSRVs listed in Table 2.2.1-2 open below the maximum setpoint assumed in the safety analyses.	Tests ~~Testing~~ will be performed.	Each PSRV ~~will lift~~opens below its maximum lift setting of 2600.4 psia.
S12	2.2.1	7.8	Each RCP ~~supply circuit~~ breaker and ~~switchgear feeder circuit~~ RCP bus breaker is tripped by a protection system signal.	~~A t~~Tests will be performed using test signals.	Each RCP ~~supply circuit~~ breaker and ~~switchgear feeder circuit~~ RCP bus breaker is tripped by a protection system signal.
S12	2.3.1	7.4	The fusible link of the convection foils listed in Table 2.3.1-1 fails at the designed temperature.	Type tests~~, analyses, or a combination of type tests and analyses~~ will be performed to demonstrate the ability of the fusible link to open.	The fusible link opens at or before reaching a temperature of 185 °F.
S12	2.3.1	7.5	The burst element of the convection foils listed in Table 2.3.1-1 opens at the designed pressure.	Type tests will be performed to demonstrate the ability of the burst element to open.	The burst element opens bidirectionally at a delta pressure of 0.7 psid ± 30%.
S12	2.3.1	7.6	The burst element of the rupture foils listed in Table 2.3.1-1 opens at the designed pressure.	Type tests will be performed to demonstrate the ability of the burst element to open.	The burst element opens bidirectionally at a delta pressure of 0.7 psid ± 30%.

S12	2.5.1	6.1	Each EPSS division has an assigned EDG that provides power if there is a loss of offsite power.	Tests will be performed.	Each EPSS division has an assigned EDG that provides power if there is a loss of offsite power.
S12	2.5.1	6.2	Each EPSS 6.9 kV switchgear offsite power supply circuit breaker is opened by a protection system LOOP signal.	Tests will be performed using test signals.	Each EPSS division automatically separates from the offsite power supply on a LOOP signal from the protection system.
S12	2.5.1	6.4	EPSS loads are sequentially energized by the protection system during LOOP or LOCA conditions.	a. A test will be performed on each EPSS division without the alternate feed installed using test signals. b. A test will be performed on each EPSS division with the alternate feed installed using test signals.	a. EPSS loads are sequentially energized by the protection system during LOOP, LOCA, and LOOP/LOCA conditions without the alternate feed installed. b. EPSS loads are sequentially energized by the protection system during LOOP, LOCA and LOOP/LOCA conditions with the alternate feed installed.
S12	2.5.1	6.5	Each EPSS division transfers from the normal offsite circuit to the ~~has a normal and~~ alternate offsite power supply circuit on a emergency auxiliary transformer failure signal~~connection~~.	A test will be performed using test signals.	Each EPSS division transfers from the normal offsite circuit to the alternate offsite circuit ~~from a simulated~~ on an emergency auxiliary transformer failure signal.
S12	2.5.1	6.6	EPSS loads that are sequenced by the protection system are shed by the protection system in an undervoltage condition prior to load sequencing.	A test will be performed using test signals.	EPSS loads that are sequenced by the protection system are shed by the protection system in an undervoltage condition prior to load sequencing.
S12	2.5.4	3.12	Each EDG starting air system is capable of providing air to start the respective EDG without being recharged.	A test will be performed.	Each EDG starts five consecutive times without recharging respective starting air receivers between EDG starts.
S12	2.5.4	6.1	Each EDG is started by a protection system LOOP signal from the respective EPSS division medium voltage bus.	A test will be performed using test signals.	Each EDG is started by a protection system LOOP signal from the respective EPSS division medium voltage bus, achieves rated speed and voltage and connects to the assigned EPSS bus in ≤ 15 ~~S~~seconds after receipt of a test signal.

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

S12	2.5.4	6.2	Each EDG is started by a protection system SIS actuation signal.	A test will be performed using test signals.	Each EDG is started by a protection system SIS actuation signal, achieves rated speed and voltage and remains disconnected from the EPSS.
S12	2.5.4	6.3	Each EDG will start and connect to the respective EPSS division medium voltage bus in an undervoltage condition concurrent with a SIS actuation signal.	A test will be performed using test signals.	Each EDG starts and connects to the respective EPSS division medium voltage bus in an undervoltage condition concurrent with a SIS actuation signal. As loads are sequenced onto EPSS buses, EDG nominal output voltage and frequency remain ≥ 75 percent and 95 percent, respectively. Voltage and frequency are restored to within 10 percent and 2 percent nominal, respectively within 60 percent of each load sequence step.
S12	2.5.4	6.7	Each EDG is capable of starting from standby conditions and achieving required voltage and frequency.	A test will be performed.	Each EDG starts from standby conditions and achieves voltage ≥ 6555 V and frequency ≥ 58.8 Hz in ≤ 15 seconds after receipt of a test signal; and steady state voltage ≥ 6555 V and ≤ 7260 V, frequency ≥ 58.8 Hz and ≤ 61.2 Hz.
S12	2.5.7	6.1	The reactor trip breakers open on a protection system reactor trip signal.	A test will be performed using test signals.	The reactor trip breakers open on a protection system reactor trip signal.

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

S12	2.5.12	2.1	The digital telephone system, the public address and alarm system, sound powered system, and portable wireless communication system provide station to station communication and area broadcasting between the MCR and all the locations listed in Table 2.5.12-1.	Tests will be performed~~ on the digital telephone system, the public address and alarm system, sound powered system, and portable wireless communication system~~.	a. The digital telephone system, public address and alarm system, and the sound powered system, and portable wireless communication system ~~equipment~~ exist in the MCR and the locations listed in Table 2.5.12-1. b. Voice transmission and reception via the digital telephone system and sound powered system is verified between the MCR and the locations listed in Table 2.5.12-1. c. The broadcasting of voice messages from the MCR to the locations listed in Table 2.5.12-1 via the public address and alarm system is verified. d. Voice transmission and reception via the portable wireless communication system is verified between the MCR and the locations listed in Table 2.5.12-1.
S12	2.6.1	6.1	The CRACS maintains a positive pressure in the CRE area relative to the outside environment and adjacent areas, while operating in a design basis accident alignment.	A tests will be performed~~ to verify that the CRACS maintains a positive pressure in the CRE area relative to the outside environment and adjacent areas, while operating in a design basis accident alignment~~.	The ~~test confirms that the~~ CRACS maintains a positive pressure of greater than or equal to 0.125 inches water gauge in the CRE area relative to the outside environment and adjacent areas, while operating in a design basis accident alignment.

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

S12	2.6.1	6.2	Upon receipt of a containment isolation signal, the iodine filtration train will start automatically, outside air supply to the CRE area is diverted through the iodine filtration train, a minimum recirculation flowrate is established from the CRE area to the iodine filtration train and a positive pressure is maintained in the CRE area relative to the adjacent areas.	a. A test will be performed ~~to verify, upon receipt of a containment isolation test signal, that the iodine filtration train will start automatically; and the outside air supply to the CRE area is diverted through the iodine filtration train. A test will be performed~~ separately for each iodine filtration train using test signals. b. A test will be performed ~~to verify, upon receipt of a containment isolation test signal, that a minimum recirculation flowrate is established from the CRE area to the iodine filtration train. A test will be performed~~ separately for each iodine filtration train using test signals. c. A test will be performed using test signals~~to verify, upon receipt of a containment isolation test signal, that the CRACS maintains a positive pressure in the CRE area relative to the adjacent areas~~.	a. A separate test for each iodine filtration train confirms, upon receipt of a containment isolation ~~test~~ signal, that the iodine filtration train will start automatically within 60 seconds after receipt of a test signal from the PACS module; and the outside air supply to the CRE area is diverted through the iodine filtration train. b. A separate test for each iodine filtration train confirms, upon receipt of a containment isolation ~~test~~ signal, that a recirculation flowrate of greater than or equal to 3000 scfm is established from the CRE area to the iodine filtration train. c. A test confirms, upon receipt of a containment isolation ~~test~~ signal, that the CRACS maintains the pressure greater than or equal to 0.125 inches water gauge in the CRE area relative to the adjacent areas.
S12	2.6.1	6.4	The CRE area ventilation unfiltered air in-leakage is minimized in order to maintain the MCR habitability.	A test will be performed~~ to measure the unfiltered air in-leakage inside the CRE area boundary~~.	The ~~test confirms that the~~ unfiltered air in-leakage inside the CRE area boundary is less than or equal to 40 scfm.

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

S12	2.6.1	6.7	Upon receipt of a high radiation alarm signal in the air intake duct, the iodine filtration train will start automatically, the outside air supply to the CRE area is diverted through the iodine filtration train, a minimum CRE recirculation flowrate is established from the CRE area to the iodine filtration train, and a positive pressure is maintained in the CRE area relative to the adjacent areas.	a. A test will be performed to verify, upon receipt of high radiation alarm test signal in the air intake duct, that the iodine filtration train will start automatically; and the outside air supply to the CRE area is diverted through the iodine filtration train. A test will be performed separately for each iodine filtration train using test signals. b. A test will be performed to verify, upon receipt of high radiation alarm test signal in the air intake duct, that a minimum CRE recirculation flowrate for each iodine filtration train is achieved. A test will be performed separately for each iodine filtration train using test signals. c. A test will be performed using test signalsto verify, upon receipt of high radiation alarm test signal in the air intake duct, that a positive pressure is maintained in the CRE area relative to the adjacent areas.	a. A separate test for each iodine filtration train confirms, upon receipt of high radiation alarm test signal in the air intake duct (KLK65CR001/002 and KLK66CR001/002), that the iodine filtration train will start automatically within 60 seconds after receipt of a test signal from the PACS module, and the outside air supply is diverted through the iodine filtration train. b. A separate test for each iodine filtration train confirms, upon receipt of high radiation alarm test signal in the air intake duct, that a CRE recirculation flowrate of greater than or equal to 3,000 scfm is established from the CRE area to the iodine filtration train. c. A test confirms, upon receipt of high radiation alarm test signal in the air intake duct, that a positive pressure of greater than or equal to 0.125 inches water gauge is maintained in the CRE area relative to the adjacent areas.
S12	2.6.3	7.1	The AVS provides a negative pressure between the inner and outer containment shells during postulated accidents.	Tests A test will be performed using test signals. on the capability of the system to provide a negative pressure between the inner and outer containment shells during postulated accidents.	The AVS provides a negative pressure of at least 0.25 inches water gauge within 305 seconds from initiation after receipt of a test signal from the PACS module.

S12	2.6.3	7.2	Upon receipt of containment isolation signal, the following actions occur automatically: a. Isolation of the normal operation train by closing the isolation dampers listed in Table 2.6.3-1 for Normal Operation Train. b. Start of the accident filtration trains and opening of the dampers listed in Table 2.6.3-1 for Accident Filtration Train.	A test will be performed using test signals. to verify that upon receipt of containment isolation signal, the following actions occur automatically: a. The normal operation train isolates by closing the isolation dampers listed in Table 2.6.3-1 for Normal Operation Train. b. The accident filtration trains start, and the dampers listed in Table 2.6.3-1 for Accident Filtration Train to the iodine filtration train are aligned to the open position.	A test confirms that upon receipt of containment isolation signal, the following actions occur automatically within 60 seconds after receipt of an isolation test signal from the PACS module: a. The normal operation train is isolated by closing the isolation dampers listed in Table 2.6.3-1 for Normal Operation Train. b. The accident filtration trains start, and the dampers listed in Table 2.6.3-1 for Accident Filtration Train are aligned to the open position.
S12	2.6.4	7.1	Upon receipt of a containment isolation signal, the FBVS maintains a negative pressure relative to the outside environment in the Fuel Building.	A test will be performed to verify, upon receipt of a containment isolation test signal, that the FBVS maintains a negative pressure relative to the outside environment in the Fuel Building.	The test confirms, upon receipt of a containment isolation test signal, that the FBVS maintains the pressure less than or equal to -0.25 inches water gauge relative to the outside environment in the Fuel Building.
S12	2.6.4	7.2	Upon receipt of a containment isolation signal, the FBVS isolation dampers identified in Table 2.6.4-1 realign to exhaust air to the SBVS iodine filtration exhaust to the plant vent stack within the design basis closure time.	A test will be performed using test signals to verify, upon receipt of a containment isolation test signal, that the FBVS isolation dampers identified in Table 2.6.4-1 realign to exhaust air to the SBVS iodine filtration exhaust to the plant vent stack within the design basis closure time.	A test confirms, upon receipt of a containment isolation test signal, that the FBVS isolation dampers identified in Table 2.6.4-1 realign to exhaust air to the SBVS iodine filtration exhaust to the plant vent stack within 60 seconds from the PACS module.
S12	2.6.5	7.1	During accident conditions, the NABVS is shut down, and the backdraft damper prevents the SBVS and AVS exhaust air flow from discharging into the NABVS.	A test will be performed to verify, upon receipt of a containment isolation test signal, that the NABVS is shut down and the backdraft damper prevents the SBVS and AVS exhaust air flow discharging into NABVS.	A test confirms, upon receipt of a containment isolation test signal, that the NABVS is shut down and the backdraft damper prevents the SBVS and AVS exhaust air flow from discharging into the NABVS.

S12	2.6.6	7.1	Upon receipt of a containment isolation signal, the SBVS maintains a negative pressure in the hot mechanical rooms of the Safeguard Buildings relative to the adjacent areas.	A test will be performed using test signals.~~to verify upon receipt of a containment isolation test signal, that the SBVS maintains a negative pressure in the hot mechanical rooms of the Safeguard Buildings relative to the adjacent areas.~~	The test confirms, upon receipt of a containment isolation ~~test~~ signal, that the SBVS maintains the pressure less than or equal to -0.25 inches water gauge in the hot mechanical rooms of the Safeguard Buildings relative to the adjacent areas.
S12	2.6.6	7.3	Upon receipt of a high radiation signal in the Fuel Building, both SBVS iodine filtration trains start automatically, the isolation dampers open, and the accident air is directed through the SBVS iodine filtration trains.	A test will be performed separately for each iodine filtration train using test signals.~~to verify that upon receipt of a high radiation signal in the Fuel Building, both SBVS iodine filtration trains start automatically, the isolation dampers (the Fuel Building dampers KLC45 AA003/AA004), the SBVS isolation dampers (KLC45 AA001/AA002) close, and the accident air is directed through the SBVS iodine filtration trains by aligning the iodine filtration banks isolation dampers (KLC41/42 AA001/AA002) to the open position (see Figure 2.6.6-2 for the above components). A test is performed using a simulated high radiation signal from the Fuel Building.~~	A separate test for a radiation signal in the Fuel Building (KLK38CR001/002) confirms that upon receipt of a high radiation signal in the Fuel Building or Reactor Building, both SBVS iodine filtration trains start automatically, the isolation dampers ~~open~~ (~~the Fuel Building dampers~~ KLC45 AA003/AA004) open, the SBVS isolation dampers (KLC45 AA001/AA002) close, iodine filtration banks isolation dampers (30KLC41/42 AA001/AA002) open, and the accident air is directed through the SBVS iodine filtration trains. ~~by aligning the iodine filtration banks isolation dampers (30KLC41/42 AA001/AA002) to the open position (see Figure 2.6.6-2 for the above components). Above~~ The isolation dampers close or open within 60 seconds after receipt of a test signal from the PACS module.

S12	2.6.6	7.4	Upon receipt of a containment isolation signal, the SBVS is isolated from the SBVSE and NABVS by automatically closing the air supply and exhaust isolation dampers, both SBVS iodine filtration trains start automatically, and the FB and SB exhaust air is directed through the iodine filtration trains to maintain a negative pressure inside the FB and SB.	A test will be performed using test signals.to verify that upon receipt of a containment isolation signal, the SBVS is isolated automatically by closing the SBVSE air supply isolation dampers (30KLC11/12/13/14 AA004/AA005 on Figure 2.6.6-1) and the NABVS exhaust air isolation dampers (30KLC21/22/23/24 AA007/AA008 on Figure 2.6.6-2). Both SBVS trains (shown on Figure 2.6.6-2) start automatically aligning the filter bank isolation dampers (30KLC41/42 AA001/AA002), the SB Division 1-4 exhaust trains isolation dampers (30KLC31/32/33/34AA 001), and the isolation dampers from the SB (30KLC45 AA001/AA002) and the FB (30KLC45 AA003/AA004) to the open position, and maintaining a negative pressure inside the FB and SB.	A test confirms that upon receipt of a containment isolation signal (JYK15CR101, JYK15CR102, JYK15CR103, JYK28CR101), the SBVS is isolated automatically within 60 seconds after receipt of a test signal from the PACS module by closing the SBVSE air supply isolation dampers (30KLC11/12/13/14 AA004/AA005 on Figure 2.6.6-1) and the NABVS exhaust air isolation dampers (30KLC21/22/23/24 AA007/AA008 on Figure 2.6.6-2). Both SBVS trains (shown on Figure 2.6.6-2) start automatically aligning the filter bank isolation dampers (30KLC41/42 AA001/AA002) (30KLC21/24 AA010) (30KLC31/32/33/34 AA003) to the open position, aligning the SB Division 1-4 exhaust trains isolation dampers (30KLC31/32/33/34AA 001) to the open position, and aligning the isolation dampers from the SB (30KLC45 AA001/AA002) and the FB (30KLC45 AA003/AA004) to the open position, and maintaining a minimum negative pressure of 0.25 inches water gauge inside the FB and SB. Above The isolation dampers close or open within 60 seconds after receipt of a test signal from the PACS module.
S12	2.6.7	6.2	The recirculation cooling units start and stop automatically in the EFWS and CCWS pump rooms when the room temperature reaches preset maximum and minimum temperatures in the pump rooms.	A test will be performed using test signals.to verify that recirculation cooling units start and stop automatically in the EFWS and CCWS pump rooms when the pump room temperature reaches preset maximum and minimum temperatures in the pump rooms.	A test confirms the following: a. The recirculation cooling units start automatically in the EFWS and CCWS pump rooms prior to allowing the pump rooms to exceed the maximum design temperature. b. The recirculation cooling units stop automatically in the EFWS and CCWS pump rooms prior to allowing the pump rooms to fall below the minimum design temperature.

S12	2.6.8	7.1	The CBVS low flow purge exhaust subsystem exhausts through a CBVS iodine filtration train.	Tests will be performed on the capability of the low flow purge exhaust subsystem to exhaust through a CBVS iodine filtration train.	The CBVS exhausts through a CBVS iodine filtration train when the CBVS low flow purge exhaust subsystem is operating.
S12	2.7.11	7.7	The ESWS debris filters listed in Table 2.7.11-1 function to backwash upon high differential pressure.	Tests will be performed using test signals. to verify the ESWS debris filters function to backwash on high differential pressure under system operating conditions.	The filters initiate backwash flow to filter blowdown.
S12	2.8.2	7.4	Each MSRIV per main steam line opens upon receipt of a signal.	Tests Testing will be performed using test signals.	Each MSRIV opens within 1.8 seconds after receipt of a test signal from the PACS module.
S12	2.8.2	7.5	Each MSIV per main steam line closes upon receipt of a signal.	Tests Testing will be performed using test signals.	Each MSIV closes within 5 seconds after receipt of a test signal from the PACS module.
S12	2.8.2	7.7	Upon safety injection actuation, the MSRT controls secondary system cooldown at a pre-defined rate.	A test and analysis will be performed using test signals to confirm the cooldown rate.	A report exists and concludes that the test and analysis results indicate that tThe MSRT pressure control set-point is ramped from 1414.7 psia to 900 psia within 19 minutes.
S12	2.9.1	4.2	The LWMS discharge valves close upon receipt of a high -radiation signal from the activity monitors downstream on the liquid radwaste release line.	Tests of the discharge valves closure will be performed using test signals.by verifying radiation monitor operation and simulating a high-radiation signal at each activity monitor (tag numbers KPK29CR001 and KPK29CR002) downstream on the liquid radwaste release line.	The LWMS discharge valves (tag numbers 30KPK29AA001 and 30KPK29AA002) close upon receipt of a high radiation signal from the each activity monitors (tag number KPK29CR001 and KPK29CR002) downstream on the liquid radwaste release line.
S12	2.9.3	7.2	The GWPS discharge valve closes upon receipt of a high -radiation signal from the activity monitor downstream of the delay beds.	Tests of the discharge valve closure will be performed using test signals.by verifying radiation monitor operation and simulating a high-radiation signal at the activity monitor (tag number KPL83CR001) downstream of the delay beds.	The GWPS Ddischarge valve (tag number 30KPL83AA005) closes upon receipt of a high -radiation signal from the activity monitor (tag number KPL83CR001) downstream of the delay beds.

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

S12	2.9.4	6.1	MCR Ventilation Intake Radioactivity Monitors listed in Table 2.9.4-1 initiate isolation of the MCR ventilation and initiation of supplemental filtration upon receipt of high radioactivity levelssignal.	A test will be performed using test signals.to verify that the MCR ventilation isolation and supplemental filtration is initiated upon radiation levels exceeding a preset limit.	The MCR Ventilation Intake Radioactivity monitors listed in Table 2.9.4-1 initiate MCR ventilation isolation and supplemental MCR filtration upon receipt of high radioactivity signal.when radiation level exceeds a preset limit.

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

GRP	Sect	No.	Commitment	ITA	AC
S13			Miscellaneous Analysis		
S13	2.2.1	3.7	The piping and interconnected component nozzles listed in Table 2.2.1-1 have been evaluated for LBB.	An analysis will be performed. **{{DAC}}**	An analysis ~~exists and~~ concludes that the piping and interconnected component nozzles listed in Table 2.2.1-1 meet~~s~~ the LBB acceptance criteria. **{{DAC}}**
S13	2.2.3	7.13	LHSI and MHSI systems provide safety injection flow to the RCS during post-LOCA operation.	An analysis of plugging and wear of valves and orifices will be performed.	Analysis confirms that pressure drop/overall system resistance across ECCS is consistent with safety analysis results for 30 days of post-LOCA operation. Analysis also confirms that wear rates are acceptable for 30 days of post-LOCA operation based on provided equipment specification. Additionally, analysis also confirms that post-LOCA debris will not clog the ECCS instrument lines. ~~Analysis confirms that pressure drop/overall system resistance across ECCS is consistent with safety analysis results for 30 days of post-LOCA operation.~~ ~~Analysis also confirms that wear rates are acceptable for 30 days of post-LOCA operation based on provided equipment specification.~~
S13	2.7.5	7.7	The standpipe and hose systems in areas containing systems and components required for safe plant shutdown in the event of a safe shutdown earthquake (SSE), including the water supply to these standpipes, are capable of remaining functional and supplying two hose stations following an SSE.	An analysis will be performed to demonstrate the ability of the standpipe and hose systems in areas containing systems and components required for safe plant shutdown in the event of a SSE to remain functional and supply two hose stations following a SSE.	Analyses demonstrate the FWDS will remain functional following a SSE and is capable of supplying the two hydraulically most remote hose stations with at least 75 gpm per hose stream.

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

S13	2.8.1	2.4	Turbine rotor integrity is provided through the combined use of selected materials with suitable toughness, analyses, testing, and inspections.	A plant-specific vendor analysis of the site-specific turbine rotor material property data, turbine rotor and blade design, and pre-servicepreservice inspection and testing results, and inservice inspection and testing requirements will be conducted. This information will be available for review greater than one year before loading the fuel.	A plant-specific vendor analysis exists and concludes that the plant specific turbine rotor integrity meets the requirements of the manufacturer's turbine missile probability analysis: (1) turbine material property data, rotor and blade design analyses (including loading combinations, assumptions and warm-up time) demonstrating safety margin to withstand loadings from overspeed events, and (2) the requirements for pre-service testing and inspection information.results of preservice inspection and testing, and the requirements for inservice inspection and testing.
S13	2.8.1	2.5	The probability of turbine material and overspeed related failures resulting in external turbine missiles is < 1×10^{-4} per turbine year.	A material and overspeed failures analysis will be performed on the as-built turbine design.	An analysis exists and concludes that the probability of turbine material and overspeed related failures resulting in external turbine missiles is < 1×10^{-4} 1x10-4 per turbine year.

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

GRP	Sect	No.	Commitment	ITA	AC
S14			Miscellaneous Combination of ITA		
S14	2.2.1	3.8	The RPV internals will withstand the effects of flow-induced vibration.	a. Tests and analyses of test results will be performed on a plant containing RPV internals representative of the U.S. EPR. b. An inspection will be performed after hot functional testing. c. An analysis will be performed on the effects of the RCP acoustic frequencies on RPV internals. d. An analysis will be performed of the acoustic frequencies of the RCS volume to determine their loading impact to the RCS components when considering sources of flow excitation created by vortex-shedding frequencies of the applicable structures and blade passing frequencies of the RCP.	a. A comprehensive vibration assessment program report exists and concludes that RPV internals have no observable damage, no loose parts, and stress is within ASME Code limits. b. Inspections show that the RPV internals have no observable damage or loose parts``. c. An analysis of the effects of RCP acoustic frequencies on RPV internals exists and concludes that RPV internals stress is within ASME code limits. d. An analysis of the acoustic frequencies and loading exists and concludes the RCS stress is within the ASME Code Section III limits.
S14	2.2.1	3.9	The RCS allows movement of the components for thermal expansion and contraction.	a. An analysis of the RCS will be performed.. b. A test of the RCS will be performed.	a. A test specification will define clearances and gaps between RCS component supports. b. The measured RCS clearances and gaps meet the test specification requirements for the necessary RCS component supports.
S14	2.2.1	3.19	Each RCP contains an oil collection system.	a. Analyses will be performed. b. An inspection will be performed on each RCP.	a. Analyses demonstrate that the oil collection system is designed 1) to withstand a safe-shutdown earthquake, 2) to collect lube oil from leakage sites in the RCP lube oil system, and 3) so that the drain line and collection tank are large enough to accommodate the largest potential oil leak. b. An inspection of each RCP verifies aAn oil collection system is installed on each RCP.

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

S14	2.2.2	7.4	Post-LOCA pH control is provided for the IRWST with TSP.	An inspection and analysis will be performed for the capacity of the TSP baskets to provide post-LOCA pH control.	The TSP baskets listed in Table 2.2.2-1 can hold the following combined a capacity of TSP to provide post-LOCA pH control: of ≥ 12,200 lb_m TSP.
S14	2.2.2	7.5	The IRWST suction inlet line for each safety injection system division has a debris screen.	a. An inspection will be performed for the existence of a debris screen in the IRWST suction inlet line for each safety injection system division. b. An inspection and analysis will be performed to verify the minimum surface area and maximum mesh grid opening of the debris screen.	a. A debris screen exists in the IRWST suction inlet line for each safety injection system division. b. The debris screen has a minimum surface area of 753 ft2 and the screen mesh is a maximum mesh grid opening of 0.08 x 0.08 inches.
S14	2.2.2	7.8	The IRWST has a retaining basket located directly below each heavy floor opening.	a. An inspection will be performed for the existence of a retaining basket in the IRWST directly under each heavy floor opening. b. An inspection and analysis will be performed to verify the minimum surface area and maximum mesh grid opening of the retaining basket.	a. A retaining basket exists in the IRWST directly below each heavy floor opening. b. The retaining basket has a minimum surface area of 721 ft2 and a maximum mesh grid opening of 0.08 x 0.08 inches.
S14	2.2.3	7.3	Each accumulator line has a minimum head loss coefficient (fL/M01 + K).	Tests and analyses will be performed to verify each accumulator line minimum head loss coefficient (fL/M01 + K).	Each accumulator line provides the following head loss coefficient: has a mMinimum head loss coefficient (fL/M01 + K) per accumulator line = of 3.71 for a flow area of $0.3941 ft^2$ and f = 0.014.

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

S14	2.2.3	7.12	LHSI heat exchanger cools the post-LOCA fluid for a minimum of 30 days.	Type tests, analyses, or a combination of type tests and analyses for heat exchanger performance will be provided by the vendorperformed.	Type tests, analyses, or a combination of type tests and analyses confirm that debris plugging and settlement in the tubes will not occur, and/or affect the performance of the heat exchanger for the 30-day mission time. Type tests, analyses, or a combination of type tests and analyses also confirms that failure due to abrasive wear will not degrade the performance of the heat exchanger below the 30-day acceptance criteria. Analysis confirms that tube plugging and failure due to abrasive wear will not degrade the performance of the heat exchanger below the 30-day acceptance criteria.
S14	2.2.5	7.6	The fuel pool cooling system FPCS design provides for maintaining the spent fuel pool water level above the spent fuel.	Inspection and testing will be performed to demonstrate the spent fuel pool water level is maintained above the spent fuel.	The spent fuel pool water level is maintained greater than or equal to 23 feet above the spent fuel.

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

S14	2.2.8	3.8	The new and spent fuel storage racks maintain the effective neutron multiplication factor less than the required limits during normal operations, during and after design basis seismic events, and during and after design basis dropped fuel assembly accidents.	Inspections and analyses will be performed to verify key design features of the fuel storage racks.	Inspection reports and poison plate manufacturer reports verify the following ~~as-built~~ fuel storage racks features: • Region 1 rack cell pitch is consistent with rack model inputs of the criticality evaluation. • Region 2 rack cell pitch is consistent with rack model inputs of the criticality evaluation. • The configuration of the neutron absorber plates for Region 1 racks is consistent with rack model inputs of the criticality evaluation. • The configuration of the neutron absorber plates for Region 2 racks is consistent with rack model inputs of the criticality evaluation. • The number of neutron absorber plates installed between storage cells in Region 1 racks agrees with design drawings. • The number of neutron absorber plates installed between storage cells in Region 2 racks agrees with design drawings. • The layout of fuel storage racks in the spent fuel pool agrees with design drawings. • The layout of fuel storage racks in the new fuel storage vault agrees with design drawings.
S14	2.3.1	7.1	The hydrogen mixing dampers listed in Table 2.3.1-1 provide pressure relief for design basis events.	An inspection and analysis will be performed ~~to verify that the hydrogen mixing dampers listed in Table 2.3.1-1 provide sufficient area for pressure relief~~.	The hydrogen mixing dampers listed in Table 2.3.1-1 provide a minimum combined total open area of 64 ft².

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

S14	2.3.1	7.2	The convection foils listed in Table 2.3.1-1 provide pressure relief for design basis events.	An inspection and analysis will be performed to verify that the convection foils listed in Table 2.3.1-1 provide sufficient area for pressure relief.	The convection foils listed in Table 2.3.1-1 provide a minimum combined total open area of 450 ft².
S14	2.3.1	7.3	The rupture foils listed in Table 2.3.1-1 provide pressure relief for design basis events.	An inspection and analysis will be performed to verify that the rupture foils listed in Table 2.3.1-1 provide sufficient area for pressure relief.	The rupture foils listed in Table 2.3.1-1 provide a minimum combined total open area of 420 ft².
S14	2.5.4	3.14	Each EDG lubricating oil system provides lubrication to the engine and turbocharger wearing parts during engine operation.	Analysis and tests will be performed.	a. Analysis demonstrates each EDG lubricating oil system oil volume is capable of supporting at least 7 days of full load operation. b. A test report concludes each EDG and lubricating oil system operating at rated load conditions achieves stable temperatures and pressures within EDG manufacturers recommendations.
S14	2.5.4	3.15	Each EDG exhaust path has a bypass exhaust path.	Analysis or tType tests will be performed on the EDG exhaust bypass device.	Analysis or tType test results conclude that the EDG rupture disk will rupture within the pressure limits defined by the EDG manufacturer.
S14	2.6.7	6.3	The SBVSE maintains the hydrogen concentration levels in the battery rooms below one percent by volume.	Tests and analysis of the system will be performed. to demonstrate the air flow capability of the SBVSE is adequate to maintain the hydrogen concentration levels in the battery rooms below one percent.	The air flow capability of the SBVSE is adequate to maintains the hydrogen concentration levels in the battery rooms below one percent by volume.
S14	2.7.5	7.2	The FWDS pumps consist of at least one electric motor-driven pump and one diesel engine-driven pump that provide 100% capacity assuming failure of the largest pump or loss of offsite power.	a. An inspection will be performed to verify that at least one electric motor-driven pump and one diesel engine-driven pump exists. b. An analysis will be performed.	a. At least one electric motor-driven pump and one diesel engine-driven pump exists. b. Analysis reports exist and concludes that one diesel and one electric pump provide 100% capacity assuming failure of the largest pump or loss of offsite power.

7.0 EQUIPMENT AND SYSTEM PERFORMANCE

S14	2.7.6	3.4	The as-built gaseous fire extinguishing system is consistent with the post-fire safe shutdown analysis.	a. A post-fire safe shutdown analysis will be performed. b. An inspection will be performed.	a. The post-fire safe shutdown analysis concludes that at least one success path is available for safe shutdown. b. An inspection that documents the as-built The gaseous fire extinguishing system is consistent with the post-fire safe shutdown analysis.
S14	2.9.1	4.1	The LWMS processing equipment contains the proper types and amounts of filter media or treatment media.	Analyses and inspections will be performed to verify the LWMS processing equipment contains filter/treatment media capable of maintaining offsite doses to members of the public within 10 CFR 20 limits and effluent concentrations below the annual average concentration limits of 10 CFR 20.	Analyses and inspection reports indicateconclude that the LWMS processing equipment contains filter/treatment media capable of maintaining offsite doses to members of the public within 10 CFR 20 limits and effluent concentrations below the annual average concentration limits of 10 CFR 20.
S14	2.9.3	7.1	The GWPS processing equipment contains delay beds listed in Table 2.9.3-1 filled with the proper types and amounts of activated charcoal.	Inspections and analyses will be performed to verify the mass of activated charcoal loaded in each delay bed.. (tag numbers 30KPL50AT001, 30KPL50AT002, and 30KPL50AT003.)	Each delay bed (tag numbers 30KPL50AT001, 30KPL50AT002, and 30KPL50AT003) listed in Table 2.9.3-1 contains a minimum of 5,440 lb_m of activated charcoal.