U.S.NRC

United States Nuclear Regulatory Commission

Protecting People and the Environment

Reference ITAAC Examples U.S. EPR FSAR Revision 0 (Public Version)

http://www.nrc.gov/reactors/new-reactors/design-cert/epr/reports.html

ML080230157

U.S. EPR DCWG public meeting

3/17/2009

A. ITAAC ID and Numbering 1

Table 2.2.1-5 (Item 3.4b)

Table 2.2.1-5—RCS Inspections, Tests, Analyses, and Acceptance Criteria (6 Sheets)

	Design Commitment	Inspection, Test, or Analysis	Acceptance Criteria
3.4a	The piping identified as being within the ASME Code Section III boundary as indicated on Figure 2.2.1-1 has been designed in accordance with ASME Code Section III Requirements including seismic loads.	Analysis of the as-designed piping will be performed in accordance with ASME Code Section III requirements for the piping indicated on Figure 2.2.1-1.	ASME Code Section III stress reports exist and conclude that the as-designed piping identified as ASME Code Section III in Figure 2.2.1-1 meets ASME Code Section III requirements.
3.4b	The piping identified as being within the ASME Code Section III boundary as indicated on Figure 2.2.1-1 has been welded and hydrostatically tested in accordance with ASME Code Section III.	Inspections will be of the as-built piping as indicated on Figure 2.2.1-1 for the following: a. Welding has been performed per ASME Code Section III. b. Hydrostatic testing per ASME Code Section III was performed.	A report exists and concludes that the piping as indicated on Figure 2.2.1-1 as ASME Code Section III has been: a. Welded in accordance with ASME Code Section III welding requirements. b. Hydrostatically tested in accordance with ASME Code Section III requirements.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

A. ITAAC ID and Numbering 2

Table 2.2.2-3 (Item 3.2b)

Table 2.2.2-3—IRWSTS Inspections, Tests, Analyses, and Acceptance Criteria (5 Sheets)			
	Commitment Wording	**Inspection, Test, or Analysis**	**Acceptance Criteria**
3.2b	The piping identified as being within the ASME Code Section III boundary as indicated in Figure 2.2.2-1 has been welded and hydrostatically tested in accordance with ASME Code Section III.	Inspections will be conducted of the as-built piping as indicated in Figure 2.2.2-1 for the following: Welding has been performed per ASME Code Section III. Hydrostatic testing per ASME Code Section III was performed.	The piping indicated in Figure 2.2.2-1 as ASME Code Section III has been welded in accordance with ASME Code Section III welding requirements. The piping indicated in Figure 2.2.2-1 as ASME Code Section III has been hydrostatically tested in accordance with ASME Code Section III requirements.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

A. ITAAC ID and Numbering 3

Table 2.2.5-3 (Item 3.3b)

Table 2.2.5-3—FPCPS Inspections, Tests, Analyses, and Acceptance Criteria (5 Sheets)			
	Commitment Wording	**Inspection, Test, or Analysis**	**Acceptance Criteria**
3.3b	The piping identified as being within the ASME Code Section III boundary as indicated in Figure 2.2.5-1 has been welded and hydrostatically tested in accordance with ASME Code Section III.	Inspections will be conducted of the as-built piping as indicated in Figure 2.2.5-1 for the following: 1) Welding has been performed per ASME Code Section III. 2) Hydrostatic testing per ASME Code Section III was performed.	1) The piping as indicated in Figure 2.2.5-1 as ASME Code Section III has been welded in accordance with ASME Code Section III welding requirements. 2) The piping as indicated in Figure 2.2.5-1 as ASME Code Section III has been hydrostatically tested in accordance with ASME Code Section III requirements.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

B. ITAAC Interpretation 1

Table 2.2.1-5 (Item 3.3)

Table 2.2.1-5—RCS Inspections, Tests, Analyses, and Acceptance Criteria (6 Sheets)

	Design Commitment	Inspection, Test, or Analysis	Acceptance Criteria
3.3	Equipment identified as Seismic Category I in Table 2.2.1-1 can withstand a design basis seismic load without loss of function as listed in Table 2.2.1-1.	a. Inspection will be performed of the equipment identified as Seismic Category I in Table 2.2.1-1. b. Type tests, tests, analyses, or a combination of tests and analyses will be performed. c. Inspection will be performed.	a. The equipment designated as Seismic Category I in Table 2.2.1-1 is installed as designed. b. The equipment designated as Seismic Category I in Table 2.2.1-1 can with stand a design basis seismic load without loss of function. c. The as-installed equipment supports and restraints are seismically bounded by tested or analyzed conditions.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

B. ITAAC Interpretation 2

Table 2.2.2-3 (Item 3.3)

Table 2.2.2-3—IRWSTS Inspections, Tests, Analyses, and Acceptance Criteria (5 Sheets)			
	Commitment Wording	**Inspection, Test, or Analysis**	**Acceptance Criteria**
3.3	Equipment identified as Seismic Category I in Table 2.2.2-1 can withstand a design basis seismic load without loss of function as listed in Table 2.2.2-1.	a. Inspection will be performed of the equipment identified as Seismic Category I in Table 2.2.2-1. b. Type tests, tests, analyses, or a combination of tests and analyses will be performed on the equipment designated as Seismic Category I in Table 2.2.2-1.	a. The equipment designated as Seismic Category I in Table 2.2.2-1 is installed as designed. b. The equipment designated as Seismic Category I in Table 2.2.2-1 can withstand a design basis seismic load without loss of function.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

C. Reference Only ITAAC 1

Table 2.5.2-3 (Items 5.8 and 5.9)

Table 2.5.2-3—Class 1E Uninterruptible Power Supply Inspections, Tests, Analyses, and Acceptance Criteria (4 Sheets)

	Commitment	Inspection, Test or Analysis	Acceptance Criteria
5.8	EUPS Class 1E cables and cable raceways are marked according to their respective division color-code.	See Tier 1 Section 2.5.1.5.9.	See Tier 1 Section 2.5.1.5.9.
5.9	Physical separation or electrical isolation exists between Class 1E divisions and between Class 1E equipment and non-Class 1E cables.	See Tier 1 Section 2.5.1.5.10.	See Tier 1 Section 2.5.1.5.10.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

C. Reference Only ITAAC 2

Table 2.5.1-3 (Items 5.9 and 5.10)

Table 2.5.1-3—Class 1 E Emergency Power Supply System Inspections, Tests, Analyses, and Acceptance Criteria (4 Sheets)

	Commitment	Inspection, Test or Analysis	Acceptance Criteria
5.9	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 trays are marked according to their respective color code.
5.10	Physical separation or electrical isolation exists between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	An inspection will be performed.	Physical separation or electrical isolation exists between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

D. I&C Life Cycle

Table 2.4.1-9 (Item 4.14)

Table 2.4.1-9—Protection System ITAAC (4 Sheets)		
Commitment Wording	**Inspection, Analysis or Test**	**Acceptance Criteria**
4.14 The PS hardware and software are developed using a design process with the following life cycle phases: • Basic design phase. • Detailed design phase. • Manufacturing phase. • Testing phase. • Installation and Commissioning phase.	Inspections will be performed on the design process for the PS hardware and software development. An analysis will be performed to verify that the PS hardware and software are developed in accordance with the design process.	1a) A design report exists and provides the design outputs of the basic design phase of the PS hardware and software design process. 1b) V&V reports exist that address the Concept and Requirements Activities and conclude that the design outputs generated in the basic design phase conform to the requirements of this phase. 2a) A report exists and provides the design outputs of the detailed design phase of the PS hardware and software design process. 2b) V&V reports exist that address the Design and Implementation Activities and conclude that the design outputs generated in the detailed design phase conform to the requirements of this phase. 3) A report exists and provides the design outputs of the manufacturing phase of the PS hardware and software design process. 4a) A report exists and provides the design outputs of the testing phase of the PS hardware and software design process.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

E. Definitions and Terminology 1

Table 2.2.1-5 (Items 2.1, 3.3c, and 3.4b)

Table 2.2.1-5—RCS Inspections, Tests, Analyses, and Acceptance Criteria (6 Sheets)

	Design Commitment	Inspection, Test, or Analysis	Acceptance Criteria
2.1	The functional arrangement of the RCS is shown on Figure 2.2.1-1.	Inspections of the as-built system will be conducted.	The as-built RCS conforms to the functional arrangement shown on Figure 2.2.1-1.
3.3	Equipment identified as Seismic Category I in Table 2.2.1-1 can withstand a design basis seismic load without loss of function as listed in Table 2.2.1-1.	a. Inspection will be performed of the equipment identified as Seismic Category I in Table 2.2.1-1. b. Type tests, tests, analyses, or a combination of tests and analyses will be performed. c. Inspection will be performed.	a. The equipment designated as Seismic Category I in Table 2.2.1-1 is installed as designed. b. The equipment designated as Seismic Category I in Table 2.2.1-1 can with stand a design basis seismic load without loss of function. c. The as-installed equipment supports and restraints are seismically bounded by tested or analyzed conditions.
3.4b	The piping identified as being within the ASME Code Section III boundary as indicated on Figure 2.2.1-1 has been welded and hydrostatically tested in accordance with ASME Code Section III.	Inspections will be of the as-built piping as indicated on Figure 2.2.1-1 for the following: a. Welding has been performed per ASME Code Section III. b. Hydrostatic testing per ASME Code Section III was performed.	A report exists and concludes that the piping as indicated on Figure 2.2.1-1 as ASME Code Section III has been: a. Welded in accordance with ASME Code Section III welding requirements. b. Hydrostatically tested in accordance with ASME Code Section III requirements.

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E. Definitions and Terminology 2

Table 2.2.6-3 (Item 7.2)

Table 2.2.6-3—CVCS Inspections, Tests, Analyses, and Acceptance Criteria (6 Sheets)			
	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
7.2	Class 1E valves listed in Table 2.2.6-2 perform the function listed in Table 2.2.6-1 under system conditions.	Tests and analyses or a combination of tests and analyses will be performed to demonstrate the ability of the valves listed in Table 2.2.6-2 to change position as listed in Table 2.2.6-1 under system design conditions.	The as-installed valve changes position as listed Table 2.2.6-1 under system design conditions.

Table 2.2.2-3 (Item 7.2)

Table 2.2.2-3—IRWSTS Inspections, Tests, Analyses, and Acceptance Criteria (5 Sheets)			
	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
7.2	Containment isolation valves listed in Table 2.2.2-1 close within the containment isolation response time following initiation of a containment isolation signal.	Tests will be performed to demonstrate the ability of the containment isolation valves listed in Table 2.2.2-1 to close within the containment isolation response time following initiation of a containment isolation signal.	The containment isolation valves listed in Table 2.2.2-1 close within the required times following initiation of a containment isolation signal: 30JNK10 AA009 $\leq$ 30 seconds 30JNK10 AA013 $\leq$ 30 seconds 30JNK11 AA009 $\leq$ 60 seconds

Reference: U.S. EPR FSAR Rev 0 (Public Version)

E. Definitions and Terminology 3

Table 2.2.1-5 Pages 1 and 2

Table 2.2.1-5—RCS Inspections, Tests, Analyses, and Acceptance Criteria (6 Sheets)

	Design Commitment	Inspection, Test, or Analysis	Acceptance Criteria
2.1	The functional arrangement of the RCS is shown on Figure 2.2.1-1.	Inspections of the as-built system will be conducted.	The as-built RCS conforms to the functional arrangement shown on Figure 2.2.1-1.
2.2	The functional arrangement of the RPV and heavy reflector is shown on Figure 2.2.1-2.	Inspections of the as-built system will be conducted.	The as-built RPV and heavy reflector conforms to the functional arrangement shown on Figure 2.2.1-2.
2.4	The location of RCS equipment is as listed in Table 2.2.1-1.	An inspection will be performed.	The equipment listed in Table 2.2.1-1 is located as listed in Table 2.2.1-1.
2.5	Physical separation exists between the RCS loops.	An inspection will be performed.	The loops of the RCS are separated.
3.1	The components designated as ASME Code Section III in Table 2.2.1-1 are designed to ASME Code Section III requirements.	Inspections will be conducted of ASME design, NDE, and hydrostatic test reports for the components listed as ASME Section III in Table 2.2.1-1.	A report exists and concludes that the components listed as ASME Code Section III in Table 2.2.1-1 have been designed and hydrostatically tested in accordance ASME Code Section III requirements.
3.2	Check valves listed in Table 2.2.1-1 will function as listed in Table 2.2.1-1.	Tests will be performed for the operation of the check valves listed in Table 2.2.1-1.	The check valves listed in Table 2.2.1-1 perform the functions listed in Table 2.2.1-1.
3.3	Equipment identified as Seismic Category I in Table 2.2.1-1 can withstand a design basis seismic load without loss of function as listed in Table 2.2.1-1.	a. Inspection will be performed of the equipment identified as Seismic Category I in Table 2.2.1-1. b. Type tests, tests, analyses, or a combination of tests and analyses will be performed. c. Inspection will be performed.	a. The equipment designated as Seismic Category I in Table 2.2.1-1 is installed as designed. b. The equipment designated as Seismic Category I in Table 2.2.1-1 can with stand a design basis seismic load without loss of function. c. The as-installed equipment supports and restraints are seismically bounded by tested or analyzed conditions.

Table 2.2.1-5—RCS Inspections, Tests, Analyses, and Acceptance Criteria (6 Sheets)

	Design Commitment	Inspection, Test, or Analysis	Acceptance Criteria
3.4a	The piping identified as being within the ASME Code Section III boundary as indicated on Figure 2.2.1-1 has been designed in accordance with ASME Code Section III Requirements including seismic loads.	Analysis of the as-designed piping will be performed in accordance with ASME Code Section III requirements for the piping indicated on Figure 2.2.1-1.	ASME Code Section III stress reports exist and conclude that the as-designed piping identified as ASME Code Section III in Figure 2.2.1-1 meets ASME Code Section III requirements.
3.4b	The piping identified as being within the ASME Code Section III boundary as indicated on Figure 2.2.1-1 has been welded and hydrostatically tested in accordance with ASME Code Section III.	Inspections will be of the as-built piping as indicated on Figure 2.2.1-1 for the following: a. Welding has been performed per ASME Code Section III. b. Hydrostatic testing per ASME Code Section III was performed.	A report exists and concludes that the piping as indicated on Figure 2.2.1-1 as ASME Code Section III has been: a. Welded in accordance with ASME Code Section III welding requirements. b. Hydrostatically tested in accordance with ASME Code Section III requirements.
3.5	The steam outlet nozzles on the SGs include flow-limiting devices.	An inspection will be performed.	The flow area through each flow-limiting device is less than 1.39 ft^2.
3.6	The RCP motors include a device to prevent reverse rotation.	An inspection will be performed.	A device to prevent reverse rotation is installed on each RCP motor.
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.	An analysis exists that assesses the LBB capability of the piping and equipment listed in Table 2.2.1-1.
3.8	The RPV internals are designed to withstand the effects of flow-induced vibration.	Type tests, tests, analyses, or a combination of tests and analyses will be performed for the first plant only.	The RPV internals can withstand the effects of flow-induced vibration.
3.9	The RCS is designed to allow movement of the components as necessary due to thermal expansion and contraction.	A test of the RCS will be performed.	The measured gaps meet the specification requirements for the necessary component supports.
3.10	Supports for piping shown as ASME Section III on Figure 2.2.1-1 will be designed in accordance with ASME section III.	An analysis will be performed.	a. Supports for piping shown as ASME Section III on Figure 2.2.1-1 are designed in accordance with ASME section III.

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Table 2.2.1-5 Pages 3 and 4

Table 2.2.1-5—RCS Inspections, Tests, Analyses, and Acceptance Criteria (6 Sheets)

	Design Commitment	Inspection, Test, or Analysis	Acceptance Criteria
			b. Snubbers have been identified, including those analyzed for fatigue for piping shown as ASME Section III on Figure 2.2.1-1. c. Support mass is less than ten percent of the adjacent pipe span for piping shown as ASME Section III on Figure 2.2.1-1.
3.11	Components listed as ASME Code Class I in Table 2.2.1-1 will be analyzed for fatigue per ASME Section III Class I.	An analysis will be performed.	a. Fatigue analysis has been performed for components listed as ASME Code Class I in Table 2.2.1-1. b. For components listed as ASME code Class I in Table 2.2.1-1, operating modes where peak stresses are within ten percent of allowable have been identified.
3.12	Specifications exist for components listed as ASME Section III in Table 2.2.1-1.	An inspection will be performed.	Specifications exist for components listed as ASME Section III in Table 2.2.1-1.
3.13	Specifications exist for piping shown as ASME Section III on Figure 2.2.1-1.	An inspection will be performed.	Specifications exist for piping identified as ASME Section III on Figure 2.2.1-1.
3.14	Specifications exist for supports for piping shown as ASME Section III on Figure 2.2.1-1.	An inspection will be performed.	Specifications exist for supports for piping shown as ASME Section III on Figure 2.2.1-1.
3.15	Specifications exist for core support structures shown on figure 2.2.1-2.	An inspection will be performed.	Specifications exist for core support structures shown on Figure 2.2.1-2.
4.1	Displays listed in Tables 2.2.1-2 and 2.2.1-3 are retrievable in the MCR and RSS as listed in Tables 2.2.1-2 and 2.2.1-3.	Inspections will be performed for the existence or retrievability of the displays in the MCR or the RSS as listed in Tables 2.2.1-2 and 2.2.1-3.	The displays listed in Tables 2.2.1-2 and 2.2.1.3 as being retrievable in the MCR can be retrieved in the MCR. The displays listed in Tables 2.2.1-2 and 2.2.1-3 as being retrievable in the RSS can be retrieved in the RSS.

Table 2.2.1-5—RCS Inspections, Tests, Analyses, and Acceptance Criteria (6 Sheets)

	Design Commitment	Inspection, Test, or Analysis	Acceptance Criteria
4.2	The RCS system equipment controls are provided in the MCR and RSS as identified in Table 2.2.1-2.	Tests will be performed for the existence of control signals from the MCR and the RSS to the equipment listed in Table 2.2.1-2.	The controls listed in Table 2.2.1-2 as being in the MCR exist in the MCR. The controls listed in Table 2.2.1-2 as being in the RSS exist in the RSS.
4.3	Actuators listed as being controlled by a PACS module in Table 2.2.1-2 are controlled by a PACS module.	An operational test will be performed using test signals for the actuators being controlled by a PACS module as listed in Table 2.2.1-2. An inspection will be performed on the actuation of the actuator.	The actuators listed as being controlled by a PACS module in Table 2.2.1-2 actuate to the state requested by the test signal.
5.1	The components designated as Class 1E in Tables 2.2.1-2 and 2.2.1-3 are powered from the Class 1E Division as listed in Tables 2.2.1-2 and 2.2.1-3 in a normal or alternate feed condition.	Testing will be performed for components designated as Class 1E in Tables 2.2.1-2 and 2.2.1-3 by providing a test signal in each normally aligned division. Testing will be performed for components designated as Class 1E in Tables 2.2.1-2 and 2.2.1-3 by providing a test signal in each division with the alternate feed aligned to the divisional pair.	The test signal provided in the normally aligned division is present at the respective Class 1E component identified in Tables 2.2.1-2 and 2.2.1.3. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E component identified in Tables 2.2.1-2 and 2.2.1.3.
5.2	Valves listed in Table 2.2.1-2 fail as indicated in Table 2.2.1-2 on loss of power.	Testing will be performed for the valves listed in Table 2.2.1-2 to fail as indicated in Table 2.2.1-2 on loss of power.	Following loss of power, the valves listed in Table 2.2.1-2 fail as indicated in Table 2.2.1-2.
5.3	The power supply arrangement is such that only two emergency diesels are required to operate in order to supply power to the minimum number of PZR heaters.	Testing will be performed.	Each emergency heater group in Table 2.2.1-2 provides 144KW each.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

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Table 2.2.1-5 Pages 5 and 6

Table 2.2.1-5—RCS Inspections, Tests, Analyses, and Acceptance Criteria (6 Sheets)

	Design Commitment	Inspection, Test, or Analysis	Acceptance Criteria
6.1	Components listed in Table 2.2.1-2, which are designated as harsh environment, perform the function listed in Table 2.2.1-1 in the environments that exist before and during the time required to perform their function.	a. Type tests, tests, analyses, or a combination of tests and analyses will be performed to demonstrate the ability of the equipment listed for harsh environment in Table 2.2.1-2 to perform the function listed in Table 2.2.1-1 for the environmental conditions that could occur before and during a design basis accident. b. For equipment listed for harsh environment in Table 2.2.1-2, an inspection will be performed of the as-installed Class 1E equipment and the associated wiring, cables and terminations.	a. The Class 1E equipment listed for harsh environment in Table 2.2.1-2 can perform the function listed in Tables 2.2.1-1 before and during design basis accidents for the time required to perform the listed function. b. Inspection concludes the as-installed Class 1E equipment and associated wiring, cables, and terminations as listed in Table 2.2.1-2 for harsh environment conform with the design.
6.2	Instrumentation listed in Table 2.2.1-3 for harsh environment can display following exposure to the design basis environments for the time required.	a. Type tests, tests, analyses, or a combination of tests and analyses will be performed to demonstrate the ability of the instrumentation listed for harsh environment in Table 2.2.1-3 to display for the environmental conditions that could occur before and during a design basis accident. b. For instrumentation listed for harsh environment in Table 2.2.1-3, an inspection will be performed of the as-installed instrumentation and the associated wiring, cables and terminations.	a. Instrumentation listed for harsh environment in Table 2.2.1-3 can display before and during design basis accidents. b. Inspection concludes the as-installed instrumentation and associated wiring, cables, and terminations as listed in Table 2.2.1-3 for harsh environment conform with the design.
7.1	Class 1E valves listed in Table 2.2.1-2 perform the function listed in Table 2.2.1-1 under system design conditions.	Tests and analyses or a combination of tests and analyses will be performed to demonstrate the ability of the valves listed in Table 2.2.1-2 to change position as listed in Table 2.2.1-1 under system design conditions.	The as-installed valve changes position as listed in Table 2.2.1-1 under system design conditions.

Table 2.2.1-5—RCS Inspections, Tests, Analyses, and Acceptance Criteria (6 Sheets)

	Design Commitment	Inspection, Test, or Analysis	Acceptance Criteria
7.2	The RCPs have rotational inertia to provide coast down flow of reactor coolant on simultaneous loss of power to all four pump motors.	Tests will be performed.	The RCPs provide the minimum coastdown flow as listed on Table 2.2.1-4.
7.3	The RCPs provide flow.	a. Testing and analysis will be performed. b. Testing and analysis will be performed.	a. The RCP provides greater than the minimum required flow rate of 119,692 gpm/loop. b. The RCP provides less than the maximum required flow rate of 134,662 gpm/loop.
7.4	RCP standstill seal system (SSSS) can be closed or engaged when the RCP is stopped.	Testing will be performed.	The SSSS can be closed when the RCP is stopped.
7.5	PSRVs open.	Testing will be performed.	PSRVs open within 0.89 seconds (including pilot valve opening time).
7.6	PSRVs open below their maximum design setpoint.	Testing will be performed.	Each PSRV will lift below its maximum lift setting of 2600.4 psia.
7.7	PSRVs provide relief capacity.	Testing and analysis will be performed.	Each PSRV provides relief capacity ≥ 661,400 lbm/hr at 2535 psig.

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Table 2.2.2-3 (Items 7.6 and 7.7)

Table 2.2.2-3—IRWSTS Inspections, Tests, Analyses, and Acceptance Criteria (5 Sheets)			
	Commitment Wording	**Inspection, Test, or Analysis**	**Acceptance Criteria**
7.6	The IRWST supplies water to the safety injection system and to the severe accident heat removal system.	An inspection will be performed of the IRWST to supply water to the safety injection system and severe accident heat removal system.	The IRWST supplies water to the safety injection system and the severe accident heat removal system.
7.7	The IRWST provides water to flood the spreading area.	An inspection will be performed of the IRWST to provide water to flood the spreading area.	The IRWST provides water to flood the spreading area.

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Table 2.5.2-3 (Item 5.2)

Table 2.5.2-3—Class 1E Uninterruptible Power Supply Inspections, Tests, Analyses, and Acceptance Criteria (4 Sheets)

	Commitment	Inspection, Test or Analysis	Acceptance Criteria
5.2	Non-Safety-related loads connected to the EUPS (e.g., post accident monitoring and special emergency lighting) are separated by a Class 1E isolation device.	An inspection will be performed.	EUPS Class 1E and non-Class 1E equipment are separated by a Class 1E isolation device.

Table 2.4.2-2 (Item 4.3)

Table 2.4.2-2—Safety Information and Control System ITAAC (3 Sheets)

4.3 Electrical isolation devices exist in the signal paths between the safety related portions of SICS and the non safety I&C systems.	Inspections, type tests, tests, analyses or a combination of tests and analyses will be performed on electrical isolation devices.	Electrical isolation devices exist in the signal paths between the safety related portion of SICS and the non safety I&C systems

Table 2.4.1-9 (Item 4.9)

Table 2.4.1-9—Protection System ITAAC (4 Sheets)

Commitment Wording	Inspection, Analysis or Test	Acceptance Criteria
4.9 Electrical isolation devices exist in the data communication paths between the PS and the non safety related displays and controls.	Inspections will be performed on the existence of the electrical isolation devices.	Electrical isolations devices exist in the data communication paths between the PS and the non safety related displays and controls.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

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Table 2.1.1-7 (Items 4.2 and 4.6)

Table 2.1.1-7—Nuclear Island Inspections, Tests, Analyses, and Acceptance Criteria (5 Sheets)			
	Commitment Wording	**Inspection, Analysis, or Test**	**Acceptance Criteria**
4.2	The NI structures are seismic Category I and are constructed to withstand design basis loads as specified in Section 2.1.1, without loss of structural integrity.	A verification inspection of the NI structures design analysis versus construction records will be performed.	NI structures conform to the approved design and will withstand the design basis loads specified in Section 2.1.1, without loss of structural integrity.
4.6	As described in Section, 2.1.1, the RSB and RCB are constructed of reinforced concrete and the RCB is pre-stressed.	Inspection of the RSB and RCB construction records will be performed.	The RSB and RCB are constructed of reinforced concrete and the RCB is pre-stressed.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

F. ASME B&PV Section III Requirements 1

Table 2.2.1-5 (Items 3.1, 3.4a, 3.4b)

Table 2.2.1-5—RCS Inspections, Tests, Analyses, and Acceptance Criteria (6 Sheets)

	Design Commitment	Inspection, Test, or Analysis	Acceptance Criteria
3.1	The components designated as ASME Code Section III in Table 2.2.1-1 are designed to ASME Code Section III requirements.	Inspections will be conducted of ASME design, NDE, and hydrostatic test reports for the components listed as ASME Section III in Table 2.2.1-1.	A report exists and concludes that the components listed as ASME Code Section III in Table 2.2.1-1 have been designed and hydrostatically tested in accordance ASME Code Section III requirements.
3.4a	The piping identified as being within the ASME Code Section III boundary as indicated on Figure 2.2.1-1 has been designed in accordance with ASME Code Section III Requirements including seismic loads.	Analysis of the as-designed piping will be performed in accordance with ASME Code Section III requirements for the piping indicated on Figure 2.2.1-1.	ASME Code Section III stress reports exist and conclude that the as-designed piping identified as ASME Code Section III in Figure 2.2.1-1 meets ASME Code Section III requirements.
3.4b	The piping identified as being within the ASME Code Section III boundary as indicated on Figure 2.2.1-1 has been welded and hydrostatically tested in accordance with ASME Code Section III.	Inspections will be of the as-built piping as indicated on Figure 2.2.1-1 for the following: a. Welding has been performed per ASME Code Section III. b. Hydrostatic testing per ASME Code Section III was performed.	A report exists and concludes that the piping as indicated on Figure 2.2.1-1 as ASME Code Section III has been: a. Welded in accordance with ASME Code Section III welding requirements. b. Hydrostatically tested in accordance with ASME Code Section III requirements.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

F. ASME B&PV Section III Requirements 2

Table 2.2.1-5 (Items 3.10, 3.11)

Table 2.2.1-5—RCS Inspections, Tests, Analyses, and Acceptance Criteria (6 Sheets)

	Design Commitment	Inspection, Test, or Analysis	Acceptance Criteria
3.10	Supports for piping shown as ASME Section III on Figure 2.2.1-1 will be designed in accordance with ASME section III.	An analysis will be performed.	a. Supports for piping shown as ASME Section III on Figure 2.2.1-1 are designed in accordance with ASME section III.
			b. Snubbers have been identified, including those analyzed for fatigue for piping shown as ASME Section III on Figure 2.2.1-1. c. Support mass is less than ten percent of the adjacent pipe span for piping shown as ASME Section III on Figure 2.2.1-1.
3.11	Components listed as ASME Code Class I in Table 2.2.1-1 will be analyzed for fatigue per ASME Section III Class I.	An analysis will be performed.	a. Fatigue analysis has been performed for components listed as ASME Code Class I in Table 2.2.1-1. b. For components listed as ASME code Class I in Table 2.2.1-1, operating modes where peak stresses are within ten percent of allowable have been identified.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

F. ASME B&PV Section III Requirements 3

Table 2.2.1-5 (Items 3.12, 3.13, 3.14, 3.15)

Table 2.2.1-5—RCS Inspections, Tests, Analyses, and Acceptance Criteria (6 Sheets)

	Design Commitment	Inspection, Test, or Analysis	Acceptance Criteria
3.12	Specifications exist for components listed as ASME Section III in Table 2.2.1-1.	An inspection will be performed.	Specifications exist for components listed as ASME Section III in Table 2.2.1-1.
3.13	Specifications exist for piping shown as ASME Section III on Figure 2.2.1-1.	An inspection will be performed.	Specifications exist for piping identified as ASME Section III on Figure 2.2.1-1.
3.14	Specifications exist for supports for piping shown as ASME Section III on Figure 2.2.1-1.	An inspection will be performed.	Specifications exist for supports for piping shown as ASME Section III on Figure 2.2.1-1.
3.15	Specifications exist for core support structures shown on figure 2.2.1-2.	An inspection will be performed.	Specifications exist for core support structures shown on Figure 2.2.1-2.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

G. ITAAC Specificity and Detail 1

Table 2.2.5-3 (Item 2.3)

Table 2.2.5-3—FPCPS Inspections, Tests, Analyses, and Acceptance Criteria (5 Sheets)			
2.3	Physical separation exists between divisions of the FPCPS.	An inspection will be performed to verify that the divisions of the FPCPS are provided adequate physical separation in the Fuel Building.	The divisions of the FPCPS are provided adequate separation in the Fuel Building.

Table 2.2.7-3 (Item 2.3)

Table 2.2.7-3 - EBS Inspections, Tests, Analyses, and Acceptance Criteria (6 Sheets)			
2.3	Physical separation exists between divisions of the EBS.	An inspection will be performed to verify that the divisions of the EBS are provided adequate physical separation in the Fuel Building.	The divisions of the EBS are provided adequate physical separation in the Fuel Building.

Table 2.4.1-9 (Item 2.2)

Table 2.4.1-9—Protection System ITAAC (4 Sheets)		
Commitment Wording	Inspection, Analysis or Test	Acceptance Criteria
2.2 Physical separation exists between the four divisions of the PS.	Inspections will be performed to verify that the divisions of the PS are located in separate safeguard buildings	The four divisions of the PS are located in separate safeguard buildings.

Table 2.4.2-2 (Item 2.2)

Table 2.4.2-2—Safety Information and Control System ITAAC (3 Sheets)		
Commitment Wording	Inspection, Analysis or Test	Acceptance Criteria
2.2 Physical separation exists between the four safety related divisions of the SICS.	Inspections will be performed on the as-built SICS to confirm that adequate separation exists between the four safety related divisions of SICS	The separation between the safety related components of the SICS of different divisions is as follows: • Within the MCR and RSS, the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch. • Within other plant areas, the minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

G. ITAAC Specificity and Detail 2

Table 2.5.3-2 (Item 2.2)

Table 2.5.3-2—Station Blackout Alternate AC Source Inspections, Tests, Analyses, and Acceptance Criteria

	Commitment	Inspection, Test or Analysis	Acceptance Criteria
2.2	SBODG equipment controls are provided in the MCR and RSS as listed in Table 2.5.3-1.	A test will be performed.	Controls listed in Table 2.5.3-1 as being in the MCR exist in the MCR. Controls listed in Table 2.5.3-1 as being in the RSS exist in the RSS.

Table 2.5.3-1

Table 2.5.3-1—Station Blackout Alternate AC Source Electrical Equipment Design

Equipment Description	Equipment Tag Number (1)	IEEE Class 1E	MCR/RSS Displays	MCR/RSS Controls
SBODG #1	30XKA50	No	Generator voltage, current, frequency, power, reactive power. Engine running, not running / Generator voltage, current, frequency, power, reactive power. Engine running, not running	Generator output voltage raise and lower, output breaker close and trip. Engine start, stop, governor raise and lower / Generator output voltage raise and lower, output breaker close and trip. Engine start, stop, governor raise and lower
SBODG #2	30XKA80	No	Generator voltage, current, frequency, power, reactive power. Engine running, not running / Generator voltage, current, frequency, power, reactive power. Engine running, not running	Generator output voltage raise and lower, output breaker close and trip. Engine start, stop, governor raise and lower / Generator output voltage raise and lower, output breaker close and trip. Engine start, stop, governor raise and lower

(1) Equipment tag numbers are provided for information only and are not part of the certified design.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

G. ITAAC Specificity and Detail 3

Table 2.5.1-3 (Item 6.4)

Table 2.5.1-3—Class 1 E Emergency Power Supply System Inspections, Tests, Analyses, and Acceptance Criteria (4 Sheets)

	Commitment	Inspection, Test or Analysis	Acceptance Criteria
6.4	EPSS loads are sequentially energized by the protection system during LOOP or LOCA conditions.	Tests will be performed.	EPSS loads are sequentially energized by the protection system during LOOP or LOCA conditions.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

G. ITAAC Specificity and Detail 4

Table 2.2.4-3 (Items 7.2 & 7.4)

Table 2.2.4-3 - EFWS Inspections, Tests, Analyses, and Acceptance Criteria (5 Sheets)

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
7.2	The EFWS delivers water to the steam generators at the required flowrate to restore and maintain SG water level and remove decay heat following the loss of normal feedwater supply due to design basis events.	Analysis will be performed to determine the EFWS delivery flowrate to the steam generators for design conditions.	The EFWS delivers the following design flowrate to the SGs for design conditions: Minimum flow of 198,416 lbm/hr (or 399.4 gpm at 122°F) at pressures up to 1426.1 psia and linearly ramping to 61,906 lbm/hr (or 124.6 gpm at 122°F) at 1568.2 psia
7.4	The EFWS provides for a maximum flow rate to a depressurized steam generator.	Analysis will be performed to verify the EFWS provides a maximum flow rate to a depressurized steam generator.	The EFWS provides the following maximum flow rate to a depressurized steam generator: Maximum 490 gpm

Table 2.5.4-3 (Items 3.9 & 3.10)

Table 2.5.4-3—Emergency Diesel Generator Inspections, Tests, Analyses, and Acceptance Criteria (4 Sheets)

	Commitment	Inspection, Test or Analysis	Acceptance Criteria
3.9	Each EDG has a fuel oil storage tank.	Inspections will be performed.	Each EDG fuel oil storage tank capacity is greater than the volume of fuel oil consumed by the EDG operating at the continuous rating for seven days.
3.10	Each EDG has a fuel oil day tank.	An inspection will be performed.	Each EDG fuel oil day tank capacity is greater than the volume of fuel oil consumed by the EDG operating at the continuous rating for two hours.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

G. ITAAC Specificity and Detail 5

Table 2.4.5-2 (Item 4.1)

Table 2.4.5-2—Priority and Actuator Control System ITAAC		
Commitment Wording	**Inspection, Analysis or Test**	**Acceptance Criteria**
4.1 The order of priority of automatic functions performed by PACS is listed from highest to lowest: • Safety related I&C functions • Non-safety related I&C functions	Operational tests will be performed using test signals to verify the order of priority of automatic functions performed by PACS.	The order of priority of automatic functions performed by PACS is listed from highest to lowest: • Safety related I&C functions • Non-safety related I&C functions

Reference: U.S. EPR FSAR Rev 0 (Public Version)

H. Bounding Analysis

Table 2.2.2-3 (Items 3.3 & 6.1)

Table 2.2.2-3—IRWSTS Inspections, Tests, Analyses, and Acceptance Criteria (5 Sheets)

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
3.3	Equipment identified as Seismic Category I in Table 2.2.2-1 can withstand a design basis seismic load without loss of function as listed in Table 2.2.2-1.	a. Inspection will be performed of the equipment identified as Seismic Category I in Table 2.2.2-1. b. Type tests, tests, analyses, or a combination of tests and analyses will be performed on the equipment designated as Seismic Category I in Table 2.2.2-1.	a. The equipment designated as Seismic Category I in Table 2.2.2-1 is installed as designed. b. The equipment designated as Seismic Category I in Table 2.2.2-1 can withstand a design basis seismic load without loss of function.
6.1	Components listed as Class 1E in Table 2.2.2-2 that are designated as harsh environment will perform the function listed in Table 2.2.2-1 in the environments that exist before and during the time required to perform their function.	6.1a Type tests, tests, analyses, or a combination of tests and analyses will be performed to demonstrate the ability of the equipment listed for harsh environment in Table 2.2.2-2 to perform the function listed in Table 2.2.2-1 for the environmental conditions that could occur before and during a design basis accident. 6.1b For equipment listed for harsh environment in Table 2.2.2-2, an inspection will be performed of the as-installed Class 1E equipment and the associated wiring, cables and terminations.	6.1a The Class 1E equipment listed for harsh environment in Table 2.2.2-2 can perform the function listed in Table 2.2.2-1 before and during design basis accidents for the time required to perform the listed function. 6.1b Inspection concludes the as-installed Class 1E equipment and associated wiring, cables, and terminations as listed in Table 2.2.2-2 for harsh environment conform with the design.

Table 2.2.1-5 (Item 3.3)

Table 2.2.1-5—RCS Inspections, Tests, Analyses, and Acceptance Criteria (6 Sheets)

	Design Commitment	Inspection, Test, or Analysis	Acceptance Criteria
3.3	Equipment identified as Seismic Category I in Table 2.2.1-1 can withstand a design basis seismic load without loss of function as listed in Table 2.2.1-1.	a. Inspection will be performed of the equipment identified as Seismic Category I in Table 2.2.1-1. b. Type tests, tests, analyses, or a combination of tests and analyses will be performed. c. Inspection will be performed.	a. The equipment designated as Seismic Category I in Table 2.2.1-1 is installed as designed. b. The equipment designated as Seismic Category I in Table 2.2.1-1 can with stand a design basis seismic load without loss of function. c. The as-installed equipment supports and restraints are seismically bounded by tested or analyzed conditions.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

I. Incomplete ITAAC

Table 2.6.1-3 (Item 6.1)

Table 2.6.1-3—Main Control Room Air Conditioning System ITAAC (4 Sheets)			
Reference Section Number	**Commitment Wording**	**Inspection, Analysis or Test**	**Acceptance Criteria**
6.1	The CRACS maintains ambient conditions and a positive pressure in the CRE areas relative to the outside environment and adjacent areas.	Tests will be performed on the capability of the system to maintain a positive pressure in the CRE areas relative to the outside environment and adjacent areas.	The test conforms that a positive pressure of ≥ 1/8 inches water gauge is maintained inside the CRE area relative to the outside environment and adjacent areas.

Reference: U.S. EPR FSAR Rev 0 (Public Version)

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AREVA U.S. EPR DC ITAAC 'Inspectability'

Les Duncan

New Plants Regulatory Affairs

AREVA NP

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- References
  - Regulatory Issue Summary (RIS) 2008-05
    - Good practices for ITAAC based on lessons learned
    - Four Categories: Format & Content, Nomenclature and Language, Inspection Focus/Logic/Practicality, and Standardization
  - RAIs
    - RAI 132, RAI 148, RAI 156, and RAI 182
  - DG-1204 (and NEI 08-01, Rev. 3)
  - NUREG 1789 and Inspection Manual Chapters 2502, 2503, and 2504

"Inspectability"

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- RIS 2008-05
  - Size of individual ITAAC
  - Use Tables versus Drawings
  - Consistency
  - Specificity
  - Definitions
  - Use of "A report exists and concludes"
  - Use of "final location at site"
  - Consider construction schedule
  - Acceptance criteria wording

Example of ITAAC Consistency

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- The response to RAI 148 standardized ITAAC related to ASME Code Section III.
- See following examples.

Example from RAI 148, Question 14.03.03-23 (equipment)

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Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
Equipment listed in Table xxx as ASME Code Section III is designed, welded, and hydrostatically tested in accordance with ASME Code Section III.	a. Analysis of the equipment identified in Table xxx as ASME Code Section III will be performed per ASME Code Section III design requirements.	a. ASME Code Section III Design Reports (NCS-3550) exist and conclude that the equipment identified in Table xxx as ASME Code Section III meets ASME Code Section III design requirements.
	b. Inspections will be conducted on the equipment identified in Table xxx as ASME Code Section III to verify welding has been performed per ASME Code Section III welding requirements.	b. Equipment identified in Table xxx as ASME Code Section III has been welded per ASME Code Section III welding requirements.
	c. Hydrostatic testing of the equipment identified in Table xxx as ASME Code Section III will be performed per ASME Code Section III hydrostatic testing requirements.	c. Equipment identified in Table xxx as ASME Code Section III has been hydrostatically tested per ASME Code Section III hydrostatic testing requirements.

Example from RAI 148, Question 14.03.03-23 (ASME III piping)

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Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
Piping indicated in Figure xxx as ASME Code Section III is designed, welded, and tested in accordance with ASME Code Section III.	a. Analysis of the as-designed piping identified in Figure xxx as ASME Code Section III will be performed per ASME Code Section III design requirements.	a. ASME Code Section III stress reports exist and conclude that the as-designed piping identified in Figure xxx as ASME Code Section III meets ASME Code Section III design requirements.
	b. Inspections will be conducted on the as-built piping identified in Figure xxx as ASME Code Section III to verify welding has been performed per ASME Code Section III welding requirements.	b. As-built piping identified in Figure xxx as ASME Code Section III has been welded per ASME Code Section III welding requirements.
	c. Hydrostatic testing of the as-built piping identified in Figure xxx as ASME Code Section III will be performed per ASME Code Section III hydrostatic testing requirements.	c. As-built piping identified in Figure xxx as ASME Code Section III has been hydrostatically tested per ASME Code Section III hydrostatic testing requirements.

Size of Individual ITAAC

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- RAI 132 (Question 14.03.02-11) splits up ITAAC for nuclear island buildings into separate ITAAC for each building.
- This approach makes it easier to inspect and close out ITAAC.

Specificity

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- For general configuration ITAAC, list features instead of just pointing to a figure.
- See the following example from Tier 1, Table 2.1.1-7, Item 2.1 that list specific items in Acceptance Criteria.

Commitment Wording		Inspections, Tests, ~~or~~ ~~Analysis~~Analyses	Acceptance Criteria
2.1	The as-installed basic configuration of the NI structures is as described in Section, 2.1.1, and as shown on Figures 2.1.1-1, 2.1.1-3, 2.1.1.4, and 2.1.1.5	(a) An inspection of the as-installed basic configuration of the NI structures will be performed.	(a) The as-installed basic configuration of the NI structures is as follows: • The RCB peripheral wall and dome is within the RSB as shown on Figure 2.1.1-3. • SBs 4 and 1 are adjacent to the RSB at 90 and 270 degrees respectively as shown on Figure 2.1.1-1. • SBs 2 and 3 are adjacent to the RSB at 0 degrees as shown on Figure 2.1.1-1. • The FB is adjacent to the RSB at 180 degrees as shown on Figure 2.1.1-1. • The RSB cylindrical wall is thicker above the point where this wall meets the FB and SB structures roofs as shown on Figure 2.1.1-3. • The vent stack is located on top of the FB stair tower as shown on Figure 2.1.1-1. • The MFW~~V~~WSVS and MSV stations are located in SBs 1 and 4 as shown on Figure 2.1.1-1. • The MCR, RSS, and TSC are located in the SBs 2 and 3, with the MCR and RSS separated, as shown on Figures 2.1.1-4 and 2.1.1-5.

Specificity

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- **ITAAC details are supported by Tier 2 information.**
- **Not all details need to be included in ITAAC. (examples - fatigue analysis details, piping analysis details, etc.)**
- **SRP 14.3, Appendix A, page 14.3-18:**

"Tier 2 contains detailed supporting information for various inspections, tests, and analyses that can, and should be, used to verify the Tier 1 design information and satisfy the acceptance criteria. If questions on interpretation should arise, the material in Tier 2 provides the background material and context for Tier 1 information. Tier 2 contains information reviewed by the staff which is the basis for the staff's safety determination for the design."

RAI 182

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- RAI 182 will continue to address RIS 2008-05 items (size of an individual ITAAC, consistency, specificity, etc.)
- RAI 182 due to NRC on May 29, 2009.

ITAAC Implementation

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- **Closeout documentation is addressed in NEI–08-01**
- **SRP 14.3, General Section III Review Procedures**
  - Page 14.3-5 'Implementation of the ITAAC program is inspected in accordance with NRC Inspection Manual Chapter IMC-2503, "Construction Inspection Program - ITAAC Inspections."
- **NUREG 1789 "10CFR Part 52 Construction Inspection Program Framework document"**
- **ITAAC are an overlay on normal Part 50 programs which address the remainder of Tier 2 material (Inspection Manual Chapter 2502, 2504, etc.)**

DAC Versus Operational Programs

	Design Acceptance Criteria (DAC)	**Operational Programs**
Application	Design certification	Combined license
Requirement	52.47 Application must contain a level of design information sufficient to enable the Commission... to reach a final conclusion of all safety questions associated with the design before the certification is granted.	52.79 ...at a level of information sufficient to enable the Commission to reach a final conclusion on all safety matters that must be resolved by the Commission before issuance of a combined license.
Issue	Level of detail (cannot complete design details)	Level of detail (cannot complete program)
Resolution	SECY-92-053 "...less design detail, and more detail regarding how DAC acceptance criteria will be demonstrated by the COL licensee during construction."	SECY-05-0197 "fully described" in COL applications

U.S.NRC

United States Nuclear Regulatory Commission

Protecting People and the Environment

Finality of Operational Programs in 10 CFR Part 52

EPR Design-Center Working Group Meeting

March 17, 2009

David Terao, Chief
Component Integrity,
Performance and Testing Branch 1
Division of Engineering, NRO

Introduction/Purpose

- At 1/16/09 DCWG meeting: Question raised on the extent to which operational programs may be addressed in DCs
- Discuss policy and requirements for addressing operational programs
- Discuss how operational programs may be addressed in DC and COL applications
- Discuss program implementation and finality of operational requirement

SECY-05-0197 Policy Issue

- Describes staff's plan for reviewing operational programs in COLAs
- Concludes that all operational programs and their implementation can be fully described in a COLA (except for EP)
- A COL applicant may choose to submit a program description, but omit implementation and instead include ITAAC

10 CFR 52.79 Requirements

- A COL FSAR must provide a description of operational programs and their implementation.
- Section-by-section analysis for 52.79 discusses “fully described” and “implementation.”

52.79 Section-by-Section Analysis

- "The Commission clarified its definition of fully described in SRM-SECY-04-0032…as follows:

  In this context, fully described should be understood to mean that the program is clearly and sufficiently described in terms of the scope and level of detail to allow a reasonable assurance finding of acceptability. Required programs should always be described at a functional level and at an increased level of detail where implementation choices could materially and negatively affect the program effectiveness and acceptability.

  Accordingly, this section contains requirements for descriptions of operational programs and their implementation."

Addressing Operational Programs in Design Certifications

- Operational programs are not required to be addressed in DCs (except design aspects)
- Design aspects of ISI/IST operational programs must be addressed in the DC [i.e., 10 CFR 50.55a(f)(3)(iii)(B) and (iv)(B)]
- DC applicant may choose to address a portion or the entire operational program (i.e., program description and implementation must be fully described)
- NRC staff should discuss in its FSER the extent to which the operational program was reviewed and approved

Addressing Operational Programs in COL Applications

- Operational programs are required to be discussed in the COL FSAR
- Operational programs addressed in DCs may be IBR'd in the COL FSAR
- COL FSAR should contain license conditions for operational program ***implementation*** per SECY-05-0197
- DC + COL should fully describe operational program and its ***implementation***

Program *Implementation*

- License conditions (per SECY-05-0197):
  - implementation reqt's (milestones) e.g., "prior to fuel load"
  - implementation schedules (program readiness for NRC inspection)
- Fully described (per SRM-SECY-04-0032):
  - implementation choices could affect program acceptability

Part 52, Appendices, VI.C
(Issue Resolution for Operational Programs)

- Section VI.C describes issue resolution for operational program requirements

VI.C

The Commission does not consider operational requirements for an applicant or licensee who references this appendix to be matters resolved within the meaning of 10 CFR 52.63(a)(5). The Commission reserves the right to require operational requirements for an applicant or licensee who references this appendix by rule, regulation, order, or license condition.

Part 52, Appendices, VIII.C

(Change/Departure Process for Operational Programs)

- Section VIII.C provides a process for changes/departures for operational program requirements
- Process depends, in part, on:
  - whether the change impacts design features
  - the extent to which the operational program was reviewed and approved in the DC

Design Certification Change Process for Operational Programs

Applicability		DCR Section	Change Standard
Generic	All	**VIII.C.1**	10 CFR 50.109, VIII.A, VIII.B
Plant-Specific	NRC	**VIII.C.3**	Special circumstances
	Applicant	**VIII.C.4**	10 CFR 50.12(a)
	Party	VIII.C.5	10 CFR 2.309 and special circumstances
	Licensee	VIII.C.6	[Generic TSs have no further effect]

VIII.C.1

Generic changes to generic TS and other operational requirements that were completely reviewed and approved in the design certification rulemaking and do not require a change to a design feature in the generic DCD are governed by the requirements in 10 CFR 50.109. Generic changes that require a change to a design feature in the generic DCD are governed by the requirements in paragraphs A or B of this section.

VIII.C.3

The Commission may require plant-specific departures on generic TS and other operational requirements that were completely review and approved, provided a change to a design feature in the generic DCD is not required and special circumstances as defined in 10 CFR 2.335 are present. The Commission may modify or supplement generic TS and other operational requirements that were not completely reviewed and approved or require additional TS and other operational requirements on a plant-specific basis, provided a change to a design feature in the generic DCD is not required.

VIII.C.4

An applicant who references this appendix may request an exemption from the generic TS or operational requirements. The Commission may grant such a request only if it determines that the exemption will comply with the requirements of 10 CFR 52.7. The grant of an exemption must be subject to litigation in the same manner as other issues material to the license hearing.

SMS9

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Technical Specifications

Technical Specification Approach

- The RCOLA elected to not incorporate the U.S. EPR FSAR Technical Specifications by reference.
  - SCOLAs followed the RCOLA approach

UniStar Technical Specifications History

- The U.S. EPR FSAR Technical Specifications were used to develop the Technical Specifications provided in Part 4 of the COLA.
- A departure was created for the Setpoint Control Program.
- A second departure was created regarding Limiting Trip Setpoints, incorporation of site specific information and clarifications.

What is Changing?

- Technical Specification Departures in RCOLA and SCOLAs eliminated:
  - RCOLA Rev. 4
  - SCOLAs Rev. 1

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Approach

- DCWG
  - Ensure RCOLA and SCOLAs maintain consistency
- COLAs
  - Technical Specifications are now incorporated by reference
  - Removed TS that are not aligned with the Generic TS.
- Reduces NRC Review Scope
  - No departures

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SECURITY - US EPR

MARCH 17,2009

US EPR – Security Changes

- Near-Term Submittals
- Longer-Term Submittals
- Challenges

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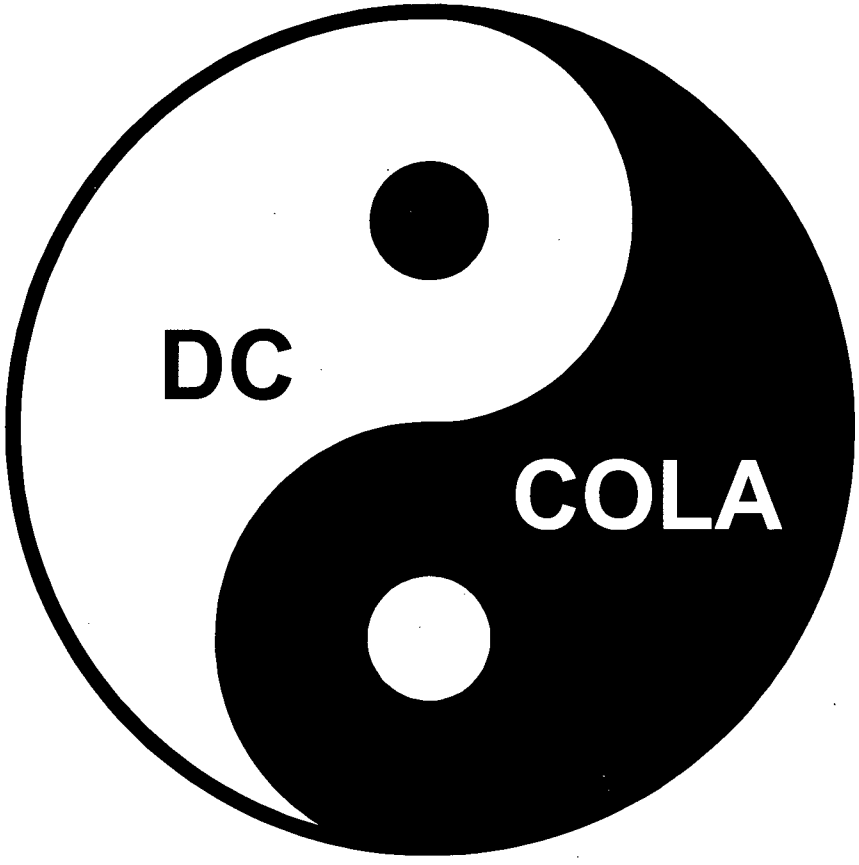
US EPR Security – Near Term Submittals (R-COLA)

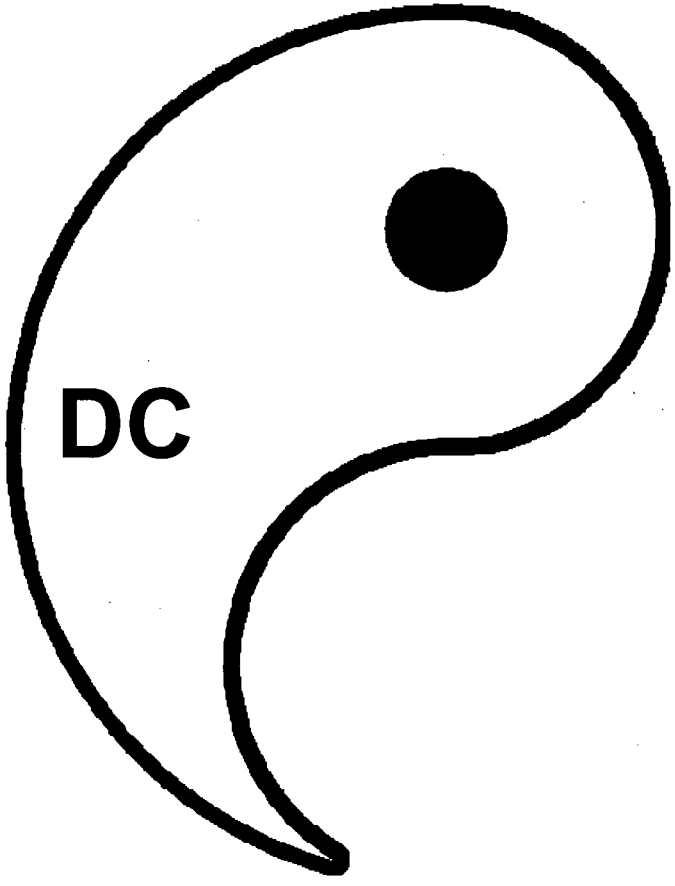
- Security Assessment
- Modified FSAR Section 13.6 to Synchronize COLA and U.S. EPR FSAR
- Modified ITAACs
- Revised PSP Based on NEI 03-12, Rev 6
- To be Submitted by April 2

Security Assessments



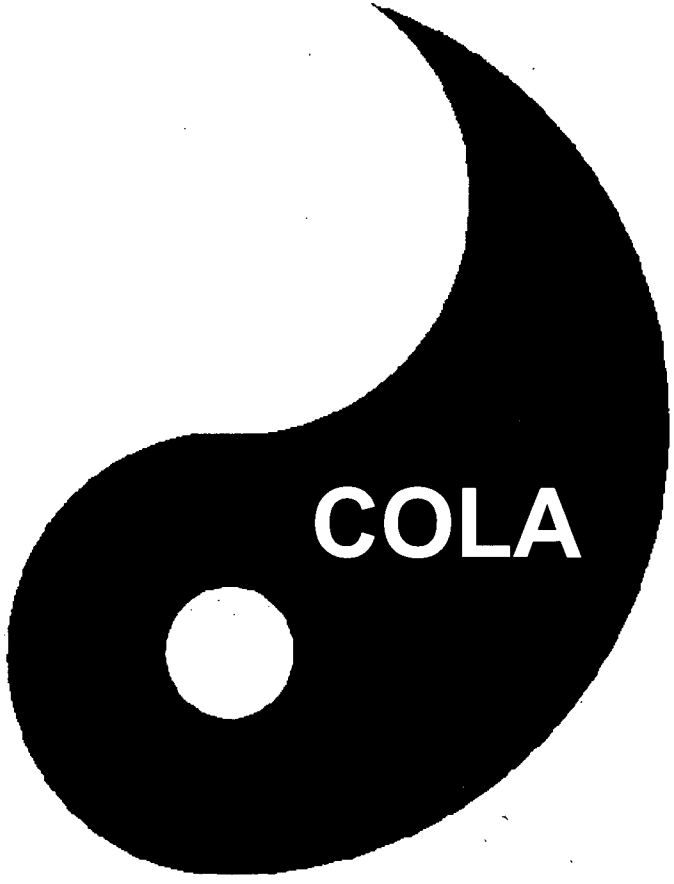
- Initially, Security Assessment (SA) Submitted Solely as COLA Document
- SAs Describe the Design Features that Support the Physical Protection of the Station (Tier 2 Information)
- DC SAs Identify Generic Features
- COLA SA Presents Site Specific Features (e.g., Related to Protected Area)

DC Security Assessments



- US EPR Security Design Features Technical Report (ANP 10295) (SGI) December, 2008
- US EPR Design Features that Enhance Security Technical Report (ANP-10296) December, 2008
- NRC Audit: March 31 – April 1

COLA Security Assessment



- Incorporates by Reference DC SAs
- Modeled to Maximize R-COL SA Review
- Limited S-COL SA Differences Resulting from Physical Layout of Site Specific Protective Area
- R-COL SA to be Submitted by April 2

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Physical Security Plan (PSP)

- NEI 03-12, Revision 6 Generic Security Plan Template Being Used to Revise US EPR PSPs
- R-COLA to be Submitted by April 2, 2009
- S-COLAs to Follow
- NRC Endorsement of NEI 03-12, Revision 6 Pending
- Expect that NRC Endorsement of NEI Template Will Minimize the Need for NRC Review Resources

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US EPR Security – Longer-Term Submittals

- S-COL Submittals
  - The Objective is to Resolve NRC Questions Through R-COLA Review and Minimize S-COLAs Revisions
- Report Addressing Large Area Fires [10 CFR 50.54(hh)(2) and 52.80(d)]
- Cyber Security Plan [10 CFR 73.54]

US EPR Security - Challenges

- "Lock Down" DC and COLA Content
  - Draft RGs, RGs, SRP and NEI Templates Continue to Evolve
- Avoid "False Starts" Developing Technical Content for New Requirements
  - Large Area Fires & Cyber Security
  - Discern What is Required for COL from What is Required for Operational Program
- Avoid S-COLA Unnecessary Updates
  - R-COLA Review to Establishing the Right Content
- Reaching Common Understanding with NRC on Criteria for Site With Multiple Plants
  - Joint Use of Security Systems (New Plant Sharing With Operating Plant)
- Use Meetings to Improve Efficiency
  - Minimize RAIs Related to SGI Information

Summary of Revised EPR DC Review Schedule

Phase 2 DC Review Schedule

Chapter	Baseline Finish	Revised Finish
1 Introduction and General Description of the Plant	**08/21/09**	**11/25/09**
2 Site Characteristics	01/06/09	06/09/09
3 Design of Structures, Systems, Components, and Equipment	**03/04/09**	**11/25/09**
4 Reactor	08/24/09	11/09/09
5 Reactor Coolant and Connecting Systems	08/24/09	10/26/09
6 Engineered Safety Features	**08/24/09**	**11/25/09**
7 Instrumentation and Controls	01/15/09	10/27/09
8 Electric Power	04/10/09	06/16/09
9 Auxiliary Systems	08/24/09	11/09/09
10 Steam and Power	02/20/09	08/24/09
11 Radioactive Waste Management Systems	04/09/09	04/09/09
12 Radiation Protection	03/11/09	07/23/09
13 Conduct of Operations	01/09/09	06/09/09
14 Initial Test Program	08/24/09	11/09/09
15 Transient and Accident Analyses	08/24/09	11/09/09
16 Technical Specifications	01/16/09	10/26/09
17 Quality Assurance and Reliability Assurance	01/05/09	08/07/09
18 Human Factors Engineering	12/26/08	08/13/09
19 PRA and Severe Accidents	08/07/09	09/10/09
Managed Reserved	**11/20/09**	**01/19/10**

Topical Reports Review Schedule

Topical Report	Published Finish	Revised Finish
ANP-10272, "Software Program Manual TELEPERM XS™ Safety Systems Topical Report"	07/14/08	10/02/09
ANP-10273P, "AV42 Priority Actuation and Control Module Topical Report"	11/20/08	TBD
ANP-10278P, Revision 0, "U.S. EPR Realistic Large Break Loss of Coolant Accident Topical Report"	07/15/08	09/16/09
ANP-10279, "U.S. EPR Human Factors Engineering Program Topical Report"	10/15/08	TBD
ANP-10281P, "U.S. EPR Digital Protection System Topical Report"	09/05/08	10/02/09
ANP-10284, "U.S. EPR Instrumentation and Control Diversity and Defense-in-Depth Methodology Topical Report"	11/13/08	TBD
ANP-10285P, "U.S. EPR Fuel Assembly Mechanical Design Topical Report"	08/21/08	08/04/09
ANP-10286P, "U.S. EPR Rod Ejection Accident Methodology Topical Report"	05/31/09	07/01/09
ANP-10287P, "Incore Trip Setpoint and Transient Methodology for U.S. EPR Topical Report"	05/31/09	07/01/09

Overall Review Schedule

Safety Review	Baseline	Revised
Phase 1	**01/28/09**	**NA**
Phase 2	**11/20/09**	**01/19/10**
Phase 3	**03/05/10**	**04/15/10**
Phase 4	**11/10**	**01/11**
Phase 5	**03/11**	**05/11**
Phase 6	**05/11**	**06/11**

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Protecting People and the Environment

A method for SCOLs to Identify commitments to RAI Responses provided by the RCOL

Mike Canova

Purpose

- *To provide for consistent execution of the Design Center review approach*
- *To establish a consistent method of identifying acceptance of, and commitment to, RAIs addressed by the RCOL*
- *To minimize processing burden on both the staff and the SCOL applicants.*

Basis for SCOL Tracking and Conformance to RCOL Standard Language RAI Responses

A Generic DCWG established practice…

- To ensure conformance to standard design
- Eliminate the need for additional RAIs from the staff and responses from the SCOL applicants
- Provide quick ability to account for all conformances to and deviations from standard language RAIs

Basic content of the letters

Recommended Subject line:

Endorsement of Calvert Cliffs R-COL Standard Content Responses to NRC Requests for Additional Information as they apply to the [name of plant] Combined License Application

Basic content of the letters

- Description of reference RCOL documents being addressed (i.e. RAI response letters for CCNPP)
- Identification of the attached endorsement table
- General level of endorsement (how table information is interpreted)
- Identification of the ongoing nature of the endorsement table (new material endorsed in this letter are identified how)
- Provision for a native format file (EXCEL) for use by NRC licensing staff.
- Point of contact

Recommended Table Content

- NRC Letter Number to RCOL
- R-COL RAI Number assigned by NRC and NRC Technical Branch I.D. (usually found in the RAI WORD file name – e.g. "*RAI No 92 CQVP 1693.doc*").
- Classification re: Standard Language or Site Specific
- Status of Applicant endorsement of RCOL Response
- Applicant Response letter I.D. declaring endorsement
- Other information needed by applicant for tracking

Examples from other Design Centers

- Entergy Operations, Grand Gulf SCOL vs. North Anna RCOL (ESBWR) - ML083020156
- Southern Nuclear, Vogtle SCOL vs. Bellefonte RCOL (Westinghouse) - ML083570590

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Protecting People and the Environment

- QUESTIONS / DISCUSSION

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COLA Alignment

Approach

- Manual Realignment
  - Assess each COLA Part – Site Specific or Combination
  - Remove/realign braces as necessary
  - Correct “outside the brackets” text

These “{ }” are braces, but we use the terms braces and brackets interchangeably.

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Assess Each COLA Part

Part 1	General Info	Site Specific
Part 2	FSAR	Combination
Part 3	Environmental Report	Site Specific
Part 4	Technical Specifications	Combination*
Part 5	Emergency Plan	Combination*
Part 6	LWA	Site Specific
Part 7	DCD Departures	Site Specific
Part 8	Security	Site Specific
Part 9	Sensitive Information	Site Specific
Part 10	ITAAC	Combination

* Processed differently

Remove/Realign Braces

- Site Specific documents
  - Remove all braces.

- Combination Documents (FSAR and ITAAC)
  - 4 document "side by side" review
    - Identify brace locations.
    - Expand to encompass broadest selection of site-specific text.
    - Expand to simplify paragraphs with multiple site-specific phrases.

This:
{CCNPP3} is located in {Maryland} and uses the {Chesapeake} for cooling.

Became:
{CCNPP3 is located in Maryland and uses the Chesapeake for cooling.}

Emergency Plan

- Original author of E-Plans revisited the documents to align braces and text.
- Callaway E-Plan made Site Specific. (All braces removed.)
  - Callaway intends a combined Unit 1 and Unit 2 organization
  - Callaway uses Unit 1 TSC/OSC.
- Other three COLAs were re-aligned.

COLA Revisions

- Additional site specific changes added.
- COLA Submittals incorporating Bracket changes
  - Calvert Revision 4
  - Callaway Revision 1
  - Bell Bend Revision 1
  - Nine Mile Revision 1