

### **3.3 Buildings**

#### **Design Description**

The nuclear island structures include the containment (the steel containment vessel and the containment internal structure) and the shield and auxiliary buildings. The containment, shield and auxiliary buildings are structurally integrated on a common basemat which is embedded below the finished plant grade level. The containment vessel is a cylindrical welded steel vessel with elliptical upper and lower heads, supported by embedding a lower segment between the containment internal structures concrete and the basemat concrete. The containment internal structure is reinforced concrete with structural modules used for some walls and floors. The shield building cylinder is a composite steel and concrete (SC) structure except for the portion surrounded by the auxiliary building, which is reinforced concrete (RC). The shield building, in conjunction with the internal structures of the containment building, provides shielding for the reactor coolant system and the other radioactive systems and components housed in the containment. The shield building roof is a reinforced concrete structure containing an integral, steel lined passive containment cooling water storage tank. The auxiliary building is reinforced concrete and houses the safety-related mechanical and electrical equipment located outside the containment and shield buildings.

The portion of the annex building adjacent to the nuclear island is a structural steel and reinforced concrete seismic Category II structure and houses the control support area, non-1E electrical equipment, and hot machine shop.

The radwaste building is a steel framed structure and houses the low level waste processing and storage.

The turbine building is a non-safety related structure that houses the main turbine generator and the power conversion cycle equipment and auxiliaries. There is no safety-related equipment in the turbine building. The turbine building is located on a separate foundation. The turbine building structure is adjacent to the nuclear island structures consisting of the auxiliary building to the south and the annex building to the south and east. The turbine building consists of two separate superstructures, the first bay and the main area, both supported on a common reinforced concrete basemat. The first bay, next to the auxiliary building, consists of a combination of reinforced concrete walls and steel framing with reinforced concrete and steel grated floors. It is classified as a seismic Category II structure due to its immediate proximity to the auxiliary building. The main area of the turbine building, immediately to the north of the first bay, is a steel framed building with reinforced concrete and steel grated floors. It is classified as a non-seismic structure. The non-seismic portion of the turbine building is designed with eccentrically braced framing (EBF).

The diesel generator building is a non-safety related structure that houses the two standby diesel engine powered generators and the power conversion cycle equipment and auxiliaries. There is no safety-related equipment in the diesel generator building. The diesel generator building is located on a separate foundation at a distance from the nuclear island structures.

The plant gas system (PGS) provides hydrogen, carbon dioxide, and nitrogen gases to the plant systems as required. The component locations of the PGS are located in the yard areas.

1. The physical arrangement of the nuclear island structures, the annex building, and the turbine building is as described in the Design Description of this Section 3.3, and as shown on Figures 3.3-1 through 3.3-14. The physical arrangement of the radwaste building and the diesel generator building is as described in the Design Description of this Section 3.3.
2. a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads, as specified in the Design Description, without loss of structural integrity and the safety-related functions. The design bases loads are those loads associated with:
  - Normal plant operation (including dead loads, live loads, lateral earth pressure loads, and equipment loads, including hydrodynamic loads, temperature and equipment vibration);
  - External events (including rain, snow, flood, tornado, tornado generated missiles and earthquake); and
  - Internal events (including flood, pipe rupture, equipment failure, and equipment failure generated missiles).
- b) Site grade level is located relative to floor elevation 100'-0" per Table 3.3-5. Floor elevation 100'-0" is defined as the elevation of the floor at design plant grade.
- c) The containment and its penetrations are designed and constructed to ASME Code Section III, Class MC.<sup>(1)</sup>
- d) The containment and its penetrations retain their pressure boundary integrity associated with the design pressure.
- e) The containment and its penetrations maintain the containment leakage rate less than the maximum allowable leakage rate associated with the peak containment pressure for the design basis accident.
- f) The key dimensions of the nuclear island structures are as defined on Table 3.3-5.
- g) The containment vessel greater than 7 feet above the operating deck provides a heat transfer surface. A free volume exists inside the containment shell above the operating deck.
- h) The containment free volume below elevation 108' provides containment floodup during a postulated loss-of-coolant accident.
3. Walls and floors of the nuclear island structures as defined on Table 3.3-1, except for designed openings and penetrations, provide shielding during normal operations.
4. a) Walls and floors of the annex building as defined on Table 3.3-1, except for designed openings and penetrations, provide shielding during normal operations.

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1. Containment isolation devices are addressed in subsection 2.2.1, Containment System.

- b) The walls on the outside of the waste accumulation room in the radwaste building provide shielding from accumulated waste.
  - c) The walls on the outside of the packaged waste storage room in the radwaste building provide shielding from stored waste.
- 5.
- a) Exterior walls and the basemat of the nuclear island have a water barrier up to site grade.
  - b) The boundaries between mechanical equipment rooms and the electrical and instrumentation and control (I&C) equipment rooms of the auxiliary building as identified in Table 3.3-2 are designed to prevent flooding of rooms that contain safety-related equipment up to the maximum flood level for each room defined in Table 3.3-2.
  - c) The boundaries between the following rooms, which contain safety-related equipment – passive core cooling system (PXS) valve/accumulator room A (11205), PXS valve/accumulator room B (11207), and chemical and volume system (CVS) room (11209) – are designed to prevent flooding between these rooms.
- 6.
- a) The radiologically controlled area of the auxiliary building between floor elevations 66'-6" and 82'-6" contains adequate volume to contain the liquid volume of faulted liquid radwaste system (WLS) storage tanks. The available room volumes of the radiologically controlled area of the auxiliary building between floor elevations 66'-6" and 82'-6" exceeds the volume of the liquid radwaste storage tanks (WLS-MT-05A, MT-05B, MT-06A, MT-06B, MT-07A, MT-07B, MT-07C, MT-11).
  - b) The radwaste building packaged waste storage room has a volume greater than or equal to 1293 cubic feet.
- 7.
- a) Class 1E electrical cables, fiber optic cables associated with only one division, and raceways are identified according to applicable color-coded Class 1E divisions.
  - b) Class 1E divisional electrical cables and communication cables associated with only one division are routed in their respective divisional raceways.
  - c) Separation is maintained between Class 1E divisions in accordance with the fire areas as identified in Table 3.3-3.
  - d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.
  - e) Class 1E communication cables which interconnect two divisions are routed and separated such that the Protection and Safety Monitoring System voting logic is not defeated by the loss of any single raceway or fire area.
8. Systems, structures, and components identified as essential targets are protected from the dynamic and environmental effects of postulated pipe ruptures.

9. The reactor cavity sump has a minimum concrete thickness as shown on Table 3.3-5 between the bottom of the sump and the steel containment.
10. The shield building roof and the passive containment cooling system (PCS) storage tank support and retain the PCS water. The passive containment cooling system tank has a stainless steel liner which provides a barrier on the inside surfaces of the tank. Leak chase channels are provided over the tank boundary liner welds.
11. Deleted.
12. The extended turbine generator axis intersects the shield building.
13. Separation is provided between the structural elements of the turbine, annex, and radwaste buildings and the nuclear island structure. This separation permits horizontal motion of the buildings in a safe shutdown earthquake without impact between structural elements of the buildings.
14. The external walls, doors, ceiling, and floors in the main control room, the central alarm station, and the secondary alarm station are bullet-resistant to at least Underwriters Laboratory Ballistic Standard 752, level 4.
15. Deleted.
16. Secondary security power supply system for alarm annunciator equipment and non-portable communications equipment is located within a vital area.
17. Vital areas are locked and alarmed with active intrusion detection systems that annunciate in the central and secondary alarm stations upon intrusion into a vital area.
18. Deleted.

#### **Inspections, Tests, Analyses, and Acceptance Criteria**

Table 3.3-6 specifies the inspections, tests, analyses, and associated acceptance criteria for the buildings.

### 3. Non-System Based Design Descriptions & ITAAC

**Table 3.3-1  
Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building<sup>(1)</sup>**

| Wall or Section Description                                    | Column Lines                         | Floor Elevation or Elevation Range | Concrete Thickness <sup>(2)(3)(4)(5)</sup> | Applicable Radiation Shielding Wall (Yes/No) |
|--|--------------------------------------|------------------------------------|--|--|
| <b>Containment Building Internal Structure</b>                 |                                      |                                    |  |  |
| Shield Wall between Reactor Vessel Cavity and RCDT Room        | E-W wall parallel with column line 7 | From 71'-6" to 83'-0"              | 3'-0"                                      | Yes  |
| West Reactor Vessel Cavity Wall                                | N-S wall parallel with column line N | From 83'-0" to 98'-0"              | 7'-6"                                      | Yes  |
| North Reactor Vessel Cavity Wall                               | E-W wall parallel with column line 7 | From 83'-0" to 98'-0"              | 9'-0"                                      | Yes  |
| East Reactor Vessel Cavity Wall                                | N-S wall parallel with column line N | From 83'-0" to 98'-0"              | 7'-6"                                      | Yes  |
| West Refueling Cavity Wall                                     | N-S wall parallel with column line N | From 98'-0" to 135'-3"             | 4'-0"                                      | Yes  |
| North Refueling Cavity Wall                                    | E-W wall parallel with column line 7 | From 98'-0" to 135'-3"             | 4'-0"                                      | Yes  |
| East Refueling Cavity Wall                                     | N-S wall parallel with column line N | From 98'-0" to 135'-3"             | 4'-0"                                      | Yes  |
| South Refueling Cavity Wall                                    | E-W wall parallel with column line 7 | From 98'-0" to 135'-3"             | 4'-0"                                      | Yes  |
| South wall of west steam generator compartment                 | Not Applicable                       | From 103'-0" to 153'-0"            | 2'-6"                                      | Yes  |
| West wall of west steam generator compartment                  | Not Applicable                       | From 103'-0" to 153'-0"            | 2'-6"                                      | Yes  |
| North wall of west steam generator compartment                 | Not Applicable                       | From 103'-0" to 153'-0"            | 2'-6"                                      | Yes  |
| South wall of pressurizer compartment                          | Not Applicable                       | From 103'-0" to 153'-6"            | 2'-6"                                      | Yes  |
| West wall of pressurizer compartment                           | Not Applicable                       | From 107'-2" to 160'-0"            | 2'-6"                                      | Yes  |
| North wall of pressurizer compartment                          | Not Applicable                       | From 107'-2" to 160'-0"            | 2'-6"                                      | Yes  |
| East wall of pressurizer compartment                           | Not Applicable                       | From 118'-6" to 160'-0"            | 2'-6"                                      | Yes  |
| North-east wall of in-containment refueling water storage tank | Parallel to column line N            | From 103'-0" to 135'-3"            | 2'-6"                                      | No   |
| West wall of in-containment refueling water storage tank       | Not applicable                       | From 103'-0" to 135'-3"            | 5/8" steel plate with stiffeners           | No   |
| South wall of east steam generator compartment                 | Not Applicable                       | From 87'-6" to 153'-0"             | 2'-6"                                      | Yes  |

1. The column lines and floor elevations are identified and included on Figures 3.3-1 through 3.3-13.
2. These wall (and floor) thicknesses have a construction tolerance of  $\pm 1$  inch, except for exterior walls below grade where the tolerance is +12 inches, - 1 inch.
3. For walls that are part of structural modules, the concrete thickness also includes the steel face plates.
4. For floors with steel surface plates, the concrete thickness also includes the plate thickness.
5. Where a wall (or a floor) has openings, the concrete thickness does not apply at the opening.

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| <b>Table 3.3-1 (cont.)<br/>Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building<sup>(1)</sup></b> |                             |  |  |   |
|--|-----------------------------|--|--|---|
| <b>Wall or Section Description</b>   | <b>Column Lines</b>         | <b>Floor Elevation or<br/>Elevation Range</b>          | <b>Concrete<br/>Thickness<sup>(2)(3)</sup></b>   | <b>Applicable Radiation<br/>Shielding Wall<br/>(Yes/No)</b> |
| East wall of east steam generator compartment  | Not Applicable              | From 94'-0" to 153'-0"                                 | 2'-6"  | Yes   |
| North wall of east steam generator compartment   | Not Applicable              | From 87'-6" to 153'-0"                                 | 2'-6"  | Yes   |
| <b>Shield Building</b>   |                             |  |  |   |
| Shield Building Cylinder   | Not Applicable              | From 100'-0" to 251'-6"<br><br>From 251'-6" to 266'-3" | 3'-0" (including<br>3/4 inch thick steel<br>plate liner on each face<br>on portion not<br>protected by auxiliary<br>building)<br><br>4'-6" (including 1 inch<br>thick steel plate liner<br>on each face) | Yes<br>Yes  |
| Tension Ring   | Not Applicable              | From 266'-3" to 274'                                   | 4'-6" (including<br>1-1/2 inch thick steel<br>plate liner on<br>each face)   | Yes   |
| Conical Roof   | Not Applicable              | From 271'-0" to 293'-9"                                | 3'-0" (including<br>1/2 inch thick steel<br>plate liner on<br>each face)   | Yes   |
| PCS Tank External Cylindrical Wall   | Not Applicable              | From 293'-9" to 328'-9"                                | 2'-0"  | Yes   |
| PCS Tank Internal Cylindrical Wall   | Not Applicable              | From 309'-4" to 329'-0"                                | 1'-6"  | Yes   |
| PCS Tank Roof  | Not Applicable              | 328'-9" (Lowest) 329'-0" (Highest)                     | 1'-3"  | No  |
| Nuclear Island Basemat   | Below shield building       | From 60'-6" to containment vessel<br>or 82'-6"         | 6'-0" to 22'-0" (varies)   | No  |
| <b>Auxiliary Building Walls/Floors Radiologically Controlled</b>   |                             |  |  |   |
| Column Line 1 wall   | From I to N                 | From 66'-6" to 100'-0"                                 | 3'-0"  | No  |
| Column Line 1 wall   | From I to 5'-6" east of L-2 | From 100'-0" to 180'-0"                                | 2'-3"  | Yes   |
| Column Line 1 wall   | From 5'-6" east of L-2 to N | From 100'-0" to 125'-0"                                | 3'-0"  | Yes   |

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**Table 3.3-1 (cont.)  
Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building<sup>(1)</sup>**

| Wall or Section Description | Column Lines   | Floor Elevation or Elevation Range | Concrete Thickness <sup>(2)(3)</sup> | Applicable Radiation Shielding Wall (Yes/No) |
|-----------------------------|--|------------------------------------|--------------------------------------|--|
| Column Line 1 wall          | From 5'-6" east of L-2 to N  | From 125'-0" to 180'-0"            | 2'-3"                                | Yes  |
| Column Line 2 wall          | From I to K-2  | From 66'-6" to 135'-3"             | 2'-6"                                | Yes  |
| Column Line 2 wall          | From K-2 to L-2  | From 66'-6" to 135'-3"             | 5'-0"                                | Yes  |
| Column Line 2 wall          | From L-2 to N  | From 98'-1" to 135'-3"             | 2'-6"                                | Yes  |
| Column Line 2 wall          | From I to J-1  | From 135'-3" to 153'-0"            | 2'-0"                                | Yes  |
| Column Line 3 wall          | From J-1 to J-2  | From 66'-6" to 82'-6"              | 2'-6"                                | Yes  |
| Column Line 3 wall          | From J-1 to J-2  | From 100'-0" to 135'-3"            | 2'-6"                                | Yes  |
| Column Line 3 wall          | From J-2 to K-2  | From 66'-6" to 135'-3"             | 2'-6"                                | Yes  |
| Column Line 3 wall          | From K-2 to L-2  | From 66'-6" to 92'-8 1/2"          | 2'-6"                                | Yes  |
| Column Line 4 wall          | From I to J-1  | From 66'-6" to 153'-0"             | 2'-6"                                | Yes  |
| Column Line 4 wall          | From J-1 to J-2  | From 66'-6" to 92'-6"              | 2'-6"                                | Yes  |
| Column Line 4 wall          | From J-1 to J-2  | From 107'-2" to 135'-3"            | 2'-6"                                | Yes  |
| Column Line 4 wall          | From J-2 to K-2  | From 66'-6" to 135'-3"             | 2'-6"                                | Yes  |
| Column Line 4 wall          | From I to intersection with shield building wall                           | From 135'-3" to 180'-0"            | 2'-0"                                | Yes  |
| Column Line 5 wall          | From I to shield building; with opening east of J-1 (below 107'-2" floor). | From 66'-6" to 160'-6"             | 2'-0"                                | Yes  |
| Column Line 7.1 wall        | From I to 8' east of J-1   | From 66'-6" to 82'-6"              | 2'-0"                                | Yes  |
| Column Line 7.2 wall        | From I to 5'-6" east of J-1  | From 66'-6" to 100'-0"             | 2'-0"                                | Yes  |
| Column Line I wall          | From 1 to 7.3  | From 66'-6" to 100'-0"             | 3'-0"                                | No   |
| Column Line I wall          | From 1 to 4  | From 100'-0" to 180'-0"            | 2'-0"                                | Yes  |
| Column Line I wall          | From 4 to 5  | From 100'-0" to 160'-6"            | 2'-0"                                | No   |
| Column Line J-1 wall        | From 1 to 2  | From 82'-6" to 100'-0"             | 2'-0"                                | Yes  |
| Column Line J-1 wall        | From 2 to 4  | From 66'-6" to 135'-3"             | 2'-6"                                | Yes  |
| Column Line J-1 wall        | From 2 to 4  | From 135'-3" to 153'-0"            | 2'-0"                                | Yes  |

**3. Non-System Based Design  
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**Table 3.3-1 (cont.)  
Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building<sup>(1)</sup>**

| <b>Wall or Section Description</b>                                 | <b>Column Lines</b>                                    | <b>Floor Elevation or Elevation Range</b> | <b>Concrete Thickness<sup>(2)(3)</sup></b> | <b>Applicable Radiation Shielding Wall (Yes/No)</b> |
|--|--|---|--|---|
| Column Line J-1 wall   | From 4 to shield building                              | From 66'-6" to 107'-2"                    | 2'-0"                                      | Yes   |
| Column Line J-2 wall   | From 2 to 4  | From 66'-6" to 135'-3"                    | 2'-6"                                      | Yes   |
| Column Line J-2 wall   | From 4 to intersection with shield building wall       | From 66'-6" to 135'-3"                    | 2'-0"                                      | Yes   |
| Column Line K-2 wall   | From 2 to 4  | From 66'-6" to 135'-3"                    | 4'-9"                                      | Yes   |
| Column Line L-2 wall   | From 2 to 4  | From 66'-6" to 135'-3"                    | 4'-0"                                      | Yes   |
| Column Line N wall   | From 1 to 2  | From 66'-6" to 100'-0"                    | 3'-0"                                      | No  |
| Column Line N wall   | From 1 to 12'-9" north of 1                            | From 100'-0" to 125'-0"                   | 3'-9"                                      | No  |
| Column Line N wall   | From 1 to 12'-9" north of 1                            | From 125'-0" to 135'-0"                   | 2'-0"                                      | No  |
| Column Line N wall   | From 12'-9" north of 1 to 2                            | From 100'-0" to 118'-2 1/2"               | 3'-0"                                      | No  |
| Column Line N wall   | From 12'-9" north of 1 to 2                            | From 118'-2 1/2" to 135'-3"               | 2'-0"                                      | No  |
| Column Line N wall   | From 1 to 2  | From 118'-2 1/2" to 135'-3"               | 2'-0"                                      | Yes   |
| Column Line N wall   | From 2 to 4  | From 66'-6" to 98'-1"                     | 3'-0"                                      | No  |
| Column Line N wall   | From 2 to 4  | From 98'-1" to 135'-3"                    | 5'-6"                                      | Yes   |
| Column Line N wall   | From 1 to 4  | From 135'-3" to 180'-0"                   | 2'-0"                                      | Yes   |
| Labyrinth Wall between Col. Line 3 and 4 and J-1 to 7'-3" from J-2 | Not Applicable   | From 82'-6" to 92'-6"                     | 2'-6"                                      | Yes   |
| N-S Shield Wall (low wall)   | Between K-2 and L-2 extending from column line 1 north | From 100'-0" to 107'-2"                   | 2'-6"                                      | Yes   |
| N-S Shield Wall  | Between K-2 and L-2 extending from column line 1 north | From 100'-0" to 125'-0"                   | 2'-3"                                      | Yes   |
| E-W Shield Wall  | Between 1 and 2 extending from column line N east      | From 100'-0" to 125'-0"                   | 2'-9"                                      | Yes   |
| Auxiliary Area Basemat   | From 1-7.3 and I-N, excluding shield building          | From 60'-6" to 66'-6"                     | 6'-0"                                      | No  |
| Floor  | From 1 to 2 and I to N                                 | 82'-6"                                    | 2'-0"                                      | Yes   |
| Floor  | From 2 to 4 and J-1 to J-2                             | 82'-6"                                    | 2'-0"                                      | Yes   |
| Floor  | From 4 to 5 and J-1 to J-2                             | 82'-6"                                    | 0'-9"                                      | Yes   |



**Table 3.3-1 (cont.)  
 Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building<sup>(1)</sup>**

| Wall or Section Description  | Column Lines   | Floor Elevation or Elevation Range | Concrete Thickness <sup>(2)(3)</sup> | Applicable Radiation Shielding Wall (Yes/No) |
|--|--|------------------------------------|--------------------------------------|--|
| Pipe Chase Floor   | From 2 to 5 and J-1 to J-2   | 92'-6"                             | 2'-0"                                | Yes  |
| Floor  | From 2 to 3 and J-2 to K-2   | 90'-3"                             | 3'-0"                                | Yes  |
| Floor  | From 3 to 4 and J-2 to K-2   | 92'-6"                             | 2'-0"                                | Yes  |
| Floor  | From 4 to 7.3 and I to J-1   | 82'-6"                             | 2'-0"                                | Yes  |
| Floor  | From 1 to 2 and I to N   | 100'-0"                            | 3'-0"                                | Yes  |
| Floor  | From 2 to 4 and K-2 to L-2   | 92'-8 1/2"                         | 3'-2 1/2"                            | Yes  |
| Floor  | From I to J-2 and 4 to intersecting vertical wall before column line 5                                   | 107'-2"                            | 2'-0"                                | Yes  |
| Floor  | From I to shield building wall and from intersecting vertical wall before column line 5 to column line 5 | 105'-0"                            | 0'-9"                                | Yes  |
| Floor  | From 1 to 10'-0" north of 1 and L-2 to N   | 125'-0"                            | 3'-0"                                | Yes  |
| Floor  | From 10'-0" north of 1 to 2 and L-2 to N   | 118'-2 1/2"                        | 2'-0"                                | Yes  |
| Floor  | From 3 to 4 and J-2 to K-2   | 117'-6"                            | 2'-0"                                | Yes  |
| Floor  | From 2 to 4 and I to J-1   | 153'-0"                            | 0'-9"                                | Yes  |
| Roof   | From 1 to 4 and I to N   | 180'-0"                            | 1'-3"                                | Yes  |
| Floor  | From 4 to short of column line 5 and from I to intersection with shield building wall                    | 135'-5"                            | 0'-9"                                | Yes  |
| Floor  | From short of column line 5 to column line 5 and from I to intersection with shield building wall        | 133'-0"                            | 0'-9"                                | Yes  |
| <b>Auxiliary Building Walls/Floors Non-Radiologically Controlled</b> |  |                                    |                                      |  |
| Column Line 11 wall  | From I to Q  | From 66'-6" to 100'-0"             | 3'-0"                                | No   |
| Column Line 11 wall  | From I to Q  | From 100'-0" to 117'-6"            | 2'-0"                                | Yes  |
| Column Line 11 wall  | From I to L  | From 117'-6" to 153'-0"            | 2'-0"                                | Yes  |
| Column Line 11 wall  | From L to M  | From 117'-6" to 135'-3"            | 4'-0"                                | Yes  |

**Table 3.3-1 (cont.)  
Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building<sup>(1)</sup>**

| Wall or Section Description                               | Column Lines   | Floor Elevation or Elevation Range | Concrete Thickness <sup>(2)(3)</sup> | Applicable Radiation Shielding Wall (Yes/No) |
|---|--|------------------------------------|--------------------------------------|--|
| Column Line 11 wall                                       | From M to P  | From 117'-6" to 135'-3"            | 2'-0"                                | Yes  |
| Column Line 11 wall                                       | From P to Q  | From 117'-6" to 135'-3"            | 4'-0"                                | Yes  |
| Column Line 11 wall                                       | From L to Q  | From 135'-3" to 153'-0"            | 2'-0"                                | Yes  |
| Column Line 7.3 wall                                      | From I to shield building                              | From 66'-6" to 100'-0"             | 3'-0"                                | Yes  |
| Column Line 7.3 wall                                      | From I to shield building                              | From 100'-0" to 160'-6"            | 2'-0"                                | No   |
| Column Line I wall  | From 7.3 to 11   | From 66'-6" to 100'-0"             | 3'-0"                                | No   |
| Column Line I wall  | From 7.3 to 11   | From 100'-0" to 153'-0"            | 2'-0"                                | No   |
| Column Line I wall  | From 5 to 7.3  | From 100'-0" to 160'-6"            | 2'-0"                                | No   |
| Column Line J wall  | From 7.3 to 11   | From 66'-6" to 117'-6"             | 2'-0"                                | No   |
| Column Line K wall  | From 7.3 to 11   | From 60'-6" to 135'-3"             | 2'-0"                                | Yes  |
| Column Line L wall  | From shield building wall to 11                        | From 60'-6" to 153'-0"             | 2'-0"                                | Yes  |
| Column Line M wall  | From shield building wall to 11                        | From 66'-6" to 153'-0"             | 2'-0"                                | Yes  |
| Column Line P wall  | From shield building wall to 11                        | From 66'-6" to 153'-0"             | 2'-0"                                | Yes  |
| Column Line Q wall  | From shield building wall to 11                        | From 66'-6" to 100'-0"             | 3'-0"                                | No   |
| Column Line Q wall  | From shield building wall to 11                        | From 100'-0" to 153'-0"            | 2'-0"                                | Yes  |
| Column Line 9.2 wall                                      | From I to J and K to L                                 | From 117'-6" to 135'-3"            | 2'-0"                                | Yes  |
| Labyrinth Wall between Column Line 7.3 and 9.2 and J to K | J to K   | From 117'-6" to 135'-3"            | 2'-0"                                | Yes  |
| Auxiliary Area Basemat                                    | From 7.3-11 and I-Q, excluding shield building         | From 60'-6" to 66'-6"              | 6'-0"                                | No   |
| Floor   | From 5 to 7.3 and I to shield building wall            | 100'-0"                            | 2'-0"                                | Yes  |
| Floor   | From K to L and shield building wall to column line 10 | 100'-0"                            | 0'-9"                                | Yes  |
| Main Control Room Floor                                   | From 9.2 to 11 and I to L                              | 117'-6"                            | 2'-0"                                | Yes  |
| Floor   | Bounded by shield bldg, 7.3, J, 9.2 and L              | 117'-6"                            | 2'-0"                                | Yes  |
| Floor   | From 9.2 to 11 and L to Q                              | 117'-6"                            | 2'-0"                                | Yes  |

**3. Non-System Based Design  
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| <b>Table 3.3-1 (cont.)<br/>Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building<sup>(1)</sup></b> |  |   |  |   |
|--|--|---|--|---|
| <b>Wall or Section Description</b>   | <b>Column Lines</b>  | <b>Floor Elevation or<br/>Elevation Range</b> | <b>Concrete<br/>Thickness<sup>(2)(3)</sup></b> | <b>Applicable Radiation<br/>Shielding Wall<br/>(Yes/No)</b> |
| Floor  | From 5 to 7.3 and from I to intersection with shield building wall | 135'-3"                                       | 0'-9"  | Yes   |
| <b>Annex Building</b>  |  |   |  |   |
| Column line 2 wall   | From E to H  | From 107'-2" to 135'-3"                       | 19 3/4"  | Yes   |
| Column line 4 wall   | From E to H  | From 107'-2" to 162'-6" & 166'-0"             | 2'-0"  | Yes   |
| N-S Shield Wall between E and F  | From 2 to 4  | From 107'-2" to 135'-3"                       | 1'-0"  | Yes   |
| Column line 4.1 wall   | From E to H  | From 107'-2" to 135'-3"                       | 2'-0"  | Yes   |
| E-W Labyrinth Wall between column line 7.1 and 7.8 and G to H  | Not Applicable   | From 100'-0" to 112'-0"                       | 2'-0"  |   |
| N-S Labyrinth Wall between column line 7.8 and 9 and G to H  | Not Applicable   | From 100'-0" to 112'-0"                       | 2'-0"  |   |
| E-W Labyrinth Wall between column line 7.1 and 7.8 and G to H  | Not Applicable   | From 100'-0" to 112'-0"                       | 2'-0"  | Yes   |
| N-S Shield Wall on Column line. F  | From 4.1 North   | From 100'-0" to 117'-6"                       | 1'-0"  | Yes   |
| Column Line 9 wall   | From E to connecting wall between G and H                          | From 107'-2" to 117'-6"                       | 2'-0"  | Yes   |
| Column Line E wall   | From 9 to 13   | From 100'-0" to 135'-3"                       | 2'-0"  | Yes   |
| Column Line 13 wall  | From E to I.1  | From 100'-0" to 135'-3"                       | 2'-0"  | Yes   |
| Column Line I.1 wall   | From 11.09 to 13   | From 100'-0" to 135'-3"                       | 2'-0"  | Yes   |
| Corridor Wall between G and H  | From 9 to 13   | From 100'-0" to 135'-3"                       | 1'-6"  | Yes   |
| Column Line 9 wall   | From I to H  | From 117'-6" to 158'-0"                       | 2'-0"  | Yes   |
| Floor  | 2 to 4 from shield wall between E and F to column line H           | 135'-3"                                       | 0'-6"  | Yes   |
| Floor  | From 4 to 4.1 and E to H   | 135'-3"                                       | 1'-0"  | Yes   |
| Floor  | From 9 to 13 and E to I.1  | 117'-6"                                       | 0'-6"  | Yes   |
| Floor  | From 9 to 13 and E to I.1  | 135'-3"                                       | 0'-8"  | Yes   |
| Containment Filtration Rm A (North Wall)   | Between column line E to H   | From 135'-3" to 158'-0"                       | 1'-0"  | Yes   |
| Containment Filtration Rm A (East wall)  | Between column line E to F   | From 135'-3" to 158'-0"                       | 1'-0"  | Yes   |

**3. Non-System Based Design  
Descriptions & ITAAC**

**Table 3.3-1 (cont.)  
Definition of Wall Thicknesses for Nuclear Island Buildings, Turbine Building, and Annex Building<sup>(1)</sup>**

| <b>Wall or Section Description</b>      | <b>Column Lines</b>                      | <b>Floor Elevation or Elevation Range</b> | <b>Concrete Thickness<sup>(2)(3)</sup></b> | <b>Applicable Radiation Shielding Wall (Yes/No)</b> |
|---|--|---|--|---|
| Containment Filtration Rm A (West wall) | Between column line G to H               | From 135'-3" to 158'-0"                   | 1'-0"                                      | Yes   |
| Containment Filtration Rm A (Floor)     | Between column line E to H               | 135'-3"                                   | 1'-0"                                      | Yes   |
| Containment Filtration Rm B (Floor)     | Between column line E to H               | 146'-3"                                   | 0'-6"                                      | Yes   |
| Containment Filtration Rm B (West wall) | Between column line G to H               | From 146'-3" to 158'-0"                   | 1'-0"                                      | Yes   |
| <b>Turbine Building</b>                 |  |   |  |   |
| Wall adjacent to Column Line I.2        | From Col. Line 11.05 to 11.2             | From 100'-0" to 161'-0"                   | 2'-0"                                      | No  |
| Wall along Column Line 11.2             | From near I.2 to near Col. Line R        | From 100'-0" to 161'-0"                   | 2'-0"                                      | No  |
| Wall adjacent to Column Line R          | From Col. Line 11.2 to Col. Line 11.05   | From 100'-0" to 161'-0"                   | 2'-0"                                      | No  |
| Wall along Column Line 11.05            | From near Col. Line R to Col. Line Q     | From 100'-0" to 161'-0"                   | 2'-0"                                      | No  |
|   | From Col. Line K.4 to near Col. Line I.2 | From 100'-0" to 161'-0"                   | 2'-0"                                      | No  |

| <b>Table 3.3-2<br/>Nuclear Island Building Room Boundaries<br/>Required to Have Flood Barrier Floors and Walls</b> |   |  |
|--|---|--|
| <b>Boundary/<br/>Maximum Flood Level (inches)</b>  | <b>Between Room Number to Room Number</b>       |  |
|  | <b>Room with Postulated<br/>Flooding Source</b> | <b>Adjacent Room</b>                   |
| Floor/36   | 12306   | 12211                                  |
| Floor/3  | 12303   | 12203/12207                            |
| Floor/3  | 12313   | 12203/12207                            |
| Floor/1  | 12300   | 12201/12202/12207<br>12203/12204/12205 |
| Floor/3  | 12312   | 12212                                  |
| Wall/36  | 12306   | 12305                                  |
| Floor/1  | 12401   | 12301/12302/12303<br>12312/12313       |
| Wall/1   | 12401   | 12411/12412                            |
| Floor/36   | 12404   | 12304                                  |
| Floor/4  | 12405   | 12305                                  |
| Floor/36   | 12406   | 12306                                  |
| Wall/36  | 12404   | 12401                                  |
| Wall/1   | 12421   | 12452                                  |
| Floor/3  | 12501   | 12401/12411/12412                      |
| Floor/3  | 12555   | 12421/12423/12422                      |
| Wall/36  | 12156/12158                                     | 12111/12112                            |

| <b>Table 3.3-3<br/>Class 1E Divisions in Nuclear Island Fire Areas</b> |                    |     |     |     |
|--|--------------------|-----|-----|-----|
| Fire Area Number   | Class 1E Divisions |     |     |     |
|  | A                  | C   | B   | D   |
| <b>Auxiliary Building Radiologically Controlled</b>                    |                    |     |     |     |
| 1200 AF 01   | Yes                | Yes | –   | –   |
| 1204 AF 01   | Yes                | –   | –   | –   |
| <b>Auxiliary Building Non-Radiologically Controlled</b>                |                    |     |     |     |
| 1200 AF 03   | –                  | –   | Yes | Yes |
| 1201 AF 02   | –                  | –   | Yes | –   |
| 1201 AF 03   | –                  | –   | –   | Yes |
| 1201 AF 04   | –                  | –   | Yes | Yes |
| 1201 AF 05   | –                  | –   | Yes | Yes |
| 1201 AF 06   | –                  | –   | Yes | Yes |
| 1202 AF 03   | –                  | Yes | –   | –   |
| 1202 AF 04   | Yes                | –   | –   | –   |
| 1220 AF 01   | –                  | –   | Yes | Yes |
| 1220 AF 02   | –                  | –   | –   | Yes |
| 1230 AF 01   | Yes                | Yes | –   | –   |
| 1230 AF 02   | –                  | –   | Yes | Yes |
| 1240 AF 01   | Yes                | Yes | –   | –   |
| 1242 AF 02   | Yes                |     | –   |     |

Note: Dash (–) indicates not applicable.

Table 3.3-4 is not used.

| <b>Table 3.3-5<br/>Key Dimensions of Nuclear Island Building Features</b>  |  |                          |                  |
|--|--|--------------------------|------------------|
| <b>Key Dimension</b>   | <b>Reference Dimension<br/>(Figure 3.3-14)</b> | <b>Nominal Dimension</b> | <b>Tolerance</b> |
| Distance between Outside Surface of walls at Column Line I & N when Measured at Column Line 1  | X1   | 91 ft-0 in               | +3 ft<br>-1 ft   |
| Distance from Outside Surface of wall at Column Line 1 to Column Line 7 when Measured at Column Line I                               | X2   | 138 ft-0 in              | +3 ft<br>-1 ft   |
| Distance from Outside Surface of wall at Column Line 11 to Column Line 7 when Measured at Column Line I                              | X3   | 118 ft-0 in              | +3 ft<br>-1 ft   |
| Distance between Outside Surface of walls at Column Line I & Q when Measured at Column Line 11                                       | X4   | 117 ft-6 in              | +3 ft<br>-1 ft   |
| Distance from Outside Surface of wall at Column Line Q to Column Line N when Measured at Column Line 11                              | X5   | 29 ft-0 in               | +3 ft<br>-1 ft   |
| Distance between Outside Surface of shield building wall to shield building centerline when Measured on West Edge of Shield Building | X6   | 72 ft-6 in               | +3 ft<br>-1 ft   |
| Distance between shield building centerline to Reactor Vessel centerline when Measured along Column Line N in North-South Direction  | X7   | 7 ft-6 in                | ± 3 in           |
| Distance from Bottom of Containment Sump to Top Surface of Embedded Containment Shell  | –  | 2 ft-8 in                | ± 3 in           |
| Distance from top of Basemat to Design Plant Grade   | –  | 33 ft-6 in               | ± 1 ft           |
| Distance of Design Plant Grade (Floor elevation 100'-0") relative to Site Grade  | –  | 0 ft                     | ± 3 ft-6 in      |
| Distance from Design Plant Grade to Top Surface of Shield Building Roof  | –  | 229 ft-0 in              | ± 1 ft           |



| <b>Table 3.3-6<br/>Inspections, Tests, Analyses, and Acceptance Criteria</b>   |  |  |
|--|--|--|
| <b>Design Commitment</b>   | <b>Inspections, Tests, Analyses</b>  | <b>Acceptance Criteria</b>   |
| <p>1. The physical arrangement of the nuclear island structures and the annex building is as described in the Design Description of this Section 3.3 and Figures 3.3-1 through 3.3-14. The physical arrangement of the radwaste building, the turbine building, and the diesel generator building is as described in the Design Description of this Section 3.3.</p> | <p>An inspection of the nuclear island structures, the annex building, the radwaste building, the turbine building, and the diesel generator building will be performed.</p>   | <p>The as-built nuclear island structures, the annex building, the radwaste building, the turbine building, and the diesel generator building conform with the physical arrangement as described in the Design Description of this Section 3.3 and Figures 3.3-1 through 3.3-14.</p>   |
| <p>2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.</p>   | <p>i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.</p> | <p>i.a) A report exists which reconciles deviations during construction and concludes that the as-built containment internal structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.</p> <p>i.b) A report exists which reconciles deviations during construction and concludes that the as-built shield building structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.</p> <p>i.c) A report exists which reconciles deviations during construction and concludes that the as-built structures in the non-radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.</p> |

| Table 3.3-6 (cont.)<br>Inspections, Tests, Analyses, and Acceptance Criteria |   |   |
|--|---|---|
| Design Commitment  | Inspections, Tests, Analyses  | Acceptance Criteria   |
|  |   | i.d) A report exists which reconciles deviations during construction and concludes that the as-built structures in the radiologically controlled area of the auxiliary building, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.  |
|  | ii) An inspection of the as-built concrete thickness will be performed. | ii.a) A report exists that concludes that the containment internal structures as-built concrete thicknesses conform to the building sections defined in Table 3.3-1.<br><br>ii.b) A report exists that concludes that the as-built concrete thicknesses of the shield building sections conform to the building sections defined in Table 3.3-1.<br><br>ii.c) A report exists that concludes that as-built concrete thicknesses of the non-radiologically controlled area of the auxiliary building sections conform to the building sections defined in Table 3.3-1.<br><br>ii.d) A report exists that concludes that the as-built concrete thicknesses of the radiologically controlled area of the auxiliary building sections conform to the building sections defined in Table 3.3-1.<br><br>ii.e) A report exists that concludes that the as-built concrete thicknesses of the annex building sections conform with the building sections defined in Table 3.3-1. |

| <b>Table 3.3-6 (cont.)<br/>Inspections, Tests, Analyses, and Acceptance Criteria</b>  |   |   |
|---|---|---|
| <b>Design Commitment</b>  | <b>Inspections, Tests, Analyses</b>   | <b>Acceptance Criteria</b>  |
|   |   | ii.f) A report exists that concludes that the as-built concrete thicknesses of the turbine building sections conform to the building sections defined in Table 3.3-1.                     |
| 2.b) Site grade level is located relative to floor elevation 100'-0" per Table 3.3-5.   | Inspection of the as-built site grade will be conducted.  | Site grade is consistent with design plant grade within the dimension defined on Table 3.3-5.   |
| 2.c) The containment and its penetrations are designed and constructed to ASME Code Section III, Class MC. <sup>(1)</sup>   | See Tier 1 Material, Table 2.2.1-3, Items 2a, 2b, 3a, and 3b. .   | See Tier 1 Material, Table 2.2.1-3, Items 2a, 2b, 3a, and 3b. .   |
| 2.d) The containment and its penetrations retain their pressure boundary integrity associated with the design pressure.   | See Tier 1 Material, Table 2.2.1-3, Items 4a and 4b..   | See Tier 1 Material, Table 2.2.1-3, Items 4a and 4b.  |
| 2.e) The containment and its penetrations maintain the containment leakage rate less than the maximum allowable leakage rate associated with the peak containment pressure for the design basis accident. | See Tier 1 Material, Table 2.2.1-3, Items 4a, 4b, and 7.  | See Tier 1 Material, Table 2.2.1-3, Items 4a, 4b, and 7.  |
| 2.f) The key dimensions of nuclear island structures are defined on Table 3.3-5.  | An inspection will be performed of the as-built configuration of the nuclear island structures.   | A report exists and concludes that the key dimensions of the as-built nuclear island structures are consistent with the dimensions defined on Table 3.3-5.                                |
| 2.g) The containment vessel greater than 7 feet above the operating deck provides a heat transfer surface. A free volume exists inside the containment shell above the operating deck.                    | The maximum containment vessel inside height from the operating deck is measured and the inner radius below the spring line is measured at two orthogonal radial directions at one elevation. | The containment vessel maximum inside height from the operating deck is 146'-7" (with tolerance of +12", -6"), and the inside diameter is 130 feet nominal (with tolerance of +12", -6"). |

1. Containment isolation devices are addressed in subsection 2.2.1, Containment System.

| <b>Table 3.3-6 (cont.)<br/>                     Inspections, Tests, Analyses, and Acceptance Criteria</b>   |  |   |
|---|--|---|
| <b>Design Commitment</b>  | <b>Inspections, Tests, Analyses</b>  | <b>Acceptance Criteria</b>  |
| 2.h) The free volume in the containment allows for floodup to support long-term core cooling for postulated loss-of-coolant accidents.                                  | An inspection will be performed of the as-built containment structures and equipment. The portions of the containment included in this inspection are the volumes that flood with a loss-of-coolant accident in passive core cooling system valve/equipment room B (11207). The in-containment refueling water storage tank volume is excluded from this inspection. | A report exists and concludes that the floodup volume of this portion of the containment is less than 73,500 ft <sup>3</sup> to an elevation of 108'.   |
| 3. Walls and floors of the nuclear island structures as defined on Table 3.3-1 except for designed openings or penetrations provide shielding during normal operations. | Inspection of the as-built nuclear island structures wall and floor thicknesses will be performed.   | <p>a) A report exists and concludes that the shield walls and floors of the containment internal structures as defined in Table 3.3-1, except for designed openings or penetrations, are consistent with the concrete wall thicknesses provided in Table 3.3-1.</p> <p>b) A report exists and concludes that the shield walls of the shield building structures as defined in Table 3.3-1 except for designed openings or penetrations are consistent with the concrete wall thicknesses provided in Table 3.3-1.</p> <p>c) A report exists and concludes that the shield walls and floors of the non-radiologically controlled area of the auxiliary building as defined in Table 3.3-1 except for designed openings or penetrations are consistent with the concrete wall thicknesses provided in Table 3.3-1.</p> <p>d) A report exists and concludes that the shield walls and floors of the radiologically controlled area of the auxiliary building as defined in Table 3.3-1 except for designed openings or penetrations are consistent with the concrete wall thicknesses provided in Table 3.3-1.</p> |

| <b>Table 3.3-6 (cont.)<br/>Inspections, Tests, Analyses, and Acceptance Criteria</b>   |   |  |
|--|---|--|
| <b>Design Commitment</b>   | <b>Inspections, Tests, Analyses</b>   | <b>Acceptance Criteria</b>   |
| 4.a) Walls and floors of the annex building as defined on Table 3.3-1 except for designed openings or penetrations provide shielding during normal operations.         | Inspection of the as-built annex building wall and floor thicknesses will be performed. | A report exists and concludes that the shield walls and floors of the annex building as defined on Table 3.3-1 except for designed openings or penetrations are consistent with the minimum concrete wall thicknesses provided in Table 3.3-1.                                     |
| 4.b) Walls of the waste accumulation room in the radwaste building except for designed openings or penetrations provide shielding during normal operations.            | Inspection of the as-built radwaste building wall thicknesses will be performed.        | A report exists and concludes that the shield walls of the waste accumulation room in the radwaste building except for designed openings or penetrations are consistent with the minimum concrete wall thicknesses of 1'-4".   |
| 4.c) Walls of the packaged waste storage room in the radwaste building except for designed openings or penetrations provide shielding during normal operations.        | Inspection of the as-built radwaste building wall thicknesses will be performed.        | A report exists and concludes that the shield walls of the packaged waste storage room in the radwaste building except for the wall shared with the waste accumulation room and designed openings or penetrations are consistent with the minimum concrete wall thicknesses of 2'. |
| 5.a) Exterior walls and the basemat of the nuclear island have a water barrier up to site grade.   | An inspection of the as-built water barrier will be performed during construction.      | A report exists that confirms that a water barrier exists on the nuclear island exterior walls up to site grade.   |
| 5.b) The boundaries between rooms identified in Table 3.3-2 of the auxiliary building are designed to prevent flooding of rooms that contain safety-related equipment. | An inspection of the auxiliary building rooms will be performed.                        | A report exists that confirms floors and walls as identified on Table 3.3-2 have provisions to prevent flooding between rooms up to the maximum flood levels for each room defined in Table 3.3-2.   |

| <b>Table 3.3-6 (cont.)<br/>Inspections, Tests, Analyses, and Acceptance Criteria</b>   |   |  |
|--|---|--|
| <b>Design Commitment</b>   | <b>Inspections, Tests, Analyses</b>   | <b>Acceptance Criteria</b>   |
| 5.c) The boundaries between the following rooms, which contain safety-related equipment – PXS valve/accumulator room A (11205), PXS valve/accumulator room B (11207), and CVS room (11209) – are designed to prevent flooding between these rooms.                     | An inspection of the boundaries between the following rooms which contain safety-related equipment – PXS Valve/ Accumulator Room A (11205), PXS Valve/Accumulator Room B (11207), and CVS Room (11209) – will be performed. | A report exists that confirms that flooding of the PXS Valve/ Accumulator Room A (11205), and the PXS/Accumulator Room B (11207) is prevented to a maximum flood level as follows: PXS A 110'-2", PXS B 110'-1"; and of the CVS room (11209) to a maximum flood level of 110'-0".  |
| 6.a) The available room volumes of the radiologically controlled area of the auxiliary building between floor elevations 66'-6" and 82'-6" exceed the volume of the liquid radwaste storage tanks (WLS-MT-05A, MT-05B, MT-06A, MT-06B, MT-07A, MT-07B, MT-07C, MT-11). | An inspection will be performed of the as-built radiologically controlled area of the auxiliary building between floor elevations 66'-6" and 82'-6" to define volume.   | A report exists and concludes that the as-built available room volumes of the radiologically controlled area of the auxiliary building between floor elevations 66'-6" and 82'-6" exceed the volume of the liquid radwaste storage tanks (WLS-MT-05A, MT-05B, MT-06A, MT-06B, MT-07A, MT-07B, MT-07C, MT-11).  |
| 6.b) The radwaste building package waste storage room has a volume greater than or equal to 1293 cubic feet.   | An inspection of the radwaste building packaged waste storage room (50352) is performed.  | The volume of the radwaste building packaged waste storage room (50352) is greater than or equal to 1293 cubic feet.   |
| 7.a) Class 1E electrical cables, communication cables associated with only one division, and raceways are identified according to applicable color-coded Class 1E divisions.   | Inspections of the as-built Class 1E cables and raceways will be conducted.   | <p>a) Class 1E electrical cables, and communication cables inside containment associated with only one division, and raceways are identified by the appropriate color code.</p> <p>b) Class 1E electrical cables, and communication cables in the non-radiologically controlled area of the auxiliary building associated with only one division, and raceways are identified by the appropriate color code.</p> |

| <b>Table 3.3-6 (cont.)<br/>                     Inspections, Tests, Analyses, and Acceptance Criteria</b>   |  |   |
|---|--|---|
| <b>Design Commitment</b>  | <b>Inspections, Tests, Analyses</b>  | <b>Acceptance Criteria</b>  |
|   |  | c) Class 1E electrical cables, and communication cables in the radiologically controlled area of the auxiliary building associated with only one division, and raceways are identified by the appropriate color code.   |
| 7.b) Class 1E divisional electrical cables and communication cables associated with only one division are routed in their respective divisional raceways. | Inspections of the as-built Class 1E divisional cables and raceways will be conducted. | a) Class 1E electrical cables and communication cables inside containment associated with only one division are routed in raceways assigned to the same division. There are no other safety division electrical cables in a raceway assigned to a different division.<br><br>b) Class 1E electrical cables and communication cables in the non-radiologically controlled area of the auxiliary building associated with only one division are routed in raceways assigned to the same division. There are no other safety division electrical cables in a raceway assigned to a different division.<br><br>c) Class 1E electrical cables and communication cables in the radiologically controlled area of the auxiliary building associated with only one division are routed in raceways assigned to the same division. There are no other safety division electrical cables in a raceway assigned to a different division. |

| <b>Table 3.3-6 (cont.)<br/>Inspections, Tests, Analyses, and Acceptance Criteria</b>                                      |   |  |
|---|---|--|
| <b>Design Commitment</b>  | <b>Inspections, Tests, Analyses</b>   | <b>Acceptance Criteria</b>   |
| 7.c) Separation is maintained between Class 1E divisions in accordance with the fire areas as identified in Table 3.3-3.  | i) Inspections of the as-built Class 1E division electrical cables, communication cables associated with only one division, and raceways located in the fire areas identified in Table 3.3-3 will be conducted.   | i.a) Results of the inspection will confirm that the separation between Class 1E divisions in the non-radiologically controlled area of the auxiliary building is consistent with Table 3.3-3.<br><br>i.b) Results of the inspection will confirm that the separation between Class 1E divisions in the radiologically controlled area of the auxiliary building is consistent with Table 3.3-3. |
|   | ii) Inspections of the as-built fire barriers between the fire areas identified in Table 3.3-3 will be conducted.   | ii.a) Results of the inspection will confirm that fire barriers exist between fire areas identified in Table 3.3-3 inside the non-radiologically controlled area of the auxiliary building.<br><br>ii.b) Results of the inspection will confirm that fire barriers exist between fire areas identified in Table 3.3-3 inside the radiologically controlled area of the auxiliary building.       |
| 7.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables. | Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following:<br><br>i) Within the main control room and remote shutdown room, the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch. | Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following:<br><br>i) Within the main control room and remote shutdown room, the vertical separation is 3 inches or more and the horizontal separation is 1 inch or more.                              |



| <b>Table 3.3-6 (cont.)<br/>                     Inspections, Tests, Analyses, and Acceptance Criteria</b> |   |  |
|---|---|--|
| <b>Design Commitment</b>  | <b>Inspections, Tests, Analyses</b>   | <b>Acceptance Criteria</b>   |
|   | <p>ii) Within other plant areas (limited hazard areas), the minimum separation is defined by one of the following:</p> <ol style="list-style-type: none"> <li>1) The minimum vertical separation is 5 feet and the minimum horizontal separation is 3 feet.</li> <li>2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables &lt;2/0 AWG.</li> <li>3) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.</li> <li>4) For configurations involving an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway.</li> <li>5) For configuration involving enclosed raceways, the minimum separation is 1 inch in both horizontal and vertical directions.</li> </ol> | <p>ii.a) Within other plant areas inside containment (limited hazard areas), the separation meets one of the following:</p> <ol style="list-style-type: none"> <li>1) The vertical separation is 5 feet or more and the horizontal separation is 3 feet or more except.</li> <li>2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables &lt;2/0 AWG.</li> <li>3) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.</li> <li>4) For configurations that involve an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the raceway.</li> <li>5) For configurations that involve enclosed raceways, the minimum vertical and horizontal separation is 1 inch.</li> </ol> |

| Table 3.3-6 (cont.)<br>Inspections, Tests, Analyses, and Acceptance Criteria |                              |   |
|--|------------------------------|---|
| Design Commitment  | Inspections, Tests, Analyses | Acceptance Criteria   |
|  |                              | ii.b) Within other plant areas inside the non-radiologically controlled area of the auxiliary building (limited hazard areas), the separation meets one of the following: <ol style="list-style-type: none"> <li>1) The vertical separation is 5 feet or more and the horizontal separation is 3 feet or more except.</li> <li>2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables &lt; 2/0 AWG.</li> <li>3) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.</li> <li>4) For configurations that involve an enclosed raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the raceway.</li> <li>5) For configurations that involve enclosed raceways, the minimum vertical and horizontal separation is 1 inch.</li> </ol> |

| Table 3.3-6 (cont.)<br>Inspections, Tests, Analyses, and Acceptance Criteria |                              |   |
|--|------------------------------|---|
| Design Commitment  | Inspections, Tests, Analyses | Acceptance Criteria   |
|  |                              | ii.c) Within other plant areas inside the radiologically controlled area of the auxiliary building (limited hazard areas), the separation meets one of the following: <ol style="list-style-type: none"> <li>1) The vertical separation is 5 feet or more and the horizontal separation is 3 feet or more except.</li> <li>2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables &lt; 2/0 AWG.</li> <li>3) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.</li> <li>4) For configurations that involve an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the raceway.</li> <li>5) For configurations that involve enclosed raceways, the minimum vertical and horizontal separation is 1 inch.</li> </ol> |

| <b>Table 3.3-6 (cont.)<br/>                     Inspections, Tests, Analyses, and Acceptance Criteria</b> |  |  |
|---|--|--|
| <b>Design Commitment</b>  | <b>Inspections, Tests, Analyses</b>  | <b>Acceptance Criteria</b>   |
|   | <p>iii) Where minimum separation distances are not maintained, the circuits are run in enclosed raceways or barriers are provided.</p>           | <p>iii.a) Where minimum separation distances are not met inside containment, the circuits are run in enclosed raceways or barriers are provided.</p> <p>iii.b) Where minimum separation distances are not met inside the non-radiologically controlled area of the auxiliary building, the circuits are run in enclosed raceways or barriers are provided.</p> <p>iii.c) Where minimum separation distances are not met inside the radiologically controlled area of the auxiliary building, the circuits are run in enclosed raceways or barriers are provided.</p>   |
|   | <p>iv) Separation distances less than those specified above and not run in enclosed raceways or provided with barriers are based on analysis</p> | <p>iv.a) For areas inside containment, a report exists and concludes that separation distances less than those specified above and not provided with enclosed raceways or barriers have been analyzed.</p> <p>iv.b) For areas inside the non-radiologically controlled area of the auxiliary building, a report exists and concludes that separation distances less than those specified above and not provided with enclosed raceways or barriers have been analyzed.</p> <p>iv.c) For areas inside the radiologically controlled area of the auxiliary building, a report exists and concludes that separation distances less than those specified above and not provided with enclosed raceways or barriers have been analyzed.</p> |

| <b>Table 3.3-6 (cont.)<br/>Inspections, Tests, Analyses, and Acceptance Criteria</b>  |   |   |
|---|---|---|
| <b>Design Commitment</b>  | <b>Inspections, Tests, Analyses</b>   | <b>Acceptance Criteria</b>  |
|   | v) Non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is considered as associated circuits and subject to Class 1E requirements. | v.a) For areas inside containment, non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is treated as Class 1E wiring.<br><br>v.b) For areas inside the non-radiologically controlled area of the auxiliary building, non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is treated as Class 1E wiring.<br><br>v.c) For areas inside the radiologically controlled area of the auxiliary building, non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is treated as Class 1E wiring. |
| 7.e) Class 1E communication cables which interconnect two divisions are routed and separated such that the Protection and Safety Monitoring System voting logic is not defeated by the loss of any single raceway or fire area. | Inspections of the as-built Class 1E communication cables will be conducted.  | Class 1E communication cables which interconnect two divisions are routed and separated such that the Protection and Safety Monitoring System voting logic is not defeated by the loss of any single raceway or fire area.  |
| 8. Systems, structures, and components identified as essential targets are protected from the dynamic and environmental effects of postulated pipe ruptures.  | Following as-built reconciliation, an inspection will be performed of the as-built high and moderate energy pipe rupture mitigation features for systems, structures, and components identified as essential targets.     | An as-built Pipe Rupture Hazard Analysis Report exists and concludes that systems, structures, and components identified as essential targets can withstand the effects of postulated pipe rupture without loss of required safety function.  |
| 9. The reactor cavity sump has a minimum concrete thickness as shown in Table 3.3-5 between the bottom of the sump and the steel containment.   | An inspection of the as-built containment building internal structures will be performed.   | A report exists and concludes that the reactor cavity sump has a minimum concrete thickness as shown on Table 3.3-5 between the bottom of the sump and the steel containment.   |

| <b>Table 3.3-6 (cont.)<br/>Inspections, Tests, Analyses, and Acceptance Criteria</b>  |   |  |
|---|---|--|
| <b>Design Commitment</b>  | <b>Inspections, Tests, Analyses</b>   | <b>Acceptance Criteria</b>   |
| <p>10. The shield building roof and PCS storage tank support and retain the PCS water sources. The PCS storage tank has a stainless steel liner which provides a barrier on the inside surfaces of the tank. Leak chase channels are provided on the tank boundary liner welds.</p> | <p>i) A test will be performed to measure the leakage from the PCS storage tank based on measuring the water flow out of the leak chase collection system.</p> <p>ii) An inspection of the PCS storage tank exterior tank boundary and shield building tension ring will be performed before and after filling of the PCS storage tank to the overflow level. The vertical elevation of the shield building roof will be measured at a location at the outer radius of the roof (tension ring) and at a location on the same azimuth at the outer radius of the PCS storage tank before and after filling the PCS storage tank.</p> | <p>i) A report exists and concludes that total water flow from the leak chase collection system does not exceed 10 gal/hr.</p> <p>ii) A report exists and concludes that inspection and measurement of the PCS storage tank and the tension ring structure, before and after filling of the tank, shows structural behavior under normal loads to be acceptable.</p> |
|   | <p>iii) An inspection of the PCS storage tank exterior tank boundary and shield building tension ring will be performed before and after filling of the PCS storage tank to the overflow level. The boundaries of the PCS storage tank and the shield building roof above the tension ring will be inspected visually for excessive concrete cracking.</p>  | <p>iii) A report exists and concludes that there is no visible water leakage from the PCS storage tank through the concrete and that there is no visible excessive cracking in the boundaries of the PCS storage tank and the shield building roof above the tension ring.</p>   |
| <p>11. Deleted</p>  |   |  |
| <p>12. The extended turbine generator axis intersects the shield building.</p>  | <p>An inspection of the as-built turbine generator will be performed.</p>   | <p>The extended axis of the turbine generator intersects the shield building.</p>  |

| <b>Table 3.3-6 (cont.)<br/>Inspections, Tests, Analyses, and Acceptance Criteria</b>  |   |  |
|---|---|--|
| <b>Design Commitment</b>  | <b>Inspections, Tests, Analyses</b>   | <b>Acceptance Criteria</b>   |
| 13. Separation is provided between the structural elements of the turbine, annex and radwaste buildings and the nuclear island structure. This separation permits horizontal motion of the buildings in the safe shutdown earthquake without impact between structural elements of the buildings. | An inspection of the separation of the nuclear island from the annex, radwaste and turbine building structures will be performed. The inspection will verify the specified horizontal clearance between structural elements of the adjacent buildings, consisting of the reinforced concrete walls and slabs, structural steel columns and floor beams. | The minimum horizontal clearance above floor elevation 100'-0" between the structural elements of the annex and radwaste buildings and the nuclear island is 4 inches. The minimum horizontal clearance above floor elevation 100'-0" between the structural elements of the turbine building and the nuclear island is 12 inches. |
| 14. The external walls, doors, ceiling, and floors in the main control room, the central alarm station, and the secondary alarm station are bullet-resistant to at least Underwriters Laboratory Ballistic Standard 752, level 4.   | Type test, analysis, or a combination of type test and analysis will be performed for the external walls, doors, ceilings, and floors in the main control room, the central alarm station, and the secondary alarm station.   | A report exists and concludes that the external walls, doors, ceilings, and floors in the main control room, the central alarm station, and the secondary alarm station are bullet-resistant to at least Underwriters Laboratory Ballistic Standard 752, level 4.  |
| 15. Deleted.  |   |  |
| 16. Secondary security power supply system for alarm annunciator equipment and non-portable communications equipment is located within a vital area.  | An inspection will be performed to ensure that the location of the secondary security power supply equipment for alarm annunciator equipment and non-portable communications equipment is within a vital area.  | Secondary security power supply equipment for alarm annunciator equipment and non-portable communication equipment is located within a vital area.   |
| 17. Vital areas are locked and alarmed with active intrusion detection systems that annunciate in the central and secondary alarm stations upon intrusion into a vital area.  | An inspection of the as-built vital areas, and central and secondary alarm stations are performed.  | Vital areas are locked and alarmed with active and intrusion is detected and annunciated in both the central and secondary alarm stations.   |
| 18. Deleted.  |   |  |

| <b>Table 3.3-7<br/>Nuclear Island Critical Structural Sections</b>   |
|--|
| <p><u>Containment Internal Structures</u></p> <p>South west wall of the refueling cavity<br/>           South wall of the west steam generator cavity<br/>           North east wall of the in-containment refueling water storage tank<br/>           In-containment refueling water storage tank steel wall<br/>           Column supporting the operating floor</p>   |
| <p><u>Auxiliary and Shield Building</u></p> <p>South wall of auxiliary building (column line 1), elevation 66'-6" to elevation 180'-0"<br/>           Interior wall of auxiliary building (column line 7.3), elevation 66'-6" to elevation 160'-6"<br/>           West wall of main control room in auxiliary building (column line L), elevation 117'-6" to elevation 153'-0"<br/>           North wall of MSIV east compartment (column line 11 between lines P and Q), elevation 117'-6" to elevation 153'-0"<br/>           Shield building cylinder, elevation 160'-6" to elevation 266'-3"<br/>           RC/SC Shield Building Connections<br/>           Shield Building Air Inlet And Tension Ring<br/>           Roof slab at elevation 180'-0" adjacent to shield building cylinder<br/>           Floor slab on metal decking at elevation 135'-3"<br/>           2'-0" slab in auxiliary building (tagging room ceiling) at elevation 135'-3"<br/>           Finned floor in the main control room at elevation 135'-3"<br/>           Shield building roof, exterior wall of the PCS water storage tank<br/>           Shield building roof, tension ring and columns between air inlets<br/>           Divider wall between the spent fuel pool and the fuel transfer canal</p> |
| <p><u>Nuclear Island Basemat Below Auxiliary Building</u></p> <p>Bay between reference column lines 9.1 and 11, and K and L<br/>           Bay between reference column lines 1 and 2 and K-2 and N</p>  |



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**Figure 3.3-1  
Nuclear Island Section A-A**

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**Figure 3.3-2  
Nuclear Island Section B-B**

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**Figure 3.3-3  
Nuclear Island Plan View at Elevation 66'-6"**

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**Figure 3.3-4  
Nuclear Island Plan View at Elevation 82'-6"**

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**Figure 3.3-5  
Nuclear Island Plan View at Elevation 96'-6"**

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**Figure 3.3-6  
Nuclear Island Plan View at Elevation 100'-0"**

**Redacted Version, Withheld Under 10 CFR 2.390d**

**Figure 3.3-7  
Nuclear Island Plan View at Elevation 117'-6"**

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**Figure 3.3-8  
Nuclear Island Plan View at Elevation 135'-3"**



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**Figure 3.3-9**  
**Nuclear Island Plan View at Elevation**  
**153'-3" and 160'-6"**

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**Figure 3.3-10  
Nuclear Island Plan View at Shield Building Roof**

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**Figure 3.3-11A  
Annex Building Plan View at Elevation 100'-0"**

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**Figure 3.3-11B  
Turbine Building General Arrangement Plan at Elevation 100'-0"**

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**Figure 3.3-12  
Annex Building Plan View at Elevation 117'-6"**

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**Figure 3.3-13  
Annex Building Plan View at Elevation 135'-3"**

**Redacted Version, Withheld Under 10 CFR 2.390d**

**Figure 3.3-14  
Nuclear Island Dimensions at  
Elevation 66'-6"**