Sxx - Structural ITAAC and Tier 2 Section 14.3 Discussion of ITAAC Closure Determination

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
S01	**As-Built Inspection and Analyseis** Seismic Category I Structures	The [YYY structure]~~, including the critical sections listed in [Table x.x.x-x],~~ is Seismic Category I~~,~~ and ~~is designed and constructed to~~ can maintain its structural integrity under the following design basis loads ~~specified in the Design Description.~~: • Normal plant operation (e.g., dead loads, live loads, lateral earth pressure loads, equipment loads, hydrostatic, hydrodynamic, and temperature loads). • Internal events (e.g., internal flood loads, accident pressure loads, accident thermal loads, pipe break loads, including reaction loads, jet impingement loads, cubicle pressurization loads, and missile impact loads). • External events (e.g., wind, extreme winds, rain, snow, flood, extreme winds-generated missiles and earthquake).	i. An ~~I~~inspections and reconciliation analyseis will be performed of the as-built [YYY structure]. ~~Deviations from the design, due to as-built conditions during construction, will be analyzed for the design basis loads.~~ ii. An inspection will be performed to verify the key dimensions of the as-built [YYY structure].	i. ~~A design report for the as-built [YYY structure] exists and concludes that t~~The construction deviations of the [YYY structure] ~~due to as-built conditions~~ have been reconciled, and deviations between the issued for construction drawings that implement the seismic and dynamic analyses and the as-built [YYY structure] are acceptable~~ and that the as-built [YYY structure], including critical sections listed in [Table x.x.x-x], can maintain its structural integrity under the design basis loads~~. ii. The key dimensions of critical sections of the [YYY structure] conform to the dimensions~~, including associated tolerances,~~ provided in [Figure(s) x.x.x-x or Table(s) x.x.x-x].

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
	Tier 2 Section 14.3 Discussion i. The [YYY structure] and its design basis loads are discussed in ~~Tier 2~~ Section 3.8.x. Guidance for the content and structure of the as-built design report is provided in Standard Review Plan (SRP) Section 3.8.4, Appendix C. The scope of this ITAAC is a reconciliation of deviations between the issued for construction drawings that implement the seismic and dynamic analyses and the as-built structures. The design report provides criteria for the reconciliation. An ITAAC inspection~~s~~ and reconciliation analysi~~e~~s ~~are~~ is performed to ensure that deviations between the issued for construction drawings that implement the seismic and dynamic analyses and ~~of~~ the as-built [YYY structure] are acceptable ~~to verify that the structure, including the critical sections, can maintain its structural integrity under the design basis loads~~. --- ii. ~~Tier 2~~ Section 3.8.x provides descriptive information, including plans and sections of each Seismic Category I structure, to establish that there is sufficient information to define the primary structural aspects and elements relied upon for the structure to perform the intended safety functions. An ITAAC inspection is performed of the as-built [YYY structure] to verify that the structure conforms to the key dimensions of critical sections that are input assumptions to the seismic and dynamic analyses. ~~and tolerances specified in [Table x.x.x-x or Figure x.x.x-x].~~			
	As-built Inspection Seismic Category I Structure - Key dimensions *As discussed at the 01/21/2015 NRC meeting, this ITAAC has been combined into S01.*	~~Key dimensions and tolerances, used for seismic analyses of the Seismic Category I [YYY structure], are as provided in [Figure(s) x.x.x-x or Table(s) x.x.x-x].~~	~~An Iinspections will be performed to verify the key dimensions of the as-built [YYY structure].~~	~~The key dimensions of the as-built [YYY structure] conform to the dimensions, including associated tolerances, provided in [Figure(s) x.x.x-x or Table(s) x.x.x-x].~~
	~~**Tier 2 Section 14.3 Discussion**~~ ~~Inspections of the as-built [YYY structure] key dimensions, identified in Tier 2 Section 3.x, are performed to verify that the key dimensions and tolerances are met. Tier 2 Section 3.8.x provides descriptive information, including plans and sections of each Seismic Category I structure, to establish that there is sufficient information to define the primary structural aspects and elements relied upon for the structure to perform the intended safety functions.~~			

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
S02	**As-Built Inspection and Analysis** Structures, Systems, and Components (SSCs) - Seismic Interaction	~~The n~~Non-Seismic Category I ~~structures, systems, and components (~~SSCs~~)~~ located within an impact zone of ~~the~~ Seismic Category I SSCs will not impair the ability of ~~any~~ Seismic Category I SSCs to perform their intended safety-related functions during or following a safe-shutdown earthquake (SSE).	An ~~I~~inspection~~s~~ and analys~~e~~is will be performed ~~to confirm that~~ of the as-built non-Seismic Category I SSCs. ~~will not impair the ability of the as-built Seismic Category I SSCs to perform their safety-related functions during or following an SSE.~~	~~A report exists and concludes that the n~~Non-Seismic Category I SSCs located within an impact zone of ~~the~~ Seismic Category I SSCs will not impair the ability of ~~any~~ Seismic Category I SSCs to perform their safety-related functions during or following an SSE as demonstrated by one or more of the following criteria: • ~~The~~ Seismic Category I SSCs are isolated from ~~the~~ non-Seismic Category I SSCs so that interaction does not occur. • ~~The~~ Seismic Category I SSCs are analyzed to confirm that the ability to perform their safety-related functions is not impaired as a result of impact from ~~the~~ non-Seismic Category I SSCs. • A non-Seismic Category I restraint system designed to [Seismic Category I] requirements is used to assure that no interaction occurs between ~~the~~ Seismic Category I SSCs and ~~the~~ non-Seismic Category I SSCs.

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
	Tier 2 Section 14.3 Discussion Tier 2 Section 3.7.x discusses that per Regulatory Guide 1.29, some SSCs that perform no safety-related function could, if they failed under seismic loading, prevent or reduce the functioning of a Seismic Category I SSCs, or cause incapacitating injury to main control room occupants during or following an SSE. These nonsafety-related SSCs are classified as non-[Seismic Category I] and are designed to withstand SSE seismic loads without incurring a structural failure that permits deleterious interaction with any Seismic Category I SSCs or that could result in injury to main control room occupants. An ITAAC inspections isare performed to verify that non-Seismic Category I SSCs do not impair the ability of the Seismic Category I SSCs to perform their safety-related functions as demonstrated by one of the following criteria: • The Seismic Category I SSCs are isolated from the non-Seismic Category I SSCs so that interaction does not occur. • The Seismic Category I SSCs are analyzed to confirm that the ability to perform their safety-related functions is not impaired as a result of impact from non-Seismic Category I SSCs. • A non-Seismic Category I restraint system designed to [Seismic Category I] requirements is used to assure that no interaction occurs between the non-Seismic Category I SSCs and the Seismic Category I SSCs.			
S035	**As-built Inspection and Analysis** Radwaste Category [RW-XX] Structural Integrity	The [YYY structure], is a non-Seismic Category I [RW-XX] structure , is designed and constructed to conform to or exceed the criteria of Regulatory Guide 1.143.can maintain its structural integrity under the following design basis loads: • Earthquake • Wind • [Tornado] • [Tornado Missile] • Flood • Precipitation (Rain, Snow) • [Accidental Explosion (Fixed Facility)] • [Accidental Explosion (Transportation Vehicle)] • [Malevolent Vehicle Assault] • [Small Aircraft Crash]	An Iinspections and reconciliation analysis will be performed of the as-built [RW-XX] [YYY structure].	A report exists and concludes that the design and construction of the as-built [YYY structure] conform to or exceed the [RW - XX] criteria in Regulatory Guide 1.143. The construction deviations of the [RW-XX] [YYY structure] have been reconciled, and deviations between the issued for construction drawings that implement the seismic and dynamic analyses and the as-built [RW-XX] [YYY structure] are acceptable.

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
	Tier 2 Section 14.3 Discussion The design criteria for structures for the management of radioactive waste are discussed in Tier 2 Section XX. The [RW-XX] [YYY structure] and its design basis loads are discussed in Section 3.8.x. Guidance for the content and structure of the as-built design report is provided in Standard Review Plan (SRP) Section 3.8.4, Appendix C. The scope of this ITAAC is a reconciliation of deviations between the issued for construction drawings that implement the seismic and dynamic analyses and the as-built structures. The design report provides criteria for the reconciliation. An ITAAC iinspections and reconciliation analysies of the as-built [YYY structure] for the management of radioactive waste are is performed to ensure that deviations between the issued for construction drawings that implement the seismic and dynamic analyses and the as-built [YYY structure] are acceptable verify that the design and construction conform to or exceed the applicable criteria of Regulatory Guide 1.143.			
S04 C01	**As-built Inspection and Analysis** ASME Section III, Division 1, Class MC Primary Reactor Containment Vessel Design Report	The ASME Code Class MC [primary reactor containment vessel] is Seismic Category I and is designed and constructed in accordance with the ASME Code Section III, Division 1 Design Report for the [primary reactor containment].	An Iinspection and reconciliation analyses will be performed on of the as-built ASME Code Class MC [primary reactor containment vessel] documentation required by per ASME Code Section III, Division 1.	The ASME Code Section III Data Report(s) and NCA-3550 Design Report(s) for the as-built ASME Class MC [primary reactor containment vessel] exists and concludes that the requirements of ASME Code Section III, Division 1 NCA-3550 are met.
	Tier 2 Section 14.3 Discussion As required by ASME Code Section III NCA-1210, the each ASME Code Class MC containment vessel requires a Design Report in accordance with NCA-3550. NCA-3551.1 requires that the drawings used for construction shall be in agreement with the Design Report before it is certified and shall be identified and described in the Design Report. It is the responsibility of the N Certificate Holder to furnish a Design Report for each component and support, except as provided in NCA-3551.2 and NCA-3551.3. NCA-3551.1 also requires that the Design Report be certified by a Registered Professional Engineer when it is for Class 1 components and supports, Class CS core support structures, Class MC vessels and supports, Class 2 vessels designed to NC-3200 (NC-3131.1), or Class 2 or Class 3 components designed to Service Loadings greater than Design Loadings. An inspection is also performed of the Data Reports for the Code Class MC vessel and components to ensure (1) that the appropriate Data Reports have been provided as specified in Table NCA-8100-1, and (2) that the Certificate Holder or Owner and the Authorized Nuclear Inspector (ANI) have signed the Data Reports. The type of individual Data Report Forms necessary to record the required Code Data is identified in ASME Code Section III Table NCA-8100-1. Tier 2 Section 3.8.x provides the descriptive information, including the plans for and sections of the ASME Class MC primary reactor containment vessel, to establish that sufficient information is provided to define the primary structural aspects and elements relied upon to perform the containment function. Inspections during construction are performed of the as-built ASME Code Class MC reactor containment vessel, and deviations due to as-built conditions are reconciled with the approved as-designed ASME Design Report. An inspection is performed of the as-built ASME Code Class MC primary reactor containment vessel Design Report(s) to verify the report(s) meets the requirements of NCA-35501.1.			

<table>
<tr><th>No.</th><th>ITAAC Category/Type</th><th>Design Commitment</th><th>Inspections, Tests, Analyses</th><th>Acceptance Criteria</th></tr>
<tr><td rowspan="2">S05
Separated from S04, Orginal C02</td><td>**As-built Inspection**
ASME Code Section III Code Class MC Data Reports</td><td>The ASME Code Class MC components conform to the rules of construction of ASME Code Section III, Division 1.</td><td>An inspection will be performed of the ASME Code Section III Division 1 documentation for the as-built ASME Code Class MC components.</td><td>ASME Code Section III Data Reports for the ASME Code Class MC components listed in [Table x.x.x-x] exist and conclude that the requirements of ASME Code Section III Division 1 are met.</td></tr>
<tr><td colspan="4">**Tier 2 Section 14.3 Discussion**
The ASME Code Section III requires documentary evidence be available at the construction or installation site before use or installation to ensure that ASME Code Class MC components conform to the requirements of the Code. As defined in NCA-9000, a component can be a vessel, pump, pressure relief valve, line valve, storage tank, piping system, or core support structure that is designed, constructed, and stamped in accordance with the rules of Section III. The ASME Code Class MC components require a Data Report as specified by NCA-1210. The Data Report is prepared by the Certificate Holder or Owner and signed by the Certificate Holder or Owner and the Inspector as specified by NCA-8410. The type of individual Data Report Forms necessary to record the required Code Data is specified in the Table NCA-8100-1.
An ITAAC inspection is performed of the as-built Data Reports for ASME Code Class MC components described in Section XX to (1) ensure that the appropriate Data Reports have been provided as specified in Table NCA-8100-1, and (2) ensure that the Certificate Holder or Owner and the Authorized Nuclear Inspector (ANI) have signed the Data Reports.</td></tr>
<tr><td rowspan="2">**Not Added**</td><td>**Preoperational Test**
ASME Section III, Division 1 - Subsection NE Class MC pressure testing.

As discussed at the 1/21/2015 NRC meeting, the scope of this ITAAC is included in the performance of ITAAC S05.</td><td>~~The ASME Code Class MC primary containment vessel maintains its pressure boundary integrity at the design pressure.~~</td><td>~~Pressure testing will be performed per ASME Code Section III, Division 1 Article NE-6000.~~</td><td>~~A report exists and concludes that the test results for the Class MC reactor containment vessel pressure test comply with ASME Code Section III, Division 1 Article NE-6000 requirements.~~</td></tr>
<tr><td colspan="4">~~**Tier 2 Section 14.3 Discussion**~~
~~A preoperational test, described in Tier 2 Section 14.2.x, is performed to demonstrate that the test requirements of ASME Code Section III, Division 1 NE-6000 for a metal containment vessel are met. Following construction of a metal containment constructed to ASME Code, Section III, Division 1 NE-6000 requirements, a proof test of the metal containment is performed to demonstrate the quality of construction and to verify the acceptable performance of new design features. The metal containment vessel design, required analyses, and proof test are discussed in Tier 2, Section XX.~~</td></tr>
</table>

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
S06	**As-built Inspection and Analysis** ASME Section III, Division 2, Class CC Concrete Reactor Containment Construction Report	The ASME Code Class CC concrete [primary reactor containment] is Seismic Category I and is ~~designed and~~ constructed in accordance with the ~~per~~ ASME Code Section III, Division 2 Construction Report for the [primary reactor containment].	An ~~I~~inspections~~ and reconciliation analyses~~ will be performed of the as-built ASME Code Class CC concrete [primary reactor containment] ~~structure~~documentation required by ASME Section III, Division 2.	The ASME Code Section III ~~Data~~ Construction Report~~(s) and NCA-3350 Design Report(s)~~ for the as-built ASME Code Class CC concrete [primary reactor containment] exists and concludes that the requirements of ASME Code, Section III~~, Division 2~~ NCA-3380 are met.
	Tier 2 Section 14.3 Discussion As required by ASME Code Section III NCA-3454, the ASME Code Class CC containment vessel requires a Construction Report. NCA-3380 requires that the Construction Report shall be evaluated by the Designer, who shall certify that the Construction Report conforms to the requirements of Division 2 and the Design Specification. Prior to certification, the Designer shall review the file of as-built, design, shop, and field drawings to establish that the list provided by the Constructor in the Construction Report corresponds to the as-built, design, shop, and field drawings that will be maintained as a file by the Owner. An ITAAC inspection is performed of the as-built ASME Code Class MC primary reactor containment vessel Design Report to verify the report meets the requirements of NCA-3380. ~~Inspections during construction are performed of the as-built ASME Code Class CC reactor containment structure and deviations due to as-built conditions are reconciled with the approved as-designed ASME Design Report. An inspection is performed of the Code Class CC primary reactor containment Design Report(s) to verify that the report(s) meets the requirements of NCA-3350. As required by ASME Code Section III NCA-1210, each ASME Code Class CC containment structure requires a Design Report in accordance with NCA-3350. NCA-3350 requires that the Designer prepare a Design Report in sufficient detail to show that the applicable stress limitations are satisfied when the component is subject to the loading conditions specified in the Design Specification and this Section, and that Design Report prepared by the Designer contain calculations and sketches substantiating that the design is in accordance with the Design Specification and this Section. Tier 2 Section 3.8.x provides the descriptive information, including the plans or and sections of the concrete primary reactor containment structure, to establish that sufficient information is provided to define the primary structural aspects and elements relied upon to perform the containment function.~~			
S07 Separated from S06	**As-built Inspection** ASME Code Section III Code Class CC Data Report	The ASME Code Class CC concrete [primary reactor containment], including the liner plate and penetration assemblies, conforms to the rules of construction of ASME Code Section III Division 2.	An inspection will be performed of the ASME Code Section III Division 2 documentation for the as-built ASME Code Class CC concrete [primary reactor containment], including the liner plate and penetration assemblies.	ASME Code Section III Data Report for the ASME Code Class CC concrete [primary reactor containment], including the liner plate and penetration assemblies, exists and concludes that the requirements of ASME Code Section III Division 2 are met.

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
	Tier 2 Section 14.3 Discussion The ASME Code Section III requires documentary evidence be available at the construction or installation site before use or installation to ensure that ASME Code Class CC concrete [primary reactor containment] conforms to the requirements of the Code. As defined in NCA-9000, a component can be a vessel, concrete containment, pump, pressure relief valve, line valve, storage tank, piping system, or core support structure that is designed, constructed, and stamped in accordance with the rules of Section III. The ASME Code Class CC concrete [primary reactor containment] requires a Data Report as specified by NCA-1210. The Data Report is prepared by the Certificate Holder or Owner and signed by the Certificate Holder or Owner and the Inspector as specified by NCA-8410. The type of individual Data Report Forms necessary to record the required Code Data is specified in the Table NCA-8100-1. An ITAAC inspection is performed of the as-built Data Report for ASME Code Class CC concrete [primary reactor containment] described in Section XX to (1) ensure that the appropriate Data Reports have been provided as specified in Table NCA-8100-1, and (2) ensure that the Certificate Holder or Owner and the Authorized Nuclear Inspector (ANI) have signed the Data Report.			
Not Added	**As-built Inspection and Analysis** ASME Section III, Division 2, Concrete Primary Reactor Containment Class MC Liner and Penetration Assemblies. As discussed at the 1/21/2015 NRC meeting, the scope of this ITAAC is satisfied by the performance of ITAAC S06 and S07.	~~The concrete primary reactor containment liner and penetration assemblies are designed and constructed in accordance with ASME Code, Section III, Division 2, Class MC requirements.~~	~~Inspections and reconciliation analyses will be performed of the as-built concrete primary reactor containment liner and penetration assemblies.~~	~~The ASME Code Section III Data Report(s) and NCA-3350 Design Report(s) for the as-built concrete primary reactor containment liner and penetration assemblies exist and conclude that the requirements of ASME Code, Section III, Division 2 are met.~~

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
	Tier 2 Section 14.3 Discussion Inspections during construction are performed of the as-built ASME Code Class CC primary reactor containment liner and penetration assemblies and deviations due to as-built conditions are reconciled with the approved as-designed ASME Design Report. An inspection is performed of the Code Class CC primary reactor containment liner and penetration assemblies Design Report(s) to verify the report(s) meets the requirements of NCA-3551.1. As required by ASME Code Section III NCA-1210, each ASME Code Class CC primary reactor containment liner and penetration assembly requires a Design Report in accordance with NCA-3350. NCA-3551.1 requires that the drawings used for construction be in agreement with the Design Report before it is certified and be identified and described in the Design Report. It is the responsibility of the N Certificate Holder to furnish a Design Report for each component and support, except as provided in NCA-3551.2 and NCA-3551.3. NCA-3551.1 also requires that the Design Report be certified by a Registered Professional Engineer when it is for Class 1 components and supports, Class CS core support structures, Class MC vessels and supports, Class 2 vessels designed to NC-3200 (NC-3131.1), or Class 2 or Class 3 components designed to Service Loadings greater than Design Loadings. An inspection is also performed of the Data Reports for Code Class MC vessel and components to ensure (1) that the appropriate Data Reports have been provided as specified in Table NCA-8100-1, and (2) that the Certificate Holder or Owner and the Authorized Nuclear Inspector (ANI) have signed the Data Reports. The type of individual Data Report Forms necessary to record the required Code Data is identified in ASME Code Section III Table NCA-8100-1.			
S08	**Preoperational Test** ASME Section III, Division 2, Concrete Containment Structural Integrity Test ***(For PWRs Only)***	The concrete [primary reactor containment] structure, including the liner plate and penetration assemblies, maintains its pressure boundary at the design pressure.	A Structural Integrity Test of the concrete [primary reactor containment], including the liner plate and penetration assemblies, will be performed per ASME Code Section III, Division 2 Article CC-6000.	A report exists and concludes that tThe Structural Integrity Test results for the concrete [primary reactor containment] structure, including the liner plate and penetration assemblies, comply with ASME Code Section III, Division 2 Article CC-6000 requirements.
	Tier 2 Section 14.3 Discussion Following construction of the a concrete [primary reactor containment] constructed to ASME Code, Section III, Division 2 requirements, a proof test of the concrete containment is performed to demonstrate the quality of construction and to verify the acceptable performance of new design features. The concrete primary reactor containment structure design, required analyses, and proof test are discussed in Tier 2, Section XX. A preoperational Structural Integrity Test, described in Tier 2 Section 14.2.x, is performed to demonstrate that the concrete primary reactor containment, including the liner plate and penetration assemblies, maintains its pressure boundary at the design pressure in compliance with ASME Code Section III, Division 2 CC-6000 requirements. In accordance with Section 14.2.x, a preoperational test demonstrates that the Structural Integrity Test of the concrete [primary reactor containment], including the liner plate and penetration assemblies, complies with ASME Code Section III, Division 2, CC-6000 requirements.			

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
S09	**Preoperational Test** ASME Section III, Division 2, Concrete Containment Structural Integrity Test ***(For BWRs Only)***	The concrete [primary reactor containment] pressure boundary, including the liner plate and penetration assemblies, maintains its structural integrity at the design pressure and the diaphragm floor and vent wall structures that separate the drywell and wetwell retain their integrity when subjected to their maximum design differential pressure.	i, A Structural Integrity Test of the concrete [primary reactor containment], including the liner plate and penetration assemblies will be performed ~~per ASME Code Section III, Division 2 Article CC-6000~~. ii. A test of the diaphragm floor and vent wall structures will be performed with the drywell pressure greater than the wetwell pressure by at least [~~x.x~~#.#] times the maximum design differential pressure.	i. ~~A report exists and concludes that t~~The Structural Integrity Test results for the concrete primary reactor containment structure, including the liner plate and penetration assemblies, comply with ASME Code Section III, Division 2 ~~Article~~ CC-6000 requirements. ii. The diaphragm floor and vent wall structures that separate the drywell and wetwell retain their structural integrity when subjected to a minimum differential pressure of [~~xxx~~ ### psid].
	Tier 2 Section 14.3 Discussion Section 6.2.x discusses the concrete [primary reactor containment] design, required analyses, and structural integrity test. Following construction of a concrete [primary reactor containment] constructed to ASME Code, Section III, Division 2, a proof-test of the concrete containment is performed to demonstrate the quality of construction and to verify the acceptable performance of new design features. In accordance with Section 14.2.x, a preoperational test demonstrates that the Structural Integrity Test of the concrete [primary reactor containment], including the liner plate and penetration assemblies, complies with ASME Code Section III, Division 2, CC-6000 requirements. As a part of the structural integrity test, the diaphragm floor and vent wall structures that separate the drywell and wetwell are subjected to at least [#.#] times the maximum design differential pressure to verify the internal structures retain structural integrity under the maximum design differential pressure.~~A preoperational Structural Integrity Test (SIT), described in Tier 2 Section 14.2.x, is performed after completion of the containment construction to demonstrate that the concrete primary reactor containment, including the liner plate and penetration assemblies, can maintain its structural integrity at the design pressure. The SIT is performed in accordance with Article CC-6000 of ASME Code Section III, Division 2 and Regulatory Guide 1.136. [The first prototype containment structure will be instrumented to measure strains per ASME Code Section III, Division 2 Article CC-6370.] As a part of the SIT, the diaphragm floor and vent wall structures, which separate the drywell and wetwell, are subjected to at least [x.x] times the maximum design differential pressure to verify the internal structures retain structural integrity under the maximum design differential pressure. The concrete primary reactor containment structure design, required analyses, and structural integrity test are discussed in Tier 2, Section XX.~~			

Axx - Piping ITAAC and Tier 2 Section 14.3 Discussion of ITAAC Closure Determination

<table>
<tr><th>No.</th><th>ITAAC Category/Type</th><th>Design Commitment</th><th>Inspections, Tests, Analyses</th><th>Acceptance Criteria</th></tr>
<tr><td rowspan="2">A01</td><td><u>Design Acceptance Criteria</u>
ASME Section III Piping System Design Report
{{DAC}}
(if DAC use approved)</td><td>The [XXX system] as-designed ASME Code Class [1, 2 and/or 3] piping system complies with ASME Code Section III requirements.</td><td>An inspection will be performed of the [XXX system] as-designed ASME Code Class [1, 2 and/or 3] piping system documentation required by ASME Code Section III.
{{DAC}}</td><td>The ASME Code Section III Design Report for the [XXX system] as-designed ASME Code Class [1, 2 and/or 3] piping system exists and concludes that the requirements of ASME Code Section III NCA-3550 are met.
{{DAC}}</td></tr>
<tr><td colspan="4"><u>Tier 2 Section 14.3 Discussion</u>
As required by ASME Code Section III NCA-1210, each ASME Code Class 1, 2 and 3 component (including piping systems) of a nuclear power plant requires a Design Report in accordance with NCA-3550.
An ITAAC inspection is performed of the [XXX system] as-designed ASME Code Class [1, 2 and/or 3] piping system Design Report(s) to verify the report meets the requirements of NCA-3550.</td></tr>
<tr><td rowspan="2">A02</td><td><u>As-built Inspection</u>
ASME Section III Piping System Design Report - As-built Design Reconciliation</td><td>The [XXX system] as-built ASME Code Class [1, 2 and/or 3] piping system is reconciled with the ASME Code Section III Design Report for the as-designed piping system.</td><td>An inspection will be performed of the [XXX system] as-built ASME Code Class [1, 2 and/or 3] piping system documentation required by ASME Code Section III.</td><td>ASME Code Section III Design Report for the [XXX system] <s>as-built</s> ASME Code Class [1, 2 and/or 3] piping system exists and concludes that the requirements of ASME Code Section III NCA-3550 are met.</td></tr>
<tr><td colspan="4"><u>Tier 2 Section 14.3 Discussion</u>
As required by ASME Code Section III NCA-1210, each ASME Code Class 1, 2 and 3 component (including piping systems) of a nuclear power plant requires a Design Report in accordance with NCA-3550. NCA-3551.1 requires that the drawings used for construction shall be in agreement with the Design Report before it is certified and shall be identified and described in the Design Report. It is the responsibility of the N Certificate Holder to furnish a Design Report for each component and support, except as provided in NCA-3551.2 and NCA-3551.3. NCA-3551.1 also requires the Design Report be certified by a Registered Professional Engineer when it is for Class 1 components and supports, Class CS core support structures, Class MC vessels and supports, Class 2 vessels designed to NC-3200 (NC-3131.1), or Class 2 or Class 3 components designed to Service Loadings greater than Design Loadings. A Class 2 Design Report shall be prepared for Class 1 piping NPS 1 or smaller which is designed in accordance with the rules of Subsection NC.
An ITAAC inspection is performed of the [XXX system] as-built ASME Code Class [1, 2 and/or 3] piping systems and Design Report(s) to verify the report(s) meets the requirements of NCA-3550.</td></tr>
</table>

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
A03	**<u>As-built Inspection</u>** ASME Section III Code Class 1, 2 and 3 Data Reports	The [XXX system] ASME Code Class [1, 2 and/or 3] components conform to ~~are fabricated, installed, inspected, and tested in accordance with~~ the rules of construction of ASME Code Section III.	An inspection will be performed of the ASME Code Section III documentation for the as-built [XXX system]~~'s~~ ASME Code Class [1, 2 and/or 3] components.	ASME Code Section III Data Reports for the ~~as-built~~ [XXX system] ASME Code Class [1, 2 and/or 3] ~~[XXX system] piping and its~~ components listed in [Table x.x.x-x] and interconnecting piping exist and conclude that the ~~components are fabricated, installed, inspected, and tested in accordance with the~~ requirements of ASME Code Section III are met.
	<u>Tier 2 Section 14.3 Discussion</u> The ASME Code Section III requires documentary evidence be available at the construction or installation site before use or installation to ensure that ASME Code Class 1, 2 and 3 components conform to the requirements of the Code. As defined in NCA-9000, a component can be a vessel, pump, pressure relief valve, line valve, storage tank, piping system, or core support structure that is designed, constructed, and stamped in accordance with the rules of Section III. The [XXX system] ASME Code Class [1, 2 and/or 3] components require a Data Report as specified by NCA-1210. The Data Report is prepared by the Certificate Holder or Owner and signed by the Certificate Holder or Owner and the Inspector as specified by NCA-8410. The type of individual Data Report Forms necessary to record the required Code Data is specified in the Table NCA-8100-1. An ITAAC inspection is performed of the as-built ~~component~~ Data Reports for [XXX system] ASME Code Class [1, 2 and/or 3] components and interconnecting piping that is described in ~~Tier 2~~ Section XX to (1) ensure that the appropriate Data Reports have been provided as specified in Table NCA-8100-1, and (2) ensure that the Certificate Holder or Owner and the Authorized Nuclear Inspector (ANI) have signed the Data Reports.			
A04	**<u>As-built Inspection</u>** ASME Section III Code Class CS Data Reports	The ASME Code Class CS components conform to ~~are fabricated, installed, and inspected in accordance with~~ the rules of construction of ASME Code Section III.	An inspection will be performed of the ~~as-built~~ ASME Code Section III component ~~Class CS component~~ documentation for the as-built ASME Code Class CS components.	~~The~~ ASME Code Section III Data Reports for the ~~as-built~~ ASME Code Class CS components listed in [Table x.x.x-x] exist and conclude that the ~~fabrication, installation, and inspection~~ requirements of ASME Code Section III are met.

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
	Tier 2 Section 14.3 Discussion The ASME Code Section III requires documentary evidence be available at the construction or installation site before use or installation to ensure that ASME Code CS components conform to the requirements of the Code. The ASME Code Class CS ~~[RPV Internals, Core Supports]~~ components require a Data Report as specified by NCA-1210. The Data Report is prepared by the Certificate Holder or Owner and signed by the Certificate Holder or Owner and the Inspector as specified by NCA-8410. The type of individual Data Report Forms necessary to record the required Code Data is identified in the Table NCA-8100-1. An ITAAC inspection is performed of the as-built Data Reports for the ASME Code Class CS components ~~[RPV Internals, Core Supports] Data Reports~~ to (1) ensure that the appropriate Data Reports have been provided as specified in Table NCA-8100-1, and (2) ensure that the Certificate Holder or Owner and the Inspector have signed the Data Reports.			
A05	**Design Acceptance Criteria** Pipe Break Hazards Analysis Report {{DAC}} *(if DAC use approved)*	Safety-related [and RTNSS] SSCs are protected against the dynamic and environmental effects associated with postulated failures in high and moderate energy piping systems.	A pipe break hazards analysis will be performed of the safety-related [and RTNSS] high and moderate energy piping systems. {{DAC}}	A Pipe Break Hazards Analysis Report exists and concludes that the as-designed safety-related [and RTNSS] SSCs will be protected against: • The dynamic effects (pipe whip and jet impingement) associated with postulated failures in high energy piping systems. • The environmental effects (pressurization of compartments, water spray, and flooding) associated with postulated failures in high and moderate energy piping systems. {{DAC}}
	Tier 2 Section 14.3 Discussion ~~Tier 2~~ Section 3.6.x discusses that a pipe rupture hazard analysis is prepared based on the as-designed piping stress analyses and pipe whip restraint design information. The as-designed analysis is based on piping routings, layouts, and isometrics. An ITAAC analysis of the as-designed Pipe Break Hazards Analysis Report: • Confirms that the as-designed safety-related [and RTNSS] SSCs are protected against the dynamic effects (pipe whip and jet impingement) associated with postulated failures in high energy piping systems. • Concludes that the as-designed safety-related [and RTNSS] SSCs are protected against the environmental effects (pressurization of compartments, water spray, and flooding) associated with postulated failures in high and moderate energy piping systems.			

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
A06	**As-built Inspection** Pipe Break Hazards Protective Features Verification and Design Reconciliation	Safety-related [and RTNSS] SSCs are protected against the dynamic and environmental effects associated with postulated failures in high and moderate energy piping systems.	An inspection and reconciliation analysis will be performed of the as-built protective features for the safety-related [and RTNSS] SSCs.	~~A report exists and concludes that the as-built p~~Protective features are installed in accordance with the as-built Pipe Break Hazard Analysis Report and ~~that the as-built~~ safety-related [and RTNSS] SSCs are protected against or qualified to withstand the dynamic and environmental effects associated with postulated failures in high and moderate energy piping.
	Tier 2 Section 14.3 Discussion ~~Tier 2~~ Section 3.6.x provides the design bases and criteria for the analysis required to demonstrate that safety-related [and RTNSS] SSCs are not impacted by the adverse effects of a high energy pipe failure within the plant. ~~Tier 2~~ Table 3.6-x lists the rooms that contain both high-energy pipe break locations and essential SSCs that must be protected. An ITAAC inspection is performed to verify that the as-built protective features credited in the reconciled Pipe Break Hazards Analysis Report such as pipe whip restraints, pipe whip or jet impingement barriers, jet impingement shields, or guard pipe have been installed using design drawings of sufficient detail to show the existence and location of the protective hardware. The as-built ITAAC includes an inspection and reconciliation analysis. The as-built inspection and reconciliation is intended to verify that changes to protective features or protected equipment made during construction do not adversely affect the safety-related [and RTNSS] functions of the protected equipment.			
A07	**Design Analysis** Leak Before Break (LBB) Analysis	The [XXX system] ASME Code Class 1 and 2 piping and interconnected equipment nozzles are evaluated for leak-before-break (LBB).	An analysis will be performed of the as-built ASME Code Class 1 and 2 piping and interconnected equipment nozzles for each piping system.	The LBB analysis for the ASME Code Class 1 and 2 piping and interconnected equipment nozzles listed in [Table x.x.x-x] is bounded by the as-designed LBB analysis.
	Tier 2 Section 14.3 Discussion ~~Tier 2~~ Section 3.6.X describes the application of the mechanistic pipe break criteria, commonly referred to as leak-before-break (LBB), to the evaluation of pipe ruptures. The leak-before-break analysis eliminates the need to consider the dynamic effects of postulated pipe breaks for high-energy piping that qualify for LBB. An as-built analysis which includes material properties of piping and welds, stress analyses, leakage detection capability, and degradation mechanisms is performed to verify that the as-designed LBB analysis is bounding for the as-built ASME Code Class 1 and 2 piping and interconnected equipment nozzles. A summary of the results of the plant specific LBB analysis, including material properties of piping and welds, stress analyses, leakage detection capability, and degradation mechanisms is provided in the as-built LBB analysis report.			

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
A08	~~**As-built Inspection**~~ **Vendor Test** Reactor Vessel Charpy Upper-Shelf Energy requirements 10 CFR Part 50 Appendix G	The reactor pressure vessel (RPV) beltline material has a Charpy upper-shelf energy of no less than 75 ft-lb.	~~Manufacturing~~ A vendor tests of the Charpy V-Notch specimen of the RPV beltline material will be performed.	An ASME Code Certified Material Test Report (CMTR) exists and concludes the initial RPV beltline Charpy upper-shelf energy is no less than 75 ft-lb.
	Tier 2 Section 14.3 Discussion ~~Tier 2~~ Section 5.3.XX discusses the fracture toughness properties of the reactor pressure vessel (RPV) beltline material and the Material Surveillance Program. A Charpy V-Notch test of the RPV beltline material specimen ~~are~~ is performed by the ~~manufacturer~~ vendor to ensure that the initial RPV beltline Charpy upper-shelf energy is no less than 75 ft-lb.			

Cxx - Containment ITAAC and Tier 2 Section 14.3 Discussion of ITAAC Closure Determination

<table>
<tr><th>No.</th><th>ITAAC Category/Type</th><th>Design Commitment</th><th>Inspections, Tests, Analyses</th><th>Acceptance Criteria</th></tr>
<tr><td rowspan="2">C01
~~3~~</td><td><u>As-built Inspection</u>
Containment Combustible Gas Control – Location</td><td>The [XXX system] controls the combustible gas concentration in the [primary reactor containment].</td><td>An inspection will be performed of the as-built [XXX system] [hydrogen igniters and/or passive autocatalytic recombiners].</td><td>The ~~as-built~~ [XXX system] [hydrogen igniters and/or passive autocatalytic recombiners] are located as identified in [Table x.x.x-x or Figure x.x.x-x].</td></tr>
<tr><td colspan="4"><u>Tier 2 Section 14.3 Discussion</u>
Section 6.2.x provides a discussion of how the [XXX system] limits the buildup and concentration of combustible gases in the [primary reactor containment] to prevent combustible mixtures from occurring.
An ITAAC inspection is performed to verify that the [XXX system] [hydrogen igniters and/or passive autocatalytic recombiners] are located in their required locations within primary reactor containment.~~ to limit the buildup and concentration of combustible gases and prevent a combustible mixture from occurring as discussed in Tier 2, Section 6.x.x~~.</td></tr>
<tr><td rowspan="2">C02
4</td><td><u>As-built Inspection</u>
Containment Combustible Gas Control - Passive Autocatalytic Recombiners
(Use this ITAAC if passive autocatalytic recombiners are used in the design.)</td><td>The [XXX system] controls the combustible gas concentration in the [primary reactor containment].</td><td>An inspection will be performed of the [XXX system] as-built [passive autocatalytic recombiners].</td><td>The ~~as-built~~ [XXX system] [passive autocatalytic recombiners’] combined surface area is at least [### ft2].</td></tr>
<tr><td colspan="4"><u>Tier 2 Section 14.3 Discussion</u>
Section 6.2.x provides a discussion of how the [XXX system] limits the buildup and concentration of combustible gases in the [primary reactor containment] to prevent combustible mixtures from occurring.
An ITAAC inspection is performed to verify the [XXX system] [passive autocatalytic recombiners] installed in the [primary reactor containment] have a minimum surface area of at least [### ft^2]~~ to limit the buildup and concentration of combustible gases in containment as discussed in Tier 2, Section 6.x.x~~.</td></tr>
</table>

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
C03 5	**Preoperational Test** Containment Combustible Gas Control Test - Containment Hydrogen Igniters *(Use this ITAAC if hydrogen igniters are used in the design.)*	The [XXX system] controls the combustible gas concentration in the [primary reactor containment].	A test will be performed of each as-built [XXX system] hydrogen igniter.	The surface temperature of each as-built hydrogen igniter exceeds [###°F].
	Tier 2 Section 14.3 Discussion Section 6.2.x provides a discussion of how the [XXX system] limits the buildup and concentration of combustible gases in the [primary reactor containment] to prevent combustible mixtures from occurring. AIn accordance with Section 14.2.x, a preoperational test, described in Tier 2 Section 14.2.x, is performed to demonstrates that the [XXX system] hydrogen igniters reach a surface temperature that of each [XXX system] hydrogen igniter exceeds [###°F] to limit the buildup and concentration of combustible gases in containment as described in Tier 2, Section 6.x.x.			
C04 6	**Preoperational Test** Containment Leak Rate Tests (10 CFR Part 50, Appendix J)	The [primary reactor containment] serves as an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment.	i. A Type A, Type B, and Type C leakage tests will be performed of the as-built [primary reactor containment] per 10 CFR Part 50, Appendix J. ii. Type B and Type C lLeakage tests will be performed of the pressure containing or leakage-limiting boundaries, and containment isolation valves.	A test summary report per 10 CFR Part 50, Appendix J exists and concludes that t i. The leakage rate for the integrated leak rate test (Type A), Type B, and Type C test results meets the requirements of 10 CFR Part 50, Appendix J. ii. The leakage rate for local leak rate tests (Type B and Type C) for pressure containing or leakage-limiting boundaries and containment isolation valves meets the requirements of 10 CFR Part 50, Appendix J.
	Tier 2 Section 14.3 Discussion Section 6.2.x provides a discussion of Tthe leakage testing requirements of the primary reactor containment, which serves as an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment, are described in Tier 2, Section 6.x.x. In accordance with Section 14.2.x, Ppreoperational tests, described in Tier 2 Section 14.2.x, are performed to demonstrate that the leakage rate for the integrated leak rate test (Type A) of the [primary reactor containment] and the leakage rate for local leak rate tests (Type B and Type C) for pressure containing or leakage-limiting boundaries and containment isolation valves meets the leakage acceptance criterion of 10 CFR Part 50, Appendix J.			

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Not Added	**Preoperational Test** Containment Isolation Valve Closure Times *As discussed at the 1/21/15 meeting, this ITAAC is not necessary because it is satisfied by the by performance of I13 Response Time Testing of ESF.*	~~Containment isolation valve (CIV) closure times are established to limit the potential releases of radioactivity to amounts as low as is reasonably achievable.~~	~~A test of each as-built CIV will be performed to measure the CIV's closure stroke time on receipt of a valve closure demand.~~	~~Each as-built CIV closes within the isolation response time identified in [Table x.x.x-x].~~
	~~**Tier 2 Section 14.3 Discussion**~~ ~~A preoperational test, described in Tier 2 Section 14.2.x, is performed to demonstrate that the containment isolation valve stroke times satisfy the valve closure requirements for containment isolation as described in Tier 2, Section 6.x.x.~~			
Not Added	**As-built Inspection** Containment Isolation Valves. *NRC will confirm that this ITAAC is not necessary. As discussed at the 1/21/15 meeting, this ITAAC does not meet 1st principles because it is not associated with the performance of a top level safety function.*	~~The length of piping outside containment between the containment penetration and the associated outboard containment isolation valve is the minimum length necessary to provide access for:~~ • ~~Maintenance, including valve cutout and replacement and valve seat resurfacing using standard pipe fitting tools and equipment,~~ • ~~In-service inspection (ISI) of welds,~~ • ~~10 CFR Part 50, Appendix J leak testing, and~~ • ~~Local valve operation~~	~~Inspection will be performed of the as-built piping length between each containment penetration and the outboard containment isolation valve(s).~~	~~The length of the as-built piping between each containment penetration and the outboard containment isolation valve(s), is less than or equal to the maximum allowed length identified in [Table x.x.x-x].~~
	~~**Tier 2 Section 14.3 Discussion**~~ ~~An inspection is performed to verify the outboard containment isolation valves are located as close to containment as practicable in accordance with 10 CFR Part 50, Appendix A, GDC 55, 56 and 57 as discussed in Tier 2, Section 6.x.x.~~			

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Not Added	**As-built Inspection and Analysis** Containment Free Volume *As discussed at the 1/21/15 meeting, this ITAAC is design specific depending on how the free volume is a key input into the safety analyses.*	~~The primary reactor containment meets or exceeds the required minimum free volume.~~	~~An inspection and analysis will be performed to verify that the as-built primary reactor containment meets or exceeds the required minimum free volume.~~	~~The primary reactor containment free volume is greater than or equal to [XXX ft^3].~~
	~~**Tier 2 Section 14.3 Discussion**~~ ~~Inspection and analysis is performed to verify that the as-built primary reactor containment free volume meets or exceeds the volume assumed in the accident analysis. Tier 2 Section XX discusses the containment structure and volume.~~			

Hxx - Human Factors Engineering ITAAC and Tier 2 Section 14.3 Discussion of ITAAC Closure Determination

No.	ITAAC Category/Type	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
H01	**Design AnalysisAcceptance Criteria** Human Factors Engineering/Main Control Room Design	The Control Room design incorporates human factors engineering principles that minimize the potential for operator error.	An Integrated System Validation (ISV) test will be performed in accordance with the Verification and Validation Implementation Plan.	An Integrated System Validation Report exists and concludes that acceptance criteria associated with each test scenario are satisfied upon initial performance of the scenarios or upon remediation of failures.
	Tier 2 Section 14.3 Discussion Section 18.x describes the Integrated System Validation (ISV), which provides a comprehensive performance-based assessment of the design of the Human-System Interface (HSI) resources, based on their realistic operation within a simulator-driven main control room (MCR). The ISV is part of the overall Human Factors Engineering (HFE) program. An ISV test is performed in accordance with the Verification and Validation Implementation Plan. The ISV uses a representative set of scenarios to assess the usability of the MCR and HSI resources and the tolerance of or susceptibility to error. The acceptance criteria associated with each test scenario are satisfied upon initial performance of the scenarios or upon remediation of failures.			
H02	**As-built Inspection** Human Factors Engineering/Main Control Room	The as-built Control Room human-system interface is consistent with the final design specifications validated by the Integrated System Validation test.	An inspection will be performed of the as-built configuration of main control room Human System Interfaces.	The as-built configuration of main control room Human System Interfaces is consistent with the as-designed configuration of main control room Human System Interfaces as modified by the Integrated System Validation Report.
	Tier 2 Section 14.3 Discussion Section 18.x describes the implementation of *HFE* aspects of the plant design. An ITAAC inspection is performed to verify that the as-built configuration of main control room Human System Interfaces is consistent with the as-designed configuration of main control room Human System Interfaces as modified by the Integrated System Validation Report.			