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UniStar
NUCLEAR ENERGY

10 CFR 50.4
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May 28, 2009

UN#09-245

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: UniStar Nuclear Energy, NRC Docket No. 52-016
Response to Request for Additional Information for the
Calvert Cliffs Nuclear Power Plant, Unit 3,
RAI No. 96, Inspections, Tests, Analyses, and Acceptance Criteria

Reference: John Rycyna (NRC) to Robert Poche (UniStar Nuclear Energy), "RAI No 96 CCIB 1685.doc (public)" email dated April 14, 2009

The purpose of this letter is to respond to the request for additional information (RAI) identified in the NRC e-mail correspondence to UniStar Nuclear Energy, dated April 14, 2009 (Reference). This RAI addresses Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC), as discussed in Section 2.4 of the ITAAC, as submitted in Part 10 of the Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 Combined License Application (COLA), Revision 4.

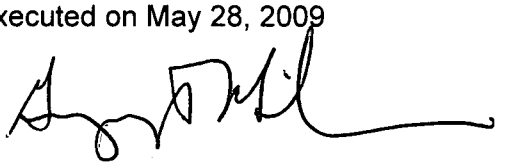
The enclosure provides our responses to RAI No. 96, Questions 14.03-1 through 14.03-13, and includes revised COLA content. A Licensing Basis Document Change Request has been initiated to incorporate these changes into a future revision of the COLA. Our responses to Questions 14.03-1 through 14.03-13 do not include any new regulatory commitments.

DO96
NRO

If there are any questions regarding this transmittal, please contact me at (410) 470-4205, or Mr. Michael J. Yox at (410) 495-2436.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 28, 2009



Greg Gibson

Enclosure: Response to NRC Request for Additional Information, RAI No. 96, Questions 14.03-1 through 14.03-13, ITAAC, Calvert Cliffs Nuclear Power Plant, Unit 3

cc: John Rycyna, NRC Project Manager, U.S. EPR COL Application
Laura Quinn, NRC Environmental Project Manager, U.S. EPR COL Application
Getachew Tesfaye, NRC Project Manager, U.S. EPR DC Application (w/o enclosure)
Loren Plisco, Deputy Regional Administrator, NRC Region II (w/o enclosure)
Silas Kennedy, U.S. NRC Resident Inspector, CCNPP, Units 1 and 2
U.S. NRC Region I Office

GTG/KAB/jmm

Enclosure

Response to NRC Request for Additional Information
RAI No. 96, Questions 14.03-1 through 14.03-13, ITAAC
Calvert Cliffs Nuclear Power Plant, Unit 3

RAI No 96

Question 14.03-1
The following typographical errors were noted:

1. ITAAC Item 1.a. in Table 2.4-11 - Last word in CW -"Nuclear" should be "Nuclear Island".
2. ITAAC Item 6.b. in Table 2.4-21 - In the AC, space is missing between "andducting".
3. ITAAC Item 8 in Table 2.4-21 - In the AC, space is missing between "uponreceipt".
4. ITAAC Item 6.a. in Table 2.4-22 : In the AC, delete the word "in" after Seismic I.
5. ITAAC Item 7 in Table 2.4-24 - In the AC, - ending of last sentence now reads..."are installed as built." It should read... "are installed as designed." See Item 6 AC, which states "are installed as designed.
6. ITAAC Item 2b. in Table 2.4-1 - In the AC, for Item 2b., the angle of internal friction is greater and equal to 35 degrees, whereas the Commitment Wording states equal to 35 degrees.
7. ITAAC Item 2c. in Table 2.4-1 - In the AC, for Item 2c., the coefficient of friction is greater and equal to .7, whereas the Commitment Wording states equal to .7.
8. ITAAC Item 4 in Table 2.4-1 - In the AC, for Item 4, the backfill shear wave velocity is .1000 ft per second, whereas the Commitment Wording states it is 1000 ft per second.

Response

1. Commitment Wording corrected to "Nuclear Island".
2. Acceptance Criteria corrected to "and ducting".
3. Acceptance Criteria corrected to "upon receipt".
4. Acceptance Criteria corrected to delete "in" after Seismic I.
5. Acceptance Criteria corrected to "are installed as designed".
6. It is not anticipated that the angle of internal friction will be exactly 35 degrees, so the acceptance criterion was conservatively set to at least 35 degrees to assure that the required minimum of 35 degrees is met.
7. It is not anticipated that the coefficient of friction will be exactly 0.7, so the acceptance criterion was conservatively set to at least 0.7 to assure that the required minimum of 0.7 is met.
8. Acceptance Criteria corrected to "1000 ft per second".

COLA Impact

The above changes will be incorporated in a future revision of the COLA. See pages 16, 23, 33, 34, and 35, of this enclosure.

Question 14.03-2
ITAAC Item 1 in Table 2.4-1

It seems based on the strict requirements in AC that this ITAAC would require inspection as well as a test. This is based on where the sample is obtained at the site.

This question is also applicable to the following ITAAC:

ITAAC Item 3 in Table 2.4-1 - Verification that all installed backfill at Seismic cat I and II structures meets this test.

Evaluate these deficiencies, revise and respond as necessary.

Response

Added "and inspections" to Table 2.4-1, Item 1 ITA.
No change made to Table 2.4-1, Item 3. Soil density cannot be determined by inspection.

COLA Impact

The above changes will be incorporated in a future revision of the COLA. See page 16 of this enclosure for the COLA markup.

Question 14.03-3
ITAAC Item 2 in Table 2.4-2

This seems that ITA should be both a test and an inspection in order to verify that all concrete used in Nuclear Island structures meets this test.

For Item b. in the AC, what is meant by 'exposure condition' since this term appears to be ambiguous?

Also applicable to the following ITAAC:

ITAAC Item 2 in Table 2.4-3

ITAAC Item 2 in Table 2.4-4

ITAAC Item 2 in Table 2.4-5

ITAAC Item2 in Table 2.4-6

ITAAC Item 5 in Table 2.4-7

ITAAC Item 3 in Table 2.4-8

ITAAC Item 7 in Table 2.4-9

ITAAC Item 4 in Table 2.4-10

Response

Table 2.4-2, Item 2. No changes made. Concrete/water ratio and concrete mixture ingredients cannot be determined by inspection.

Regarding the term "exposure condition." No changes made. Exposure condition (moderate or severe) refers to moderate or severe environments that the concrete is expected to be exposed to. "Exposure condition" is the condition to which the concrete is exposed, i.e., temperature/moisture/load.

COLA Impact
No changes made.

Question 14.03-4
ITAAC Item 1.c.in Table 2.4-7

SRP 14.3, App. A IV.4.B states that the AC, if met, then the ITA demonstrate that the Design Commitments have been met. SRP 14.3 App. A IV.1.A defines "analysis" as a calculation, mathematical computation, or engineering or technical evaluation. "Inspection" is defined as visual observations, physical observations, or a review of records of these activities. "Test" is defined as the actuation, or operation, or establishment or specified conditions to evaluate the performance of components.

Table 2.4-7, Item 1.c. ITA requires the new bulkhead retaining wall must resist the impact of wave forces by "inspection." An inspection is adequate to confirm that the new bulkhead retaining wall is consistent with design documents, but not to satisfy the Commitment Wording requirement that it can resist the impact of wave forces. Verification of structural capability to resist forces is typically established by tests, analyses, or both since it is usually not practical to verify structural capability by visual observation. Should the ITA for this ITAAC include tests and/or analyses?

For Item 1b. for this same ITAAC, the Commitment Wording and the AC do not agree. The bulkhead retaining wall could meet the new design, but it may not extend below the bottom of the CCNPP intake channel at elevation - 20.5 feet.

This is also true of ITAAC Item 2 in Table 2.4-7. The ITA requires the UHS Makeup Water Intake Structure that is Seismic Category I to withstand design basis loads, including static and dynamic loads associated with a flood by "inspection." Should the ITA include tests and/or analyses to demonstrate the intake structure can withstand design basis loads and the dynamic forces of a flood?

For Item 1b. for this same ITAAC, the Commitment Wording and the AC do not agree. The bulkhead retaining wall could meet the new design, but it may not extend below the bottom of the CCNPP intake channel at elevation - 20.5 feet.

This RAI also applies to the following ITAAC:

ITAAC Items 3 and 6 in Table 2.4-7

ITAAC Items 1 and 4 in Table 2.4-8

ITAAC Item 5 in Table 2.4-9

ITAAC Item 2 in Table 2.4-10

Response

Table 2.4-7, Item 1.c. Added "and/or analysis" to ITA.
Table 2.4-7, Item 1.b. Revised as follows: The as-built bulkhead retaining wall will extend below the bottom of the CCNPP Unit 3 intake channel at elevation -20.5 ~~conforms to the approved design~~.
Table 2.4-7, Item 2. Added "and/or analysis" to ITA.
Table 2.4-7, Items 3 and 6. Added "and/or analysis" to ITA.

Table 2.4-8, Items 1 and 4. Added "and/or analysis" to ITA.
Table 2.4-9, Item 5. Added "and/or analysis" to ITA.
Table 2.4-10, Item 2. Added "and/or analysis" to ITA.

COLA Impact

The above changes will be incorporated in a future revision of the COLA. See pages 17, 19, 21, and 22 of this enclosure for the COLA markup.

Question 14.03-5
General:

The ITAAC do not appear to be numbered in a consistent manner.

ITAAC Item 1 in Table 2.4-7 has sub-steps that differentiated by assigned letters. ITAAC Items 7 and 8 in Table 2.4-7 have sub-steps that are assigned numbers not letters.

Evaluate and resolve this discrepancy.

Response

The CCNPP3 ITAAC numbering scheme is currently internally consistent within each individual ITAAC and is not inconsistent with the DCD. If the DCD number formatting is revised in the future, the CCNPP3 ITAAC number formatting will be reviewed for consideration of changes.

COLA Impact

No changes made.

Question 14.03-6
ITAAC Item 7.3 in Table 2.4-7

The Commitment Wording and AC state that penetrations through rated fire walls, floors and ceilings are sealed or otherwise closed with rated penetration seal assemblies. Should the Acceptance Criteria specify numerical values for ratings for the seal assemblies?

Applicable also to following ITAAC:

ITAAC Item 5.3 in Table 2.4-8

ITAAC Item 4.6 in Table 2.4-12

Response

Table 2.4-7, Item 7.3. AC modified to reflect 3-hour rating.
Table 2.4-8, Item 5.3. AC modified to reflect 3-hour rating.
Table 2.4-12, Item 4.6. AC modified to reflect 3-hour rating.

COLA Impact

The above changes will be incorporated in a future revision of the COLA. See pages 18, 20, and 24 of this enclosure for the COLA markup.

Question 14.03-7
ITAAC Item 8 in Table 2.4-7

The letter identifying the first sub-step in AC should be an "a" not a "c".

For the same sub-step, the Commitment Wording and AC are very different. The AC should duplicate the Commitment Wording by using something equivalent to the following words:

"The pump house area of the UHS Makeup Water intake structure is water tight and resists external and internal floods."

Also applicable to the following ITAAC:

ITAAC Item 6 in Table 2.4-8

Evaluate and correct these deficiencies.

Response

Table 2.4-7, Item 8. First sub-step revised to "a" from "c."
The following sub-steps are to be added to Step "c" in Table 2.4-7, item 8:

1. Structural walls and roofs will have water stops at construction joints to prevent leakage.
2. Any pipe, pump shaft, or other penetrations will be sealed with water tight fittings.
3. Access to these spaces will be provided with water tight submarine doors or water tight hatches that open outward.

The following sub-steps are to be added to Step "a" in Table 2.4-8, item 6:

1. Structural walls and roofs will have water stops at construction joints to prevent leakage.
2. Any pipe, pump shaft, or other penetrations will be sealed with water tight fittings.
3. Access to these spaces will be provided with water tight submarine doors or water tight hatches that open outward.

COLA Impact

The above changes will be incorporated in a future revision of the COLA. See pages 18 and 20 of this enclosure for the COLA markup.

Question 14.03-8
ITAAC Item 9 in Table 2.4-7

Table 2.4-7, Item 9 has CW which states that the water tight measures for the UHS Makeup Structure will be designed for the static and dynamic flood forces. The ITA only requires establishing water tight measures for dynamic flood forces. Should the ITA specify static and dynamic flood forces?

Also applicable to following ITAAC:

ITAAC Item 7 in Table 2.4-8

Response

Table 2.4-7, Item 9. Added "static and" before "dynamic flood" in ITA.
Table 2.4-8, Item 7. Added "static and" before "dynamic flood" in ITA.

COLA Impact

The above changes will be incorporated in a future revision of the COLA. See pages 18 and 20 of this enclosure for the COLA markup.

Question 14.03-9
ITAAC Item 1 in Table 2.4-9

The Commitment Wording is more specific than the AC. If the AC is more specific than the Commitment Wording that is okay, but vice versa is not.

The AC should more closely duplicate the Commitment Wording.

Also applicable to the following ITAAC:

ITAAC Item 2 in Table 2.4-9

ITAAC Item 5 in Table 2.4-9

ITAAC Item 6 in Table 2.4-24

ITAAC Item 7 in Table 2.4-24

ITAAC Item 2 in Table 2.4-26 for Item a.

Evaluate and resolve these deficiencies.

Response

Table 2.4-9, Item 1. AC revised to more closely mimic commitment wording.
Table 2.4-9, Item 2. AC revised to more closely mimic commitment wording.
Table 2.4-9, Item 5. AC revised to more closely mimic commitment wording.
Table 2.4-24, Item 6. AC revised to more closely mimic commitment wording.
Table 2.4-24, Item 7. AC revised to more closely mimic commitment wording.
Table 2.4-24, Item 16. AC revised to more closely mimic commitment wording.
Table 2.4-26, Item 2.a. CW revised to delete sub-items 1 through 4 as they are not necessary. This deletion brings the level of detail in the AC in line with the level of detail in the CW.

COLA Impact

The above changes will be incorporated in a future revision of the COLA. See pages 21, 35, 36, and 37 of this enclosure for the COLA markup.

Question 14.03-10
ITAAC Item 2 in Table 2.4-11

An inspection would be appropriate here to determine if the Turbine Building was built as designed structurally. This inspection would provide key information for the analysis since the analysis is not performed until the Turbine Building is built.

Also applicable to following ITAAC:

ITAAC Item 2 in Table 2.4-12
ITAAC Item 1 in Table 2.4-13
ITAAC Item 1 in Table 2.4-14
ITAAC Item 1 in Table 2.4-15
ITAAC Item 1 in Table 2.4-16
ITAAC Item 1 in Table 2.4-17
ITAAC Item 1 in Table 2.4-18
ITAAC Item 1 in Table 2.4-19
ITAAC Item 1 in Table 2.4-20

Evaluate and resolve these deficiencies.

Response

Table 2.4-11, Item 2. Added "inspection and/or" to ITA.
Table 2.4-12, Item 2. Added "inspection and/or" to ITA.
Table 2.4-13, Item 1. Added "inspection and/or" to ITA.
Table 2.4-14, Item 1. Added "inspection and/or" to ITA.
Table 2.4-15, Item 1. Added "inspection and/or" to ITA.
Table 2.4-16, Item 1. Added "inspection and/or" to ITA.
Table 2.4-17, Item 1. Added "inspection and/or" to ITA.
Table 2.4-18, Item 1. Added "inspection and/or" to ITA.
Table 2.4-19, Item 1. Added "inspection and/or" to ITA.
Table 2.4-20, Item 1. Added "inspection and/or" to ITA.

COLA Impact

The above changes will be incorporated in a future revision of the COLA. See pages 24, 25, 26, 27, 28, 29, 30, 31, and 32 of this enclosure for the COLA markup.

Question 14.03-11
ITAAC Item 1 in Table 2.4-21

SRP 14.3, App. A IV.4.B states that acceptance criteria should be objective and unambiguous.

Table 2.4-21, Item 1 has statement in CW that each mechanical division of the UHS Makeup Water Intake Structure Ventilation System shall be physically separated. The ITA requires inspection, but the AC states that the mechanical divisions will be separated by structural and/or fire barriers. What is the rating of the fire barriers and would an analysis be required in addition to inspections to determine if the fire barriers were sufficient to act as barriers between one division and another?

This is also applies to the following item:

ITAAC Item 2 in Table 2.4-22

Response

Table 2.4-21, Item 1. (Actually referring to Item 2.) Item 2 AC revised to indicate that the divisions are 3-hour fire barriers. Item 2 ITA revised to add "and/or analysis" to inspections.
Table 2.4-22, Item 2. AC revised to indicate that the divisions are 3-hour fire barriers. Item 2 ITA revised to add "and/or analysis" to inspections.

COLA Impact

The above changes will be incorporated in a future revision of the COLA. See pages 33 and 34 of this enclosure for the COLA markup.

Question 14.03-12
ITAAC Item 3 in Table 2.4-21

SRP 14.3 App. A IV.1.A defines "analysis" as a calculation, mathematical computation, or engineering or technical evaluation. "Inspection" is defined as visual observations, physical observations, or a review of records of these activities. "Test" is defined as the actuation, or operation, or establishment or specified conditions to evaluate the performance of components.

The Commitment Wording states, "Each division of the UHS Makeup Water Structure Ventilation System shall be electrically independent." The ITA column states only that inspections of the as-built system will be conducted. Electrical independence generally requires both physical separation and electrical isolation. Although inspection is appropriate to assess physical separation, it is not an adequate method to assess electrical isolation. Therefore the inspector will require a suitable method to assess whether electrical isolation exists. This is generally accomplished by tests, analyses, or a combination of these. Why doesn't the ITA column provide for an appropriate method to assess electrical isolation?

Also applicable to the following ITAAC:

ITAAC Item 3 in Table 2.4-22
ITAAC Item 4 in Table 2.4-24

Response

Table 2.4-21, Item 3. Added "and/or analysis" to ITA.
Table 2.4-22, Item 3. Added "and/or analysis" to ITA.
Table 2.4-24, Item 4. Added "and/or analysis" to ITA.

COLA Impact

The above changes will be incorporated in a future revision of the COLA. See pages 33, 34, and 35 of this enclosure for the COLA markup.

Question 14.03-13
ITAAC Item 2 in Table 2.4-29
SRP 14.3 App. A IV.1.A defines "analysis" as a calculation, mathematical computation, or engineering or technical evaluation. "Inspection" is defined as visual observations, physical observations, or a review of records of these activities.

The Table 2.4-29, Item 3 Commitment Wording states, "Each Emergency Auxiliary Transformer shall be connected to the Switchyard via an independent circuit, sized to supply the four Emergency Power Supply System divisions." The ITA column states only that inspections of the as-built system will be conducted. Verification of adequate circuit sizing requires an analysis of loads. Why doesn't the ITA column provide for an analysis of the loads on the four Emergency Power Supply System divisions to assess adequate sizing of the circuits from the Emergency Auxiliary Transformers?

Response

Table 2.4-29, Item 3. Added "and/or analysis" to ITA.

COLA Impact

The above changes will be incorporated in a future revision of the COLA. See page 38 of this enclosure for the COLA markup.

Table 2.4-1—{Structural Fill and Backfill Under Seismic Category I and Seismic Category II-SSE Structures Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	For Seismic Category I and Seismic Category II-SSE structures, structural fill and backfill is sound, durable, well-graded sand or sand and gravel, with maximum 25 percent fines content, and free of organic matter, trash, and deleterious materials.	Tests will be performed to establish the acceptability of the structural fill and backfill. and inspections	For Seismic Category I and Seismic Category II-SSE structures, structural fill and backfill is sound, durable, well-graded sand or sand and gravel, with maximum 25 percent fines content (minus #200 U.S. Sieve) , and free of organic matter, trash, and deleterious materials.
2	The following soil properties are used for design of U.S. EPR Seismic Category I and Seismic Category II-SSE structures: a. Soil density: 1. Saturated soil = 134 lb/ft^3. 2. Moist soil = 128 lb/ft^3. 3. Dry soil = 110 lb/ft^3. b. Angle of internal friction = 35 degrees. c. Coefficient of friction acting on foundation base mats and near surface foundations for Seismic Category I structures = 0.7.	Tests will be performed to establish the static and dynamic properties of the structural fill and backfill.	The structural fill and backfill conforms to the following soil properties: a. The soil density conforms to the U.S. EPR Design requirement. b. Angle of internal friction ≥ 35 degrees. c. Coefficient of friction acting on foundation base mats and near surface foundations for Seismic Category I structures ≥ 0.7.
3	The installed fill and backfill for Seismic Category I and Seismic Category II-SSE foundations and walls meets the minimum soil density design requirements.	Tests will be performed during placement of the structural fill and backfill materials.	For Seismic Category I and Seismic Category II-SSE Structures, installed structural fill and backfill is compacted to minimum 95 percent of its maximum dry density, as determined based on the modified Proctor compaction test procedure, and within 3 percent of its optimum moisture content.
4	The minimum shear wave velocity (low strain best estimate average value) is 1000 ft per second at the bottom of the base mats for Seismic Category I and Seismic Category II-SSE structures.	Tests will be performed to confirm the backfill shear wave velocity at the bottom of the base mats for Seismic Category I and Seismic Category II-SSE structures.	A report exists that confirms the backfill shearwave velocity (low strain best estimate averagevalue) is ~~1000~~ 1000 ft per second at the bottom ofthe base mats for Seismic Category I andSeismic Category II-SSE structures.

Table 2.4-7—{Ultimate Heat Sink Makeup Water Intake Structure Inspections, Tests, Analyses, and Acceptance Criteria}

(Page 1 of 2)

will extend below the bottom of the CCNPP Unit 3 intake channel at Elevation -20.5 ft.

	Commitment Wording	Inspection, Test, or Analysis	ria
1	a. The existing bulkhead retaining wall will be extended along the northeast side of the UHS Makeup Water Intake Structure. b. The new bulkhead retaining wall will extend below the bottom of the CCNPP Unit 3 intake channel at Elevation -20.5 ft.. c. The new bulkhead retaining wall can resist the impact of wave forces.	a. An inspection of the as-built structure will be conducted. b. An inspection of the as-built structure will be conducted. c. An inspection of the as-built structure will be conducted.	taining wall heast side of the UHS Makeup Water Intake Structure. b. The as-built bulkhead retaining wall ~~conforms to the approved design.~~ c. The as-built bulkhead retaining wall conforms to the approved design and can resist the impact of wave forces.
2	The UHS Makeup Water Intake Structure is Seismic Category I and can withstand design basis loads, including the static and dynamic forces associated with a flood, without a loss of structural integrity.	An inspection of the as-built structure will be conducted.	The as-built UHS Makeup Water Intake Structure conforms to the approved design and is capable of withstanding the design basis loads, including static and dynamic flood forces, without loss of integrity.
3	The retaining wall surrounding the CCNPP Unit 3 Intake Channel (i.e., Forebay) is designated as Seismic Category II, and can withstand design basis seismic load without a loss of structural integrity.	An inspection of the as-built structure will be conducted.	The as-built retaining wall surrounding the CCNPP Unit 3 Intake Channel conforms to the approved design and withstands the design basis seismic load without loss of integrity.
4	For the UHS Makeup Water Intake Structure's below grade concrete foundation and walls, a waterproofing membrane is utilized to eliminate direct contact of ground water chemicals.	An inspection of the as-built structure will be conducted.	For the as-built UHS Makeup Water Intake Structure's below grade concrete foundation and walls, the as-installed waterproofing membrane eliminates direct contact of ground water chemicals.
5	For the UHS Makeup Water Intake Structure's below grade concrete foundation and walls, a low water to cement ratio concrete and improved concrete mixture design will be utilized.	Tests will be conducted to ensure the concrete meets specific parameters.	The concrete utilized to construct the as-built UHS Makeup Water Intake Structure's below grade concrete foundation and walls met the following: a. A maximum water to cementitious materials ratio of 0.45. b. Contains a quantity of supplementary cementitious material appropriate for the exposure condition.
6	The interior structures housing each mechanical division of the UHS Makeup Water Supply System in the UHS Makeup Water Intake Structure can withstand the static and dynamic forces associated with a flood, without a loss of structural integrity.	An inspection of the as-built structure will be conducted.	The interior structures housing each mechanical division of the UHS Makeup Water Supply System in the as-built UHS Makeup Water Structure conform to the approved design and is capable of withstanding the static and dynamic forces associated with a flood, without a loss of structural integrity.

and/or analysis

and/or analysis

Table 2.4-7—{Ultimate Heat Sink Makeup Water Intake Structure Inspections, Tests, Analyses, and Acceptance Criteria}

(Page 2 of 2)

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
7	The configuration of the UHS Makeup Water Intake Structure separates each mechanical division of the UHS Makeup Water Supply System. The separation measures are: 1. 3-hour rated fire barriers. 2. Door openings, ventilation system openings, and ductwork penetrations that penetrate 3-hour rated fire barriers will have at least 3-hour fire rated doors or 3-hour fire rated dampers. 3. Penetrations through fire rated walls, floors, and ceilings are sealed or otherwise closed with rated penetration seal assemblies.	a. Type tests, analyses, or a combination of type tests ~~or~~ analyses ~~is~~ will be performed to establish that the fire barriers, doors, dampers, and penetrations are properly qualified. b. An inspection of the as-built barriers, doors, dampers, and penetrations will be conducted.	a. The fire barriers, doors, dampers, and penetrations that separate each mechanical division of the as-built UHS Makeup Water Intake Structure consist of the following: 1. 3-hour rated fire barriers. 2. Door openings, ventilation system openings, and ductwork penetrations that penetrate 3-hour rated fire barriers are at least 3-hour fire rated doors or 3-hour fire rated dampers. 3. Penetrations through fire rated walls, floors, and ceilings are sealed or otherwise closed with rated penetration seal assemblies. b. The as-built configuration of fire barriers, doors, dampers, and penetrations that separate each mechanical division of the UHS Makeup Water Supply in the as-built UHS Makeup Water Intake Structure conforms to the design
8	The pump house area of the UHS Makeup Water Intake Structure will be water tight to resist external and internal floods:. 1. Structural walls and roofs will have water stops at all construction joints to prevent leakage. 2. Any pipe, pump shaft, or other penetrations will be sealed with water tight fittings. 3. Access to these spaces will be provided with water tight submarine doors or water tight hatches that open outward.	a. Type tests or tests will be performed to establish that the water protection measures are water tight. b. An inspection of the water stops, fittings, submarine doors, and hatches will be conducted.	c. The water stops, fittings, submarine doors, and hatches in the as-built UHS Makeup Water Intake Structure are water tight. b.1. Water stops are installed in the construction joints in structural walls and roofs in accordance with manufacturer's recommendations. b.2. Water tight fittings for seal pipes, pumps shafts, and other penetrations are installed in accordance with manufacturer's recommendations. b.3. Water tight submarine doors or water tight hatches are installed in the access ways in accordance with manufacturer's recommendations, including opening outward.
9	The water tight measures (i.e., water stops, fittings, submarine doors, and hatches) for the UHS Makeup Water Intake Structure will also be designed for the static and dynamic flood forces resulting from the PMH water levels and wave forces.	Type tests or analyses will be performed to establish that the water tight measures are capable of withstanding the dynamic flood forces.	A report exists that establishes that the water tight measures (i.e., water stops, fittings, submarine doors, and hatches) for the UHS Makeup Water Intake Structure can withstand the static and dynamic flood forces.

and

3-hour

a.

static and

1. Structural walls and roofs will have water stops at construction joints to prevent leakage.
2. Any pipe, pump shaft, or other penetrations will be sealed with water tight fittings.
3. Access to these spaces will be provided with water tight submarine doors or water tight hatches that open outward.

Note to Certrec:
The numbered steps for the insert after Step a should be indented.

Table 2.4-8—{Ultimate Heat Sink Electrical Building Inspections, Tests, Analyses, and Acceptance Criteria}

(Page 1 of 2)

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	The UHS Electrical Building is Seismic Category I, and can withstand design basis loads, including the static and dynamic forces associated with a flood, without a loss of structural integrity.	An inspection of the as-built structure will be conducted. and/or analysis	The as-built UHS Electrical Building conforms to the approved design and is capable of withstanding the design basis loads, including static and dynamic flood forces, without loss of integrity.
2	For the UHS Electrical Building's below grade concrete foundation and walls, a waterproofing membrane is utilized to eliminate direct contact of ground water chemicals.	An inspection of the as-built structure will be conducted.	For the as-built UHS Electrical Building's below grade concrete foundation and walls, the waterproofing membrane eliminates direct contact of ground water chemicals.
3	For the UHS Electrical Building's below grade concrete foundation and walls, a low water to cement ratio concrete and improved concrete mixture design will be utilized.	Tests will be conducted to ensure the concrete meets specific parameters. and/or analysis	The concrete utilized to construct the as-built UHS Electrical Building's below grade concrete foundation and walls met the following: a. A maximum water to cementitious materials ratio of 0.45. b. Contains a quantity of supplementary cementitious material appropriate for the exposure condition.
4	The interior structures housing the electrical divisions for the UHS Makeup Water System in the UHS Electrical Building can withstand the static and dynamic forces associated with a flood, without a loss of structural integrity.	An inspection of the as-built structure will be conducted.	The interior structures housing the electrical divisions for the UHS Makeup Water System in the as-built UHS Electrical Building conform to the approved design and is capable of withstanding the static and dynamic forces associated with a flood, without a loss of structural integrity.

Table 2.4-8—{Ultimate Heat Sink Electrical Building Inspections, Tests, Analyses, and Acceptance Criteria}

(Page 2 of 2)

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
5	The configuration of the UHS Electrical Building separates each electrical division of the UHS Makeup Water Supply System. The separation measures are: 1. 3-hour rated fire barriers. 2. Door openings, ventilation system openings, and ductwork penetrations that penetrate 3-hour rated fire barriers will have at least 3-hour fire rated doors or 3-hour fire rated dampers. 3. Penetrations through fire rated walls, floors, and ceilings are sealed or otherwise closed with rated penetration seal assemblies.	a. Type tests, analyses, or a combination of type tests or analyses is will be performed to establish that the fire barriers, doors, dampers, and penetrations are properly qualified. b. An inspection of the as-built barriers, doors, dampers, and penetrations will be conducted.	a. The fire barriers, doors, dampers, and penetrations that separate each electrical division of the as-built UHS Electrical Building consist of the following: 1. 3-hour rated fire barriers. 2. Door openings, ventilation system openings, and ductwork penetrations that penetrate 3-hour rated fire barriers are at least 3-hour fire rated doors or 3-hour fire rated dampers. 3. Penetrations through fire rated walls, floors, and ceilings are sealed or otherwise closed with rated penetration seal assemblies. b. The as-built configuration of fire barriers, doors, dampers, and penetrations that separate each mechanical division of the UHS Makeup Water Supply in the as-built UHS Electrical Building conforms to the design.
6	The UHS Electrical Building will be water tight to resist external floods: 1. Structural walls and roofs will have water stops at all construction joints to prevent leakage. 2. Any pipe, pump shaft, or other penetrations will be sealed with water tight fittings. 3. All access to these spaces will be provided with water tight submarine doors or water tight hatches that open outward.	a. Type tests or tests will be performed to establish that the water protection measures are water tight. b. An inspection of the water stops, fittings, submarine doors, and hatches will be conducted.	a. The water stops, fittings, submarine doors, and hatches in the as-built UHS Electrical Building are water tight b.1 Water stops are installed in the construction joints in structural walls and roofs in accordance with manufacturer's recommendations. b.2 Water tight fittings for seal pipes, pumps shafts, and other penetrations are installed in accordance with manufacturer's recommendations. b.3 Water tight submarine doors or water tight hatches are installed in the access ways in accordance with manufacturer's recommendations, including opening outward.
7	The water tight measures (i.e., water stops, fittings, submarine doors, and hatches) for the UHS Electrical Building will also be designed for the static and dynamic flood forces resulting from the PMH water levels and wave forces.	Type tests or analyses will be performed to establish that the water tight measures are capable of withstanding the dynamic flood forces.	A report exists that establishes that the water tight measures (i.e., water stops, fittings, submarine doors, and hatches) for the UHS Electrical Building can withstand the static and dynamic flood forces.

1. Structural walls and roofs will have water stops at construction joints to prevent leakage.
2. Any pipe, pump shaft, or other penetrations will be sealed with water tight fittings.
3. Access to these spaces will be provided with water tight submarine doors or water tight hatches that open outward.

3-hour

static and

Note to Certrec:
The numbered steps for the insert after Step a in Item 6, above, should be indented.

Table 2.4-9—{Buried Duct Banks and Pipes Inspections, Tests, Analyses, and Acceptance Criteria}}

(Page 1 of 2)

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	Seismic Category I buried electrical duct banks traverse from: 1. The UHS Makeup Water Intake Structure to the UHS Electrical Building. 2. Each Essential Service Water Building to the UHS Electrical Building, including underneath the main heavy haul road. 3. The Safeguards Buildings to the four Essential Service Water Buildings and both Emergency Power Generating Buildings.	Inspections of the as-built buried Seismic Category I electrical duct banks will be conducted.	The as-built, buried, Seismic Category I electrical duct banks are located as ~~designed.~~ follows: 1. The UHS Makeup Water Intake Structure to the UHS Electrical Building. 2. Each Essential Service Water Building to the UHS Electrical Building, including underneath the main heavy haul road. 3. The Safeguards Buildings to the four Essential Service Water Buildings and both Emergency Power Generating Buildings.
2	Seismic Category I buried ESW piping consists of: 1. Large diameter supply and return pipes between the Safeguards Buildings and the ESW Buildings. 2. Small diameter supply and return pipes from the Emergency Power Generating Buildings which tie in directly to the aforementioned pipes.	Inspections of the as-built buried Seismic Category I pipes will be conducted.	The as-built, buried, Seismic Category I pipes are located as ~~designed.~~ follows: 1. Large diameter supply and return pipes between the Safeguards Buildings and the ESW Buildings. 2. Small diameter supply and return pipes from the Emergency Power Generating Buildings which tie in directly to the aforementioned pipes.
3	Concrete components of buried Seismic Category I electrical duct banks and pipes will be designed in accordance with ACI 349-2001, including the exceptions specified in Regulatory Guide 1.142.	Analysis of the as-designed concrete components of buried Seismic Category I electrical duct banks and pipes will be performed.	The as-designed concrete components of buried Seismic Category I electrical duct banks and pipes conform to ACI 349-2001, including the exceptions specified in Regulatory Guide 1.142.
4	Steel components of buried Seismic Category I electrical duct banks and pipes will be designed in accordance with ANSI/AISC N690-1994 (R2004), including Supplement 2.	Analysis of the as-designed steel components of buried Seismic Category I electrical duct banks and pipes will be performed.	The as-designed steel components of buried Seismic Category I electrical duct banks and pipes conform to ANSI/AISC N690-1994 (R2004), including Supplement 2.
5	The buried Seismic Category I electrical duct banks and pipes can withstand design basis loads without loss of structural integrity. These loads are: 1. Strains imposed by seismic ground motion. 2. Static surface surcharge loads due to vehicular loads on designated haul routes. 3. Static surface surcharge loads during construction activities. 4. Tornado missiles and, within their zone of influence, turbine generated missiles. 5. Ground water effects.	An inspection of the as-built buried Seismic Category I electrical duct banks and pipes will be conducted. and/or analysis	As-built buried Seismic Category I electrical duct banks and pipes conform to the approved design and can withstand the following design basis loads without loss of structural ~~integrity.~~ integrity: 1. Strains imposed by seismic ground motion. 2. Static surface surcharge loads due to vehicular loads on designated haul routes. 3. Static surface surcharge loads during construction activities. 4. Tornado missiles and, within their zone of influence, turbine generated missiles. 5. Ground water effects.

Table 2.4-10—{Fire Protection Building Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	The Fire Protection Building will house the following equipment: a. Diesel Driven Fire Pumps, Drivers, and associated piping, valves, equipment, instruments and controls. b. Diesel Fuel Oil Supply Day Tank and associated piping, valves, equipment, instruments, and controls.	An inspection of the as-built structure will be conducted.	The as-built Fire Protection Building houses the: a. Diesel Driven Fire Pumps, Drivers and associated piping, valves, equipment, instruments and controls. b. Diesel Fuel Oil Supply Day Tank and associated piping, valves, equipment, instruments, and controls.
2	The Fire Protection Building is classified as Seismic Category II-SSE, and can withstand seismic design basis loads without losing its structural integrity.	An inspection of the as-built structure will be conducted. and/or analysis	The as-built Fire Protection Building conforms to the approved design and can withstand seismic design basis loads without loss of structural integrity.
3	For the Fire Protection Building's concrete foundation and walls exposed to ground water, a waterproofing membrane is utilized to eliminate direct contact of ground water chemicals.	An inspection of the as-built structure will be conducted.	For the as-built Fire Protection Building's below grade concrete foundation and walls, the as-installed waterproofing membrane eliminates direct contact of ground water chemicals.
4	For the Fire Protection Building's concrete foundation and walls exposed to ground water, a low water to cement ratio concrete and improved concrete mixture design will be utilized.	Tests will be conducted to ensure the concrete meets specific parameters.	The concrete utilized to construct the as-built Fire Protection Building's below grade concrete foundation and walls met the following: a. A maximum water to cementitious materials ratio of 0.45. b. Contains a quantity of supplementary cementitious material appropriate for the exposure condition.

Table 2.4-11—{Turbine Building Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	a. The Turbine Building is located in a radial position with respect to the Reactor Building, but is independent from the Nuclear Island. b. The Turbine Building is oriented to minimize the effects of any potential turbine generated missiles.	a. An inspection of the as-built structure will be conducted. b. An analysis of the as-built structure's location and orientation will be conducted.	a. The as-built Turbine Building location is in a radial position with respect to the as-built Reactor Building, and is independent from the as-built Nuclear Island. b. The as-built Turbine Building's location and orientation are consistent with the assumptions utilized in the analysis of the potential turbine missiles.
2	The Turbine Building will not impact the ability of any safety-related structure, system, or component to perform its safety function following a seismic event.	An analysis of the as-built structure will be conducted. inspection and/or	A report exists and concludes that under seismic loads the as-built Turbine Building will not impact the ability of any safety-related structure, system or component to perform its safety function.
3	The Turbine Building houses the components of the steam condensate main feedwater cycle, including the turbine-generator.	An inspection of the as-built structure will be conducted.	The as-built Turbine Building houses the components of the steam condensate main feedwater cycle, including the turbine-generator, in accordance with the design.

Table 2.4-12—{Switchgear Building Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	The Switchgear Building is located adjacent to and contiguous with the Turbine Building.	An inspection of the as-built structure will be conducted.	The as-built Switchgear Building is located adjacent to and contiguous with the as-built Turbine Building.
2	The Switchgear Building will not impact the ability of any safety-related structure, system, or component to perform its safety function following a seismic event.	An analysis of the as-built structure will be conducted. inspection and/or	A report exists and concludes that under seismic loads the as-built Switchgear Building will not impact the ability of any safety-related structure, system or component to perform its safety function.
3	The Switchgear Building contains the power supplies and the instrumentation and controls for the Turbine Island, the balance of plant, and the SBO diesel generators.	An inspection of the as-built structure will be conducted.	The as-built Switchgear Building houses the power supplies and the instrumentation and controls for the Turbine Island, the balance of plant, and the SBO diesel generators, in accordance with the design.
4	The configuration of the Switchgear Building separates each SBO Diesel Generator and its supporting equipment from the other equipment in the Switchgear Building or Turbine Building by barriers, doors, dampers and penetrations as follows: 1. 3-hour fire rated barriers separate the Station Blackout diesel tank rooms from the other adjacent areas. 2. 3-hour fire rated barriers separate the adjacent Turbine Building. 3. 2-hour rated fire barriers separate all other contiguous areas, as well as redundant trains within those areas. 4. Door openings, ventilation system openings, and ductwork penetrations that penetrate 3-hour rated fire barriers will have at least 3-hour fire rated doors or 3-hour fire rated dampers. 5. Door openings, ventilation system openings, and ductwork penetrations that penetrate 2-hour rated fire barriers will have at least 1-½ hour fire rated doors or 1-½ hour fire rated dampers. 6. Penetrations through fire rated walls, floors, and ceilings are sealed or otherwise closed with rated penetration seal assemblies.	a. An analysis will be performed to establish that the fire barriers, doors, dampers, and penetrations have the appropriate fire rating. b. An inspection of the as-built barriers, doors, dampers, and penetrations will be conducted.	a. The fire barriers, doors, dampers, and penetrations that separate each SBO Diesel Generator and its supporting equipment from the other equipment in the as-built Switchgear Building or as-built Turbine Building consist of the following: 1. 3-hour fire rated barriers separate the SBO diesel tank rooms from the other adjacent. 2. 3-hour fire rated barriers separate the adjacent Turbine Building. 3. 2-hour rated fire barriers separate all other contiguous areas, as well as redundant trains within those areas. 4. Door openings, ventilation system openings, and ductwork penetrations that penetrate 3-hour rated fire barriers are at least 3-hour fire rated doors or 3-hour fire rated dampers. 5. Door openings, ventilation system openings, and ductwork penetrations that penetrate 2-hour rated fire barriers are at least 1-½ hour fire rated doors or 1-½ hour fire rated dampers. 6. Penetrations through fire rated walls, floors, and ceilings are sealed or otherwise closed with 3-hour rated penetration seal assemblies. b. The configuration of fire barriers, doors, dampers, and penetrations that separate each SBO Diesel Generator and its supporting equipment from the other equipment in the as-built Switchgear Building or as-built Turbine Building conforms to the design.

Table 2.4-13—{Warehouse Building Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	The Warehouse Building will not impact the ability of any safety-related structure, system, or component to perform its safety function following a seismic event.	An analysis of the as-built structure will be conducted. inspection and/or	A report exists and concludes that under seismic loads the as-built Warehouse Building will not impact the ability of any safety-related structure, system or component to perform its safety function.

Table 2.4-14—{Security Access Building Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	The Security Access Building will not impact the ability of any safety-related structure, system, or component to perform its safety function following a seismic event.	An analysis of the as-built structure will be conducted. inspection and/or	A report exists and concludes that under seismic loads the as-built Security Access Building will not impact the ability of any safety-related structure, system or component to perform its safety function.
2	The Security Access Building controls access to the plant's controlled areas.	An inspection of the as-built structure will be conducted.	The as-built Security Access Building provides access to the plant's controlled areas.

Table 2.4-15—{Central Gas Supply BuildingInspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	The Central Gas Supply Building will not impact the ability of any safety-related structure, system, or component to perform its safety function following a seismic event.	An analysis of the as-built structure will be conducted. inspection and/or	A report exists and concludes that under seismic loads the as-built Central Gas Supply Building will not impact the ability of any safety-related structure, system or component to perform its safety function.

Table 2.4-16—{Grid Systems Control Building Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	The Grid Systems Control Building will not impact the ability of any safety-related structure, system, or component to perform its safety function following a seismic event.	An analysis of the as-built structure will be conducted. inspection and/or	A report exists and concludes that under seismic loads the as-built Grid Systems Control Building will not impact the ability of any safety-related structure, system or component to perform its safety function.

Table 2.4-17—{Circulating Water Cooling Tower Structure Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	The Circulating Water Cooling Tower Structure will not impact the ability of any safety-related structure, system, or component to perform its safety function following a seismic event.	An analysis of the as-built structure will be conducted. inspection and/or	A report exists and concludes that under seismic loads the as-built Circulating Water Cooling Tower Structure will not impact the ability of any safety-related structure, system or component to perform its safety function.

Table 2.4-18—{Circulating Water Pump Building Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	The Circulating Water Pump Building will not impact the ability of any safety-related structure, system, or component to perform its safety function following a seismic event.	An analysis of the as-built structure will be conducted. inspection and/or	A report exists and concludes that under seismic loads the as-built Circulating Water Pump Building will not impact the ability of any safety-related structure, system or component to perform its safety function.

Table 2.4-19—{Circulating Water Makeup Intake Structure Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	The Circulating Water Makeup Intake Structure will not impact the ability of any safety-related structure, system, or component to perform its safety function following a seismic event.	An analysis of the as-built structure will be conducted. inspection and/or	A report exists and concludes that under seismic loads the as-built Circulating Water Makeup Intake Structure will not impact the ability of any safety-related structure, system or component to perform its safety function.

Table 2.4-20—{Desalinization / Water Treatment Building Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	The Desalinization / Water Treatment Building will not impact the ability of any safety-related structure, system, or component to perform its safety function following a seismic event.	An analysis of the as-built structure will be conducted. inspection and/or	A report exists and concludes that under seismic loads the as-built Desalinization / Water Treatment Building will not impact the ability of any safety-related structure, system or component to perform its safety function.

Table 2.4-21—{Ultimate Heat Sink Makeup Water Intake Structure Ventilation System Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	There are four divisions of the UHS Makeup Water Intake Structure Ventilation System.	Inspection of the as-built system shall be conducted.	The as-built UHS Makeup Water Intake Structure Ventilation System has four divisions.
2	Each mechanical division of the UHS Makeup Water Intake Structure Ventilation System shall be physically separated.	Inspections of the as-built system shall be conducted. and/or analysis	Each mechanical division of the as-built UHS Makeup Water Intake Structure Ventilation System is physically separated from other mechanical divisions by structural and/or fire barriers. 3-hour
3	Each division of the UHS Makeup Water Intake Structure Ventilation System shall be electrically independent.	Inspections of the as-built system shall be conducted. and/or analysis	For the as-built UHS Makeup Water Intake Structure Ventilation System, electrical isolation exists between each division of Class 1E components and between Class 1E components and non-class 1E components.
4	Each division of the UHS Makeup Water Intake Structure Ventilation System is powered by their respective Class 1E division.	Tests are conducted by powering each Class 1E division separately.	Only the Class 1E division under test is powered.
5	The ASME AG-1 UHS Makeup Water Intake Structure Ventilation System equipment is designed and constructed in accordance with ASME AG-1 Code.	An inspection of the as-built system will be conducted.	The as-built ASME AG-1 UHS Makeup Water Intake Structure Ventilation System equipment conforms to the ASME AG-1 Code.
6	UHS Makeup Water Intake Structure Ventilation System equipment, piping, and ducting is designated as Seismic Category I, and can withstand design basis seismic loads without loss of safety function.	a. Type tests, tests, analyses, or a combination of tests and analyses will be performed on the equipment, piping, and ducting. b. Inspections will be conducted of the as-built equipment, piping, and ducting. c. Inspections will be conducted of the as-installed equipment supports and restraints.	a. The equipment, piping, and ducting designated as Seismic Category I for the as-built UHS Makeup Water Intake ~~Structure~~ and ducting can ~~withstand design basis seismic~~ loads without loss ~~of~~ safety function. b. The UHS Makeup Water Intake Structure VentilationSystem equipment, piping, ~~and~~ducting designated as SeismicCategory I are installed as designed. c. The as-built equipment supports and restraints are seismically bounded by tested or analyzed conditions.
7	Each division of the UHS Makeup Water Intake Structure Ventilation System will support the operation of its associated electrical division of the UHS Makeup Water System by maintaining a minimum temperature of 41°F (5°) and a maximum temperature of 104°F (40°)	Tests, analyses, or a combination of tests and analyses will be performed.	Each division of the as-built UHS Makeup Water Intake Structure Ventilation System maintains the temperature in its divisions . 41°F (5°) and ≤104 °F (40°) upon receipt
8	Each division of the UHS Makeup Water Intake Structure Ventilation System is initiated automatically.	Tests of the as-built system will be conducted by supplying a simulated signal to each as-built division.	Each division of the as-built UHS Makeup Water Intake Structure Ventilation System starts ~~upon~~receipt of a simulated automatic initiation signal.

Table 2.4-22—{Ultimate Heat Sink Electrical Building Ventilation System Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	There are four divisions of the UHS Electrical Building Ventilation System.	Inspection of the as-built system shall be conducted.	The UHS as-built Electrical Building Ventilation System has four divisions.
2	Each mechanical division of the UHS Electrical Building Ventilation System shall be physically separated.	Inspections of the as-built system shall be conducted. and/or analysis	Each mechanical division of the as-built UHS Electrical Building System is physically separated from other mechanical divisions by structural and/or fire barriers. 3-hour
3	Each division of the UHS Electrical Building Ventilation System shall be electrically independent.	Inspections of the as-built system shall be conducted. and/or analysis	For the as-built UHS Electrical Building System, electrical isolation exists between each division of Class 1E components and between Class 1E components and non-class 1E components.
4	Each division of the UHS Electrical Building Ventilation System is powered by their respective Class 1E division.	Tests will be performed by powering only one Class 1E division at a time.	Only the Class 1E division under test is powered.
5	The ASME AG-1 UHS Electrical Building Ventilation System equipment is designed and constructed in accordance with ASME AG-1 Code.	An inspection of the as-built equipment will be conducted.	The as-built ASME AG-1 UHS Electrical Building Ventilation System equipment conforms to the ASME AG-1 Code.
6	UHS Electrical Building Ventilation System equipment, piping, and ducting is designated as Seismic Category I, and can withstand a design basis seismic load without loss of safety function.	a. Type tests, tests, analyses, or a combination of tests and analyses will be performed on the equipment, piping, and ducting. b. Inspections will be conducted of the as-built equipment, piping, and ducting. c. Inspections will be conducted of the as-installed equipment supports and restraints.	a. The as-installed UHS Electrical Building Ventilation System equipment, piping, and ducting designated as Seismic Category I ~~in~~ can withstand a design basis seismic load without loss of safety function. b. The UHS Electrical Building Ventilation System equipment, piping, and ducting designated as Seismic Category I are installed as designed. c. The as-installed equipment supports and restraints are seismically bounded by tested or analyzed conditions.
7	Each division of the UHS Electrical Building Ventilation System will support the operation of its associated electrical division of the UHS Makeup Water System by maintaining a minimum temperature of 41°F (5°) and a maximum temperature of 104°F (40°).	Tests, analyses, or a combination of tests and analyses will be performed.	Each division of the as-built UHS Electrical Building Ventilation System maintains the temperature in its divisions ≥ 41°F (5°) and ≤ 104 °F (40°).
8	Each division of the UHS Electrical Building Ventilation System is initiated automatically.	Tests of the as-built system will be conducted by supplying a simulated signal to each as-built division.	Each division of the as-built UHS Electrical Building Ventilation System starts upon receipt of a simulated automatic initiation signal.

Table 2.4-24—{Ultimate Heat Sink Makeup Water System Inspections, Tests, Analyses, and Acceptance Criteria}

(Page 1 of 3)

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	There are four divisions of the UHS Makeup Water System.	Inspection ~~of~~ the as-built system shall be conducted.	The as-built UHS Makeup Water System has four divisions.
2	Each division of the UHS Makeup Water System is powered by their respective Class 1E division.	Tests will be performed by powering only one Class 1E division at a time.	Only the Class 1E division under test is powered. and/or analysis
3	Each mechanical division of the UHS Makeup Water System shall be physically separated.	Inspections of the as-built system shall be conducted.	Each mechanical division of the as-built UHS Makeup Water System is physically separated from other mechanical divisions by structural and/or fire barriers.
4	Each division of the UHS Makeup Water System shall be electrically independent.	Inspections of the as-built system shall be conducted. and/or analysis	For the as-built UHS Makeup Water, electrical isolation exists between each division of Class 1E components and between Class 1E components and non-class 1E components.
5	The following UHS Makeup Water System equipment is designated as Seismic Category I, and is designed to withstand a design basis seismic load without loss of safety function. UHS Makeup Water Pumps. UHS Makeup Water Pump Motors. Piping to ESW Cooling Towers. Discharge Strainers. Isolation Valves. Isolation Valves for Equipment. Valves in the pathway from the UHS Makeup Water Pumps to the ESW Cooling Towers. Instruments and Controls. Electrical Distribution Equipment.	a. Type tests, tests, analyses, or a combination of tests and analyses will be performed on the equipment. b. Inspections will be conducted of the as-built equipment. c. Inspections will be conducted of the as-installed equipment supports and restraints.	a. The as-installed UHS Makeup Water System equipment designated as Seismic Category I can withstand a design basis seismic load without loss of safety function. b. The UHS Makeup Water System equipment designated as Seismic Category I is installed as designed. c. The as-installed equipment supports and restraints are seismically bounded by tested or analyzed conditions.
6	The UHS Makeup Water System piping and equipment that could impact the capability of Seismic Category I structures, systems, or components to perform its safety function are designated as Seismic Category II, and can withstand seismic design basis loads without impacting the capability of equipment designated as Seismic Category I from performing its safety function.	Inspections will be conducted of the as-built equipment.	The as-built UHS Makeup Water System piping and equipment designated as Seismic Category II is installed as designed. and can withstand seismic design basis loads without impacting the capability of equipment designated as Seismic Category I from performing its safety function
7	The UHS Makeup Water Intake Structure bar screens and the dual-flow traveling screens are designated as Seismic Category II, and can withstand seismic design basis loads without impacting the capability of equipment designated as Seismic Category I from performing its safety function.	Inspections will be conducted of the as-built equipment.	~~The as-built bar screens and dual-flow traveling screens are installed as built.~~ The UHS as-built Makeup Water Intake Structure bar screens and the dual-flow traveling screens are designated as Seismic Category II, are installed as designed, and can withstand seismic design basis loads without impacting the capability of equipment designated as Seismic Category I from performing its safety function.
8	The ASME Code Section III components of the UHS Makeup Water System are designed and constructed to ASME Code Section III requirements.	Inspections of the as-built components will be conducted, as documented in the ASME Design Reports.	The ASME Code Section III design reports exist for the as-built ASME Code Section III components of the UHS Makeup Water System.

Table 2.4-24—{Ultimate Heat Sink Makeup Water System Inspections, Tests, Analyses, and Acceptance Criteria}

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	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
9	The ASME Code Section III piping of the UHS Makeup Water System is designed and constructed to ASME Code Section III requirements.	Inspections of the as-built piping will be conducted, as documented in the ASME Design Reports.	The ASME Code Section III design reports exist for the as-built ASME Code Section III piping of the UHS Makeup Water System.
10	Pressure boundary welds in ASME Code Section III components of the UHS Makeup Water System are designed and constructed to ASME Code Section III requirements.	Inspections of the as-built pressure boundary welds will be conducted.	A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds in as-built ASME Code Section III components of the UHS Makeup Water System.
11	Pressure boundary welds in ASME Code Section III piping of the UHS Makeup Water System are designed and constructed to ASME Code Section III requirements.	Inspections of the as-built pressure boundary welds will be conducted.	A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds in as-built ASME Code Section III piping of the UHS Makeup Water System.
12	The ASME Code Section III components of the UHS Makeup Water System retain their pressure boundary integrity at their design pressure.	Inspections of the as-built components will be conducted.	A report exists and concludes that the results of the hydrostatic test of the ASME Code Section III components of the UHS Makeup Water System conform to the requirements of the ASME Code.
13	The ASME Code Section III piping of the UHS Makeup Water System retain their pressure boundary integrity at their design pressure.	Inspections of the as-built piping as documented will be conducted.	A report exists and concludes that the results of the hydrostatic test of the ASME Code Section III piping of the UHS Makeup Water System conform to the requirements of the ASME Code.
14	The materials utilized in the equipment and piping of the UHS Makeup Water System are compatible with brackish water.	a. An analysis of the materials utilized in the as-installed equipment will be performed. b. An inspection of the as-built piping will be conducted.	a. A report exists and concludes that the materials utilized in the equipment installed in the UHS Makeup Water System that is in contact with the water is compatible with brackish water. b. The as-built piping for the UHS Makeup Water System is composed of either carbon steel SA-106 Grade B with a rubber liner, or ASME SB-675 stainless steel.
15	The UHS Makeup Water Intake Structure bar screens and the dual-flow traveling screens have a large enough face area that potential blockage to the point of preventing the minimum required flow through them is not a concern.	a. Analyses and Inspections will be performed of the as-built equipment.	A report exists and concludes that the face area for the as-built UHS Makeup Water Intake Structure bar screens and the dual-flow traveling screens is sufficient to permit the minimum required flow in the event of worst-case blockage of the screens.
16	The Class 1E valves in the UHS Makeup Water System perform the required function under system design conditions. 1. UHS makeup pump discharge valves open on pump start. 2. Debris filter blowdown line isolation valves will open during the debris filter backwash cycle. 3. The pump min-flow recirculation valve opens in the event the pump discharge valve fails to open.	Tests and analyses or a combination of tests and analyses will be performed to demonstrate the ability of the Class 1E valves to change position under system design conditions.	~~The as-installed Class 1E valves in the UHS Makeup Water System perform the required function under system conditions.~~ 1. UHS makeup pump discharge valves open on pump start. 2. Debris filter blowdown line isolation valves will open during the debris filter backwash cycle. 3. The pump min-flow recirculation valve opens in the event the pump discharge valve fails to open.

Table 2.4-26—{Fire Water Distribution System Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Test, or Analysisign	Acceptance Criteria
1	The fire protection storage tanks will be in close proximity to the fire protection building.	An inspection of the as-built location of the tanks will be conducted.	The as-built fire protection storage tanks are located within 50 ft of the as-built Fire Protection Building, as measured from the closest outside surfaces of the structures.
2	The following Fire Water Distribution System equipment and piping are designated as Seismic Category II-SSE, and can withstand seismic design basis loads without losing the capability to perform its function. ~~1. Fire Water Storage Tanks.~~ ~~2. Diesel Driven Pumps and Drivers.~~ ~~3. Fire Water Distribution System piping, valves, and hydrants that support equipment required to perform during a Safe Shutdown Earthquake.~~ ~~4. Fuel Oil Supply for Diesel Driven Pumps, and associated piping, and equipment.~~	a. Type tests, tests, analyses, or a combination of tests and analyses will be performed on the equipment and piping. b. Inspections will be conducted of the as-built equipment. c. Inspections will be conducted on the as-installed equipment supports and restraints.	a. The as-installed Fire Water Distribution System equipment and piping designated as Seismic Category II-SSE can withstand a design basis seismic load without loss of its ability to perform its function. b. The Fire Water Distribution System equipment and piping designated as Seismic Category II-SSE are installed as designed. c. The as-installed equipment supports and restraints are seismically bounded by tested or analyzed conditions.
3	Fire Water Distribution System equipment and piping that could impact the capability of Seismic Category 1 Structures to perform its safety function are designated as Seismic Category II, and can withstand design basis seismic loads without impacting the capability of equipment designated as Seismic Category 1 from performing its safety function.	a. Type tests, tests, analysis, or a combination of tests and analyses will be performed. b. Inspections will be conducted of the as-built equipment.	a. A report exists and concludes that the Fire Water Distribution System equipment and piping that are designated as Seismic Category II can withstand design basis seismic loads without impacting the capability of equipment designated as Seismic Category I from performing its safety function. b. Fire Water Distribution System equipment and piping that are designated as Seismic Category I are installed as designed.
4	The Fire Water Distribution System utilizing the diesel driven fire pumps can be initiated manually.	Tests of the as-built system will be conducted.	Fire Water Distribution System utilizing the diesel driven fire pumps starts upon receipt of a manual initiation signal.
5	Buried Fire Protection piping to Seismic Category I structures that does not support equipment required to perform during a Safe Shutdown Earthquake is designated as Seismic Category II, and can withstand a design basis seismic event without losing the integrity of its pressure boundary.	a. Type tests, tests, analyses, or a combination of tests and analyses will be performed. b. Inspections will be conducted of the buried Fire Protection piping to Seismic Category I structures.	a. The as-built buried Fire Protection piping to Seismic Category I structures that does not support equipment required to perform during a Safe Shutdown Earthquake can withstand a design basis seismic event without losing the integrity of its pressure boundary. b. The buried Fire Protection piping to Seismic Category I structures that does not support equipment required to perform during a Safe Shutdown Earthquake are installed as designed.

Table 2.4-29—{Offsite Power System Inspections, Tests, Analyses, and Acceptance Criteria}

	Commitment Wording	Inspection, Test, or Analysis	Acceptance Criteria
1	The Offsite Power System supplies at least two preferred power circuits, which will be physically independent and separate.	a. Inspections of the as-built system will be conducted. b. Tests of the as-built system will be conducted by powering only one offsite power circuit / system at a time.	a.1.The as-built Offsite Power System has at least two preferred power circuits. a.2.The as-built preferred power circuits from the switchyard to the emergency and auxiliary transformers are separated by a minimum distance of 50 feet. a.3.The as-built offsite transmission lines do not have a common takeoff structure or use a common structure for support. b. Only the circuit under test is powered.
2	Each offsite power circuit shall be sized to supply the station safety-related and non-safety-related loads during normal and off normal operation. The Emergency Auxiliary Transformers and Normal Auxiliary Transformers shall be sized to supply their load requirements.	Analyses of as-built station safety-related and non-safety-related loads will be performed to determine their load requirements during normal and off normal operation.	Each as-built offsite power circuit from the transmission network through the main step-up transformer and including the Emergency Auxiliary Transformers and Normal Auxiliary Transformers is sized to meet the load requirements during normal and off normal operation.
3	Each Emergency Auxiliary Transformer shall be connected to the Switchyard via an independent circuit, sized to supply the four Emergency Power Supply System divisions.	An inspection of the as-built system will be conducted. and/or analysis	Each as-installed Emergency Auxiliary Transformer is connected to the as-built Switchyard via an independent circuit, sized to supply the four Emergency Power Supply divisions.
4	The AC power sources may be manually transferred from the normal offsite circuit to the alternate offsite circuit.	Tests of the as-built system will be conducted.	The as-built AC power sources can be manually transferred from the normal offsite circuit to the alternate offsite circuit.
5	The AC power sources may be automatically transferred from the normal offsite circuit to the alternate offsite circuit.	Tests of the as-built system will be conducted.	The as-built AC power sources can be automatically transferred from the normal offsite circuit to the alternate offsite circuit.