3.4 Water Level (Flood) Design

All seismic Category I structures, systems, and components (SSCs) are designed to withstand the effects of flooding due to natural phenomena or onsite equipment failures without loss of the capability to perform their safety-related functions.

The potential causes of external flooding include probable maximum precipitation, potential dam failures, and high ground water and outdoor tank failures, and extreme sea waves such as storm surges, seiches, tsunamis, high tides, etc., as described in Section 2.4.

This analysis includes a site description and elevations of safety-related structures and equipment; evaluations of penetrations in seismic Category I structures; and the effects of flooding due to postulated pipe failures, operation of fire protection systems, and failures of non-seismic and non-tornado protected tanks, vessels, and piping.

3.4.1 Flood Protection and Evaluation

3.4.1.1 Design Bases

The design basis flood level at the reactor site will be determined in accordance with NRC RG 1.59 (Reference 1) and ANSI/ANS 2.8 (Reference 2). Because the design basis flooding level of the APR1400 standard design is at least 0.3 m (1 ft) below the plant grade as specified in Table 2.0-1, all safety-related SSCs located on the dry site as defined in NRC RG 1.102 (Reference 3) are protected from an external flood event.

The COL applicant is to provide site-specific information on protection measures for the design-basis flood, as described in Subsection 2.4.10 (COL 3.4(1)).

All seismic Category I structures are designed to withstand the static and dynamic forces due to the maximum ground water level, which is 0.61 m (2 ft) below the plant grade as provided in Table 2.0-1.

3.4.1.2 Flood Protection from External Sources

The flood protection measures for seismic Category I SSCs are designed in accordance with NRC RG 1.102 (Reference 3).

Seismic Category I structures identified in Table 3.2-1 are designed for flood protection. Seismic Category I structures are designed to protect safety-related equipment from floods by incorporating the following safeguards into their construction:

a. No exterior access openings are lower than 0.41 m (1 ft 4 in) above plant grade (yard grade) elevation.

b. The finished yard grade adjacent to the safety-related structures is maintained at least 0.41 m (1 ft 4 in) below the ground floor elevation, except where ramps or steps are provided for access.

c. Waterstops are used in all horizontal and vertical construction joints in all exterior walls up to flood-level elevation.

d. Water seals are provided for all penetrations in exterior walls up to flood-level elevation. The water seals are designed for the static pressure of water at the flood elevation. Water seals in safety-related structures are designed to maintain integrity in the event of an SSE.

e. All below-grade exterior walls and basemats of seismic Category I structures are thickened by more than or equal to 0.6 m (2 ft) to protect against water seepage, as required in SRP Section 14.3.2. Waterproofing systems are not used under the basemats or on the below-grade exterior walls of seismic Category I structures as a provision against external flooding.

Penetrations below the external flood level in the external walls of the auxiliary building include component cooling water, radwaste, and diesel fuel oil system piping and cable penetrations. Additional penetrations may be identified when layouts are finalized for systems such as sewage, demineralized water, station air, and security. All penetrations are sealed on the inside of the penetration to eliminate the potential of flooding through the penetration.

3.4.1.3 Flood Protection from Internal Sources

The APR1400 arrangement provides physical separation of redundant safety-related SSCs. The flood protection mechanisms related to minimizing the consequences of internal flooding include the following:

a. Structural enclosures or barrier walls

b. Drainage systems

c. Emergency sump

d. Internal curbs or ramps

e. Watertight doors

The APR1400 minimizes penetrations through enclosures or barrier walls below the flood level. Enclosures and barrier walls below the flood level are sealed to maintain watertightness. Barrier walls, floors, and penetrations are designed to withstand the maximum anticipated hydrodynamic loads associated with a pipe failure, as described in Section 3.6.

Divisional and quadrant separation by flood barriers with watertightness is provided for internal flood protection. Each quadrant is protected against propagation of internal flood event from one quadrant to any other.

The flood drainage systems are separated by quadrants with no common drain lines between the quadrants. Floors are gently sloped to allow for good drainage to the quadrant sumps.

The lowest spaces of each building are designed as an emergency sump to keep flood water within the building where a flooding event could occur. The emergency sump is large enough to accommodate the volume of limiting flood source.

Additionally, curbs or ramps and sealed penetrations function as flood barriers. Safety-related equipment and components are located at higher elevations so flooding events do not affect them.

Watertight doors are used for internal flood protection. Watertight doors are specified to withstand the static pressure from the maximum flood elevation as determined in the flood analysis. Where flood doors are provided, open and close sensors are also provided with status indication provided at a central fire alarm station.

The areas of concern in APR1400 are as follows:

a. Containment building

The containment building systems to be protected from flooding are the reactor coolant system (RCS), safety injection system (SIS), reactor coolant gas vent system (RCGVS), and main steam system (MSS). The components to be protected from flooding are the valves and electric instrumentation of these systems.

b. Auxiliary building

The auxiliary building systems to be protected from flooding are the SIS, shutdown cooling system (SCS), chemical and volume control system (CVCS), containment spray system (CSS), auxiliary feedwater system (AFWS), and component cooling water system (CCWS). The components to be protected from flooding are the motor-driven pumps, valves, electrical equipment and instruments, Class 1E electric/instrumentation components, and cubicle coolers in the relevant system.

c. Emergency diesel generator building

The systems in the emergency diesel generator building to be protected from flooding are Class 1E emergency diesel generator system, and the emergency diesel generator fuel oil storage and transfer system. The components to be protected from flooding are diesel generator, diesel fuel oil transfer pump, and exhaust fan.

Tables 3.4-1 and 3.4-2 provide the locations of safety-related SSCs and a comparison of the maximum internal flood elevation in the vicinity of the components. Figures 3.4-1 through 3.4-7 provide the locations of watertight doors and flood barriers in the auxiliary building.

The COL applicant is to provide flood protection and mitigation features from internal flooding for the site-specific SSCs that perform safety-related functions or whose postulated failure could adversely affect the ability to achieve a safe shutdown condition (COL 3.4(2)).

3.4.1.4 Evaluation of External Flooding

External flooding is evaluated based on flooding sources such as natural phenomena and the failure of onsite tanks or large buried pipes. The maximum water level and flow velocity of an individual flood event are determined to estimate flood loads on seismic Category I structures and the watertightness of the structures during an external flood event. Seismic Category I structures are designed for the design basis flood level and the maximum ground water level defined in Table 2.0-1.

The COL applicant is to confirm that the potential site-specific external flooding events are bounded by design basis flood values or otherwise demonstrate that the design is acceptable (COL 3.4(3)).

No permanent dewatering systems are necessary to maintain safe and acceptable groundwater levels.

3.4.1.5 Evaluation of Internal Flooding

The internal flooding analysis demonstrates that plant nuclear safety functions are protected from the effects of internal flooding that are the result of a postulated failure or operation of the plant fire protection system. The safety-related SSCs that must be protected against an internal flood and flood conditions are described in Section 7.4. Potential flooding sources are as follows:

a. High- and moderate-energy piping failures

b. Full-circumferential ruptures in non-seismic moderate-energy piping

c. Postulated failures of non-seismic and non-tornado-protected tanks and vessels

d. Pump mechanical seal failures

e. Operation of the fire protection system

Criteria and assumptions described in Subsection 3.6.2 are used for the internal flooding analysis. Subsection 3.6.2 provides the criteria used to define break and crack locations and configurations for high- and moderate-energy piping failures.

For flooding analysis, the single worst-case piping rupture for non-seismically analyzed piping is assumed for each analyzed area. The discharge volume is calculated in accordance with the formula given in ANSI/ANS 56.10-1987, Section 3 (Reference 4). The released steam is considered to be completely condensed.

Indoor hydrants represent internal flood sources from at least the nearest two fire hose stations that could reach the fire zone. The discharge rate of indoor hydrants is assumed to be 0.044 m^3/s (700 gpm).

Fluid flow rate through stairwells, floor openings, and floor sleeves are determined in accordance with the formulas given in ANSI 56.11-1988 (Reference 5). For each storage tank, it is assumed that the total inventory of the tank is spilled out. No credit is taken for operation of sump pumps to mitigate the flooding consequences.

The internal flooding analysis is performed on a floor-by-floor and room-by-room basis.

Flooding analysis consists of the following steps:

a. Identification of safety-related SSCs

b. Identification of potential flooding sources

c. Determination of flow rates and flood levels

d. Risk assessment for components affected by a flood event

e. Determination of the need for protection and mitigation measures

3.4.1.5.1 Reactor Containment Building

The APR1400 is designed to accommodate the effects of, and to be compatible with, the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including LOCAs.

The reactor containment building is not designed to provide divisional separation but it allows flood sources to flow to the lowest level of the building through the floor opening.

a. Water at El. 156 ft 0 in flows to the lower elevation through four reactor containment fan cooler duct openings, two stairwells, and four safety injection tank openings.

b. Water at El. 136 ft 6 in flows to the lower elevation through the grating in the containment annulus area. Water in the pressurizer cavity flows to the containment annulus area through the wire mesh door.

c. Water at El. 114 ft 0 in flows to the lower elevation through the grating in the containment annulus area. Water in each valve room flows to the containment annulus area through the wire mesh door.

d. Water at El. 100 ft 0 in flows to the hold-up volume tank through the floor opening and then to the in-containment refueling water storage tank (IRWST) through the spillway. Water in the letdown heat exchanger room and reactor drain tank room flows to the containment annulus area through the wire mesh door.

The worst-case flooding event is a loss-of-coolant accident (LOCA). The maximum flooding source is discharged during the LOCA.

Discharged water first fills up the volume below elevation El. 100 ft 0 in and then spreads the volume above the grade level of the reactor containment building. Water released by a

LOCA is collected in the IRWST through the floor opening. It then flows back to the reactor coolant system or is sprayed into the containment and recirculated.

The total discharged volume of double-ended discharge leg break of a LOCA is 425.7 m^3 (15,036 ft^3). The net floodable volume below El. 100 ft 0 in is 1,002 m^3 (35,385 ft^3). The total discharged volume of water from a LOCA is smaller than the volume of the total floodable volume.

The flood water level is determined as 0.61 m (2 ft) above El. 100 ft 0 in. The maximum flood level of containment does not affect safety-related equipment. There are no submerged SSCs required for safe shutdown. Table 3.4-1 provides a list and the locations of SSCs inside the reactor containment building that require flood protection. These SSCs are located above the maximum internal flood level.

3.4.1.5.2 Auxiliary Building

The auxiliary building is designed to provide physical separation to prevent spreading of fluids to the areas housing safety-related equipment and components.

Elevation 55 ft 0 in

The primary means of flood protection is the divisional or quadrant walls, which serve as flood barriers between redundant trains of safe shutdown systems and components. Flood barriers provide separation between the quadrants, while maintaining equipment removal capability.

On the divisional wall, penetrations are sealed and no doors are provided up to El. 64 ft 0 in, which is the potential flood level from the bottom elevation. Watertight doors are provided between the quadrants to prevent potential flood sources from spreading to adjacent quadrants.

The equipment to be protected at El. 55 ft 0 in includes SI pumps, SC/CS pumps, heat exchangers, and CCW pumps. In each quadrant, the SI pump rooms, SC/CS pump rooms, and CCW pump rooms are separated by a flood barrier.

The following potential flood sources are considered:

a. A postulated pipe failure is considered in only one area of the quadrant. During normal operation, a 0.25 m (10 in) pipe crack in the SIS suction line from the IRWST is considered a potential flooding source.

b. There is no break in non-seismic moderate-energy piping because most of the piping in the auxiliary building is designed as seismic Category I or II.

c. Firefighting equipment represents internal flood sources from at least the nearest two fire hose stations that could reach the fire zone. The discharge rate for firefighting equipment is assumed to be 0.044 m^3/s (700 gpm).

The worst case of flooding in the auxiliary building is the water source in the IRWST. The total water volume of the IRWST is 2,540 m^3 (89,715 ft^3) and the floodable area in the four quadrants (A, B, C, and D) is 1,168 m^2 (12,577 ft^2), 1,176 m^2 (12,664 ft^2), 1,232 m^2 (13,263 ft^2), and 1,232 m^2 (13,263 ft^2), respectively.

Based on these values, the maximum water level is 2.74 m (9 ft) with some margin. The released water volume is contained within the affected quadrant.

Elevation 78 ft 0 in

Flood water above El. 78 ft 0 in drains to the lower elevation through the floor drain, stairwells, and openings. To avoid flooding adjacent quadrants, a curb or ramp is installed at each quadrant intersection. The emergency diesel generator is separated by distance and flood barriers. Radiation-control areas are also separated by flood barriers. A watertight door is provided to prevent spreading of flood water through the potential flow path from the boric acid storage tank (BAST) tunnel to the auxiliary building.

The equipment to be protected from flooding at El. 78 ft 0 includes motor-driven AF pumps, turbine-driven AF pumps, Class 1E switchgear, essential chiller, and related electrical equipment. The turbine-driven AF pump and motor-driven AF pump are separated by a quadrant flood barrier.

The following potential flood sources are considered:

a. A postulated pipe failure of a moderate-energy line is considered.

b. A high-energy line break event is not considered because there is no piping break in this area.

c. A break in non-seismic moderate-energy piping break is not considered because most the piping in the auxiliary building is designed as seismic Category I or II.

d. Firefighting equipment represents internal flood sources from at least the nearest two fire hose stations that could reach the fire zone. The discharge rate for firefighting equipment is assumed to be 0.044 m^3/s (700 gpm). However, a malfunction of the fire protection system is not considered in this area because it has a CO_2 suppression system.

The worst-case flooding scenario is a postulated pipe failure of a 0.10 m (4 in) AF moderate-energy line in normal operation, during which flood water would drain to lower elevations through the drain system and openings. The potential flood level at this elevation is assumed as 0.15 m (6 in).

AF pumps are located above the potential internal flood levels. Pressure door protection is provided for the turbine-driven auxiliary feedwater pump room to further protect these pumps and the adjacent motor-driven pumps from the impact of pipe ruptures. Electrical equipment is installed above the flood level so that flooding events do not affect this equipment. Therefore, AF pumps and electrical equipment are not flooded.

Elevation 100 ft 0 in

Flood water above El. 100 ft 0 in drains to the lower elevation through floor drains, stairwells, and openings. To avoid flooding adjacent quadrants, a curb or ramp is installed at each quadrant intersection. The emergency diesel generator is separated by distance and protected by flood barriers. The radiation control area is also separated by flood barriers. Watertight doors are installed to prevent spreading of flood water through the potential flow path from the compound building to the auxiliary building.

The equipment to be protected from flooding at El. 100 ft 0 in includes the 480V Class 1E motor control center, electrical equipment, and related cubicle coolers.

The following potential flood sources are considered:

a. Postulated pipe failure of a moderate-energy line is considered.

b. A high-energy line break event is not considered because there is no piping break in this area.

c. There is no break of non-seismic moderate-energy piping because most of the piping in auxiliary building is designed as seismic Category I or II.

d. The total water inventory of the volume control tank is considered a flood source at quadrant A.

e. Firefighting equipment represents internal flood sources from at least the nearest two fire hose stations that could reach the fire zone. The discharge rate for firefighting equipment is assumed to be 0.044 m^3/s (700 gpm).

Based on flood sources, the worst-case flooding scenario is postulated failure of a 0.36 m (14 in) component cooling line in the general access area, during which flood water would drain to lower elevations through the drain system and openings. The potential flood level at this elevation is assumed as 0.15 m (6 in).

The safety-related equipment and components are elevated above the flood level so that flooding events do not affect components. Therefore, the electrical equipment and related cubicle cooler are not flooded.

Elevation 120 ft 0 in

Flood water above El. 120 ft 0 in drains to the lower elevation through floor drains, stairwells, and openings. To avoid flooding adjacent quadrants, a curb or ramp is installed at each quadrant intersection. The emergency diesel generator is separated by distance

and protected by flood barriers. The radiation control area is also separated by flood barriers.

The equipment to be protected from flooding at El. 120 ft 0 in includes the Class 1E motor control center, related cubicle coolers, safety injection containment isolation valves, and AF modulating valves.

The following potential flood sources are considered:

a. A postulated pipe failure of a moderate-energy line is considered.

b. A high-energy line break is considered for the 0.10 m (4 in) steam generator blowdown system line.

c. There is no break of non-seismic moderate-energy piping because most of the piping in the auxiliary building is designed as seismic Category I or II.

d. Firefighting equipment represents internal flood sources from at least the nearest two fire hose stations that could reach the fire zone. The discharge rate for firefighting equipment is assumed to be 0.044 m^3/s (700 gpm).

Based on flood sources, the worst-case flooding scenario is the HELB of a 0.10 m (4 in) steam generator blowdown system line. The flood relief opening is installed toward the outside to remove flood water. A watertight door is installed to protect against spreading flood water to adjacent areas in the steam generator blowdown regenerator heat exchanger room.

In other areas except the SGBD regenerator heat exchanger room, the 0.10 m (4 in) fire protection system line is considered a flooding source. The flood water is drained to lower elevations through the drain system and openings. The potential flood level at this elevation is assumed as 0.15 m (6 in).

Safety-related equipment and components are elevated above flood level. Therefore, the Class 1E motor control center, cubicle coolers, and valves are not flooded.

Elevation 137 ft 6 in

Flood water above El. 137 ft 6 in drains to the lower elevation through floor drains, stairwells, and openings. To avoid flooding adjacent quadrants, a curb or ramp is installed at each quadrant intersection. The remote shutdown room and reactor trip switchgear room are protected by flood barriers.

The equipment to be protected from flooding at El. 137 ft 6 in includes Class 1E motor control center, switchgear, remote shutdown panel, main feedwater isolation valves, and main steam safety valves.

The following potential flood sources are considered:

a. A postulated pipe failure of moderate-energy line is considered.

b. A high-energy line break is considered in the main steam enclosure and main steam valve room.

c. There is no break of non-seismic moderate-energy piping because most of the piping in the auxiliary building is designed as seismic Category I or II.

d. Firefighting equipment represents internal flood sources from at least the nearest two fire hose stations that could reach the fire zone. The discharge rate for firefighting equipment is assumed to be 0.044 m^3/s (700 gpm). The malfunction of sprinklers is also considered a potential flood source.

A rupture of a feedwater system line is the worst case of flooding for the main steam valve room. The cross-section area of the break is based on 0.09 m^2 (1.0 ft^2), as defined in Standard Review Plan, Branch Technical Position 3-3 (Reference 6). In addition, a main feedwater pump is assumed to operate at the maximum flow rate. An emergency flood relief path is installed to drain out at each room. The potential flood level is 1.82 m (6 ft) above El. 137 ft 6 in, and the safety valves are located above the flood level so these valves are not flooded.

In other areas except the main steam valve room, the fire suppression system is considered a flooding source. The flood water is drained to lower elevations through the drain system and openings. The potential flood level at this elevation is assumed as 0.15 m (6 in).

The safety-related equipment and components are elevated above the flood level. Therefore, the Class 1E motor control center, switchgear, and remote shutdown panel are not flooded.

Elevation 156 ft 0 in

Flood water above El. 156 ft 0 in drains to the lower elevation through the floor drain and stairwells.

The equipment to be protected from flooding at El. 156 ft 0 in includes I&C equipment, cubicle coolers, and the console in main control room. The main control room area is protected from flooding in that no water lines are routed above or through the control room or computer room. Water lines routed to HVAC air handling units around the control room are contained in rooms with curbs that preclude the potential for water leakage from entering the control room or computer room.

The following potential flood sources are considered:

a. A postulated pipe failure of a moderate-energy line is considered.

b. A high-energy line break is not considered because there is no piping break in this area.

c. There is no break of non-seismic moderate-energy piping because most of the piping in the auxiliary building is designed as seismic Category I or II.

d. Firefighting equipment represents internal flood sources from at least the nearest two fire hose stations that could reach the fire zone. The discharge rate is for firefighting equipment is assumed to be 0.044 m^3/s (700 gpm).

Based on flood sources, the worst-case flooding scenario is rupture of a 0.10 m (4 in) fire protection system line in a corridor. The flood water is drained to lower elevations through the drain system and openings. The potential flood level at this elevation is assumed as 0.61 m (2 ft) from the bottom El. 156 ft 0 in.

The safety-related equipment and components are elevated above El.158 ft 0 in, so the I&C equipment, cubicle cooler, and consoles in the MCR are not flooded.

Elevation 174 ft 0 in

Flood water above El. 174 ft 0 in drains to the lower elevation through floor drains, stairwells, and openings. The EDG normal exhaust fan room is separated by distance and protected by flood barriers.

The equipment to be protected from flooding at El. 174 ft 0 in includes the control room supply air handling unit and EDG room normal supply air handling unit.

The following potential flood sources are considered:

a. A postulated pipe failure of a moderate-energy line is considered.

b. A high-energy line break event is not considered because there is no piping break in this area.

c. There is no break of non-seismic moderate-energy piping because most of the piping in the auxiliary building is designed as seismic Category I or II.

d. Firefighting equipment represents internal flood sources from at least the nearest two fire hose stations that could reach the fire zone. The discharge rate is for firefighting equipment is assumed to be 0.044 m^3/s (700 gpm)

Based on flood sources, the worst-case flooding scenario is rupture of a 0.10 m (4in) fire protection system line in the general access area. The flood water is drained to lower elevations through the drain system and openings. The potential flood level at this elevation is assumed as 0.15 m (6 in) from the bottom El. 174 ft 0 in.

The safety-related equipment and components are elevated above the flood level. Therefore, the control room supply AHU and EDG room supply AHU are not flooded.

3.4.1.5.3 Emergency Diesel Generator Building

The emergency diesel generator building is separated by distance from other buildings and divisionally separated by flood barriers. Emergency diesel generators (EDGs) are separated by distance and flood barriers so that an internal flooding event does not affect both EDGs simultaneously.

3.4.2 Analysis Procedures

Flood loads due to the design basis flood level and maximum ground water level are estimated using the applicable codes and standards, as described in Section 3.8. Seismic Category I structures are designed to withstand flood loads and to remain watertight during the design basis flood event. The loads and load combinations provided in Section 3.8 take into consideration the static and dynamic loadings on seismic Category I structures including hydrostatic loading due to the design-basis flood and/or the ground water conditions specified in Table 2.0-1.

The COL applicant is to identify any site-specific physical models that could be used to predict prototype performance of hydraulic structures and systems (COL 3.4(4)).

3.4.3 Combined License Information

COL 3.4(1) The COL applicant is to provide site-specific information on protection measures for the design-basis flood, as required in Subsection 2.4.10.

COL 3.4(2) The COL applicant is to provide flood protection and mitigation features from internal flooding for the site-specific SSCs that perform safety-related functions or whose postulated failure could adversely affect the ability to achieve a safe shutdown condition.

COL 3.4(3) The COL applicant is to confirm that the potential site-specific external flooding events are bounded by design-basis flood values or otherwise demonstrate that the design is acceptable.

COL 3.4(4) The COL applicant is to identify any site-specific physical models that could be used to predict prototype performance of hydraulic structures and systems.

3.4.4 References

1. NRC RG 1.59, "Design Basis Floods for Nuclear Power Plants," Revision 1, Nuclear Regulatory Commission, 2011.

2. ANSI/ANS 2.8, "Determining Design Basis Flooding at Power Reactor Sites," American National Standard Institute/American Nuclear Society, July 1992.

3. NRC RG 1.102, "Flood Protection for Nuclear Power Plants, Rev. 1, Nuclear Regulatory Commission," 1976.

4. ANSI/ANS 56.10, "Subcompartment Pressure and Temperature Transient Analysis in Light Water Reactors," Section 3, 1987.

5. ANSI/ANS 56.11, "Design Criteria for Protection against the Effects of Compartment Flooding in Light Water Reactor Plants," 1988.

6. Standard Review Plan BTP 3-3, "Protection against Postulated Piping Failures in Fluid Systems Outside Containment," Rev. 3, NUREG-0800, Nuclear Regulatory Commission, March 2007.

Table 3.4-1 (1 of 3)

Reactor Containment Building Components Protected From Internal Flooding

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC level from the Flood Elevation EL.102'-0"
1	1-431-J-LT-110A	PRESSURIZER LEVEL TRANSMITTER	100-C01	RCB	100'-0"	above
2	1-431-J-LT-110B	PRESSURIZER LEVEL TRANSMITTER	100-C01	RCB	100'-0"	above
3	1-491-V-001	RCS HOT LEG SAMPLE CTMT ISOLATION VALVE	100-C01	RCB	100'-0"	above
4	1-441-V-0653	SHUTDOWN COOLING SUCTION ISOLATION VALVE	100-C01	RCB	100'-0"	above
5	1-441-V-0654	SHUTDOWN COOLING SUCTION ISOLATION VALVE	100-C01	RCB	100'-0"	above
6	1-451-V-0515	LETDOWN ISOLATION VALVE	100-C02A	RCB	100'-0"	above
7	1-451-V-0516	LETDOWN ISOLATION VALVE	100-C02A	RCB	100'-0"	above
8	1-431-J-TE-132HA	RCS HOT LEG LOOP 1 TEMPERATURE ELEMENT	100-C02A	RCB	100'-0"	above
9	1-431-J-TE-132HB	RCS HOT LEG LOOP 1 TEMPERATURE ELEMENT	100-C02A	RCB	100'-0"	above
10	1-431-J-TE-142CA	RCS COLD LEG LOOP 1 TEMPERATURE ELEMENT	100-C02A	RCB	100'-0"	above
11	1-431-J-TE-142CB	RCS COLD LEG LOOP 1 TEMPERATURE ELEMENT	100-C02A	RCB	100'-0"	above
12	1-441-V-0651	SHUTDOWN COOLING SUCTION ISOLATION VALVE	100-C02A	RCB	100'-0"	above
13	1-433-V-414	REACTOR VESSEL VENT ISOLATION VALVE	100-C02B	RCB	100'-0"	above
14	1-433-V-415	REACTOR VESSEL VENT ISOLATION VALVE	100-C02B	RCB	100'-0"	above
15	1-433-V-416	REACTOR VESSEL VENT ISOLATION VALVE	100-C02B	RCB	100'-0"	above
16	1-433-V-417	REACTOR VESSEL VENT ISOLATION VALVE	100-C02B	RCB	100'-0"	above
17	1-431-J-TE-133HA	RCS HOT LEG LOOP 2 TEMPERATURE ELEMENT	100-C02B	RCB	100'-0"	above
18	1-431-J-TE-133HB	RCS HOT LEG LOOP 2 TEMPERATURE ELEMENT	100-C02B	RCB	100'-0"	above
19	1-431-J-TE-143CA	RCS COLD LEG LOOP 2 TEMPERATURE ELEMENT	100-C02B	RCB	100'-0"	above
20	1-431-J-TE-143CB	RCS COLD LEG LOOP 2 TEMPERATURE ELEMENT	100-C02B	RCB	100'-0"	above
21	1-441-V-0652	SHUTDOWN COOLING SUCTION ISOLATION VALVE	100-C02B	RCB	100'-0"	above
22	1-541-J-LT-1113A	STEAM GENERATOR 1 LEVEL TRANSMITTER (WIDE)	114-C01A	RCB	114'-0"	above
23	1-541-J-LT-1113B	STEAM GENERATOR 1 LEVEL TRANSMITTER (WIDE)	114-C01A	RCB	114'-0"	above

Table 3.4-1 (2 of 3)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC level from the Flood Elevation EL.102'-0"
24	1-491-V-003	PZR SURGE LINE SAMPLE CTMT ISOLATION VALVE	114-C01B	RCB	114'-0"	above
25	1-491-V-005	PZR STEAM SPACE SAMPLE CTMT ISOLATION VALVE	114-C01B	RCB	114'-0"	above
26	1-541-J-LT-1123A	STEAM GENERATOR 2 LEVEL TRANSMITTER (WIDE)	114-C01B	RCB	114'-0"	above
27	1-541-J-LT-1123B	STEAM GENERATOR 2 LEVEL TRANSMITTER (WIDE)	114-C01B	RCB	114'-0"	above
28	1-451-V-0203	PRESSURIZER AUXILIARY SPRAY VALVE	116-C04	RCB	116'-0"	above
29	1-431-J-PT-102A	PRESSURIZER PRESSURE TRANSMITTER	136-C01A	RCB	136'-0"	above
30	1-441-V-0614	SIT 4 OUTLET ISOLATION VALVE	136-C01A	RCB	136'-0"	above
31	1-441-V-0644	SIT 1 OUTLET ISOLATION VALVE	136-C01A	RCB	136'-0"	above
32	1-431-J-PT-102B	PRESSURIZER PRESSURE TRANSMITTER	136-C01B	RCB	136'-0"	above
33	1-441-V-0624	SIT 2 OUTLET ISOLATION VALVE	136-C01B	RCB	136'-0"	above
34	1-441-V-0634	SIT 3 OUTLET ISOLATION VALVE	136-C01B	RCB	136'-0"	above
35	1-431-V-130	SAFETY DEPRESSURIZATION AND VENT VALVE (POSRV)	136-C02	RCB	136'-0"	above
36	1-431-V-131	SAFETY DEPRESSURIZATION AND VENT VALVE (POSRV)	136-C02	RCB	136'-0"	above
37	1-431-V-132	SAFETY DEPRESSURIZATION AND VENT VALVE (POSRV)	136-C02	RCB	136'-0"	above
38	1-431-V-133	SAFETY DEPRESSURIZATION AND VENT VALVE (POSRV)	136-C02	RCB	136'-0"	above
39	1-431-V-134	SAFETY DEPRESSURIZATION AND VENT VALVE (POSRV)	136-C02	RCB	136'-0"	above
40	1-431-V-135	SAFETY DEPRESSURIZATION AND VENT VALVE (POSRV)	136-C02	RCB	136'-0"	above
41	1-431-V-136	SAFETY DEPRESSURIZATION AND VENT VALVE (POSRV)	136-C02	RCB	136'-0"	above
42	1-431-V-137	SAFETY DEPRESSURIZATION AND VENT VALVE (POSRV)	136-C02	RCB	136'-0"	above
43	1-433-V-410	PRESSURIZER VENT ISOLATION VALVE	156-C01	RCB	156'-0"	above
44	1-433-V-411	PRESSURIZER VENT ISOLATION VALVE	156-C01	RCB	156'-0"	above
45	1-433-V-412	PRESSURIZER VENT ISOLATION VALVE	156-C01	RCB	156'-0"	above
46	1-433-V-413	PRESSURIZER VENT ISOLATION VALVE	156-C01	RCB	156'-0"	above
47	1-441-V-0605	SIT 4 VENT ISOLATION VALVE	156-C01	RCB	156'-0"	above
48	1-441-V-0606	SIT 2 VENT ISOLATION VALVE	156-C01	RCB	156'-0"	above

Table 3.4-1 (3 of 3)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC level from the Flood Elevation EL.102'-0"
49	1-441-V-0607	SIT 3 VENT ISOLATION VALVE	156-C01	RCB	156'-0"	above
50	1-441-V-0608	SIT 1 VENT ISOLATION VALVE	156-C01	RCB	156'-0"	above
51	1-441-V-0613	SIT 4 VENT ISOLATION VALVE	156-C01	RCB	156'-0"	above
52	1-441-V-0623	SIT 2 VENT ISOLATION VALVE	156-C01	RCB	156'-0"	above
53	1-441-V-0633	SIT 3 VENT ISOLATION VALVE	156-C01	RCB	156'-0"	above
54	1-441-V-0643	SIT 1 VENT ISOLATION VALVE	156-C01	RCB	156'-0"	above
55	1-521-J-PT-1013A	STEAM GENERATOR 1 PRESSURE TRANSMITTER	156-C01	RCB	156'-0"	above
56	1-521-J-PT-1013B	STEAM GENERATOR 1 PRESSURE TRANSMITTER	156-C01	RCB	156'-0"	above
57	1-521-J-PT-1023A	STEAM GENERATOR 2 PRESSURE TRANSMITTER	156-C01	RCB	156'-0"	above
58	1-521-J-PT-1023B	STEAM GENERATOR 2 PRESSURE TRANSMITTER	156-C01	RCB	156'-0"	above

Table 3.4-2 (1 of 16)

Auxiliary Building Components Protected from Internal Flooding

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC Level Relative to Flood Elevation	Flood Elevation m (ft)	Note
1	1-441-J-TE-0300A	SC HX 1 INLET TEMPERATURE ELEMENT	050-A04A	Auxiliary	50'-0"	N/A	2.74 (9.0)	(1)
2	1-441-M-HE02A	SHUTDOWN COOLING MINIFLOW HEAT EXCHANGER 1	050-A04A	Auxiliary	50'-0"	N/A	2.74 (9.0)	(1)
3	1-441-M-PP02A	SHUTDOWN COOLING PUMP 1	050-A04A	Auxiliary	50'-0"	N/A	2.74 (9.0)	(1)
4	1-606-M-HV16A	SC PUMP & MINIFLOW HX ROOM CUBICLE COOLER	050-A04A	Auxiliary	50'-0"	N/A	2.74 (9.0)	(1)
5	1-441-J-TE-0303B	SC HX 2 INLET TEMPERATURE ELEMENT	050-A04B	Auxiliary	50'-0"	N/A	2.74 (9.0)	(1)
6	1-441-M-HE02B	SHUTDOWN COOLING MINIFLOW HEAT EXCHANGER 2	050-A04B	Auxiliary	50'-0"	N/A	2.74 (9.0)	(1)
7	1-441-M-PP01B	SHUTDOWN COOLING PUMP 2	050-A04B	Auxiliary	50'-0"	N/A	2.74 (9.0)	(1)
8	1-606-M-HV16B	SC PUMP & MINIFLOW HX ROOM CUBICLE COOLER	050-A04B	Auxiliary	50'-0"	N/A	2.74 (9.0)	(1)
9	1-606-M-HV13A	CCW PUMP ROOM CUBICLE COOLER	055-A02A	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
10	1-461-M-PP01A	COMPONENT COOLING WATER PUMP 1A	055-A02A	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
11	1-461-M-PP01B	COMPONENT COOLING WATER PUMP 1B	055-A02B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
12	1-606-M-HV13B	CCW PUMP ROOM CUBICLE COOLER	055-A02B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
13	1-606-M-HV14A	CCW PUMP ROOM CUBICLE COOLER	055-A02C	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
14	1-461-M-PP02A	COMPONENT COOLING WATER PUMP 2A	055-A02C	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
15	1-461-M-PP02B	COMPONENT COOLING WATER PUMP 2B	055-A02D	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
16	1-606-M-HV14B	CCW PUMP ROOM CUBICLE COOLER	055-A02D	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
17	1-461-V-0144	NON-SAFETY SUPPLY ISOLATION VALVE	055-A07D	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
18	1-461-V-0146	NON-SAFETY SUPPLY ISOLATION VALVE	055-A07D	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
19	1-461-V-0147	NON-SAFETY SUPPLY ISOLATION VALVE	055-A07D	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
20	1-461-V-0148	NON-SAFETY SUPPLY ISOLATION VALVE	055-A07D	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
21	1-461-V-0149	NON-SAFETY SUPPLY ISOLATION VALVE	055-A07D	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)

Table 3.4-2 (2 of 16)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC Level Relative to Flood Elevation	Flood Elevation m (ft)	Note
22	1-461-V-0150	NON-SAFETY SUPPLY ISOLATION VALVE	055-A07D	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
23	1-461-V-0145	NON-SAFETY SUPPLY ISOLATION VALVE	055-A07D	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
24	1-603-M-AH20C	CLASS 1E BATTERY ROOM SUPPLY FAN	055-A10C	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
25	1-441-J-FT-0302A	SHUTDOWN COOLING PUMP 1 FLOW TRANSMITTER	055-A19A	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
26	1-441-J-FT-0305B	SHUTDOWN COOLING PUMP 2 FLOW TRANSMITTER	055-A19B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
27	1-441-J-TE-0301A	SC HX HEADER 1 TEMPERATURE ELEMENT	055-A21A	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
28	1-441-V-0314	SCS TEST RETURN LINE ISOLATION VALVE	055-A21A	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
29	1-441-V-0688	SCS TEST RETURN LINE ISOLATION VALVE	055-A21A	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
30	1-441-J-TE-0304B	SC HX HEADER 2 TEMPERATURE ELEMENT	055-A21B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
31	1-441-V-0315	SCS TEST RETURN LINE ISOLATION VALVE	055-A21B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
32	1-441-V-0693	SCS TEST RETURN LINE ISOLATION VALVE	055-A21B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
33	1-441-M-HE01A	SHUTDOWN COOLING HEAT EXCHANGER 1	055-A30A	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
34	1-441-V-0310	SHUTDOWN COOLING HX OUTLET FLOW CONTROL VALVE	055-A30A	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
35	1-441-V-0312	SHUTDOWN COOLING HX BYPASS FLOW CONTROL VALVE	055-A30A	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
36	1-461-V-0351	SHUTDOWN COOLING HX CCW INLET ISOLATION VALVE	055-A30A	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
37	1-606-M-HV17A	SC HX ROOM CUBICLE COOLER	055-A30A	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
38	1-441-M-HE01B	SHUTDOWN COOLING HEAT EXCHANGER 2	055-A30B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
39	1-441-V-0311	SHUTDOWN COOLING HX OUTLET FLOW CONTROL VALVE	055-A30B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
40	1-441-V-0313	SHUTDOWN COOLING HX BYPASS FLOW CONTROL VALVE	055-A30B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
41	1-461-V-0352	SHUTDOWN COOLING HX CCW INLET ISOLATION VALVE	055-A30B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
42	1-606-M-HV17B	SC HX ROOM CUBICLE COOLER	055-A30B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)

Table 3.4-2 (3 of 16)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC Level Relative to Flood Elevation	Flood Elevation m (ft)	Note
43	1-451-J-PS-0216A	CHARGING PUMP SUCTION PRESSURE SWITCH	055-A42A	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
44	1-451-M-PP01A	CHARGING PUMP 1	055-A42A	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
45	1-606-M-HV18A	CHARGING PUMP ROOM CUBICLE COOLER	055-A42A	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
46	1-451-M-PP03	AUXILIARY CHARGING PUMP	055-A54B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
47	1-606-M-HV21B	AUX CHARGING PUMP ROOM CUBICLE COOLER	055-A54B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
48	1-451-J-PS-0218A	AUXILIARY CHARGING PUMP SUCTION PRESSURE SWITCH	055-A54B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
49	1-451-J-PS-0218B	AUXILIARY CHARGING PUMP SUCTION PRESSURE SWITCH	055-A54B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
50	1-451-J-PS-0217B	CHARGING PUMP SUCTION PRESSURE SWITCH	055-A55B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
51	1-451-M-PP01B	CHARGING PUMP 2	055-A55B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
52	1-606-M-HV18B	CHARGING PUMP ROOM CUBICLE COOLER	055-A55B	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
53	1-451-V-0212P	CHARGING FLOW CONTROL VALVE	055-A56A	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
54	1-451-V-0212Q	CHARGING FLOW CONTROL VALVE	055-A56A	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
55	1-461-V-0143	NON-SAFETY SUPPLY ISOLATION VALVE	055-A57C	Auxiliary	55'-0"	N/A	2.74 (9.0)	(1)
56	1-595-M-PP01A	DIESEL FUEL OIL TRANSFER PUMP A	065-A01C	Auxiliary	65'-0"	above	0.15 (0.5)	
57	1-595-M-PP02A	DIESEL FUEL OIL TRANSFER PUMP A	065-A01C	Auxiliary	65'-0"	above	0.15 (0.5)	
58	1-595-M-TK01A	DIESEL FUEL OIL STORAGE TANK A	065-A01C	Auxiliary	65'-0"	above	0.15 (0.5)	
59	1-602-M-AH05C	DIESEL FUEL OIL STORAGE TANK ROOM SUPPLY FAN	065-A01C	Auxiliary	65'-0"	above	0.15 (0.5)	
60	1-602-M-AH06C	DIESEL FUEL OIL STORAGE TANK ROOM EXHAUST FAN	065-A01C	Auxiliary	65'-0"	above	0.15 (0.5)	
61	1-595-M-PP01B	DIESEL FUEL OIL TRANSFER PUMP B	065-A01D	Auxiliary	65'-0"	above	0.15 (0.5)	
62	1-595-M-PP02B	DIESEL FUEL OIL TRANSFER PUMP B	065-A01D	Auxiliary	65'-0"	above	0.15 (0.5)	
63	1-595-M-TK01B	DIESEL FUEL OIL STORAGE TANK B	065-A01D	Auxiliary	65'-0"	above	0.15 (0.5)	
64	1-602-M-AH05D	DIESEL FUEL OIL STORAGE TANK ROOM SUPPLY FAN	065-A01D	Auxiliary	65'-0"	above	0.15 (0.5)	

Table 3.4-2 (4 of 16)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC Level Relative to Flood Elevation	Flood Elevation m (ft)	Note
65	1-602-M-AH06D	DIESEL FUEL OIL STORAGE TANK ROOM EXHAUST FAN	065-A01D	Auxiliary	65'-0"	above	0.15 (0.5)	
66	1-603-M-HV01A	CLASS 1E SWICHGEAR 01C ROOM CUBICLE COOLER	078-A02C	Auxiliary	78'-0"	above	0.15 (0.5)	
67	1-823-E-SW01C	CLASS 1E 4.16 KV SWITCHGEAR	078-A02C	Auxiliary	78'-0"	above	0.15 (0.5)	
68	1-603-M-HV01B	CLASS 1E SWICHGEAR 01D ROOM CUBICLE COOLER	078-A02D	Auxiliary	78'-0"	above	0.15 (0.5)	
69	1-823-E-SW01D	CLASS 1E 4.16 KV SWITCHGEAR	078-A02D	Auxiliary	78'-0"	above	0.15 (0.5)	
70	1-603-M-HV02A	CLASS 1E LOADCENTER 01C ROOM CUBICLE COOLER	078-A03C	Auxiliary	78'-0"	above	0.15 (0.5)	
71	1-825-E-LC01C	CLASS 1E 480V LOAD CENTER	078-A03C	Auxiliary	78'-0"	above	0.15 (0.5)	
72	1-827-E-MC01C	CLASS 1E 480V MOTOR CONTROL CENTER	078-A03C	Auxiliary	78'-0"	above	0.15 (0.5)	
73	1-827-E-MC02C	CLASS 1E 480V MOTOR CONTROL CENTER	078-A03C	Auxiliary	78'-0"	above	0.15 (0.5)	
74	1-603-M-HV02B	CLASS 1E LOADCENTER 01D ROOM CUBICLE COOLER	078-A03D	Auxiliary	78'-0"	above	0.15 (0.5)	
75	1-825-E-LC01D	CLASS 1E 480V LOAD CENTER	078-A03D	Auxiliary	78'-0"	above	0.15 (0.5)	
76	1-827-E-MC01D	CLASS 1E 480V MOTOR CONTROL CENTER	078-A03D	Auxiliary	78'-0"	above	0.15 (0.5)	
77	1-827-E-MC02D	CLASS 1E 480V MOTOR CONTROL CENTER	078-A03D	Auxiliary	78'-0"	above	0.15 (0.5)	
78	1-431-E-IN01C	125V DC/ 480V AC INVERTER FOR 653	078-A05C	Auxiliary	78'-0"	above	0.15 (0.5)	
79	1-603-M-HV04A	CHANNEL C DC&IP EQUIP. ROOM CUBICLE COOLER	078-A05C	Auxiliary	78'-0"	above	0.15 (0.5)	
80	1-841-E-BC01C	125V DC CLASS 1E BATTERY CHARGER	078-A05C	Auxiliary	78'-0"	above	0.15 (0.5)	
81	1-841-E-BC02C	125V DC CLASS 1E BATTERY CHARGER	078-A05C	Auxiliary	78'-0"	above	0.15 (0.5)	
82	1-841-E-MC01C	125V DC CONTROL CENTER	078-A05C	Auxiliary	78'-0"	above	0.15 (0.5)	
83	1-842-E-IN01C	120V AC CLASS 1E INVERTER	078-A05C	Auxiliary	78'-0"	above	0.15 (0.5)	
84	1-842-E-TR01C	REGULATING TRANSFORMER	078-A05C	Auxiliary	78'-0"	above	0.15 (0.5)	
85	1-431-E-IN01D	125V DC/ 480V AC INVERTER FOR 654	078-A05D	Auxiliary	78'-0"	above	0.15 (0.5)	
86	1-603-M-HV04B	CHANNEL D DC&IP EQUIP. ROOM CUBICLE COOLER	078-A05D	Auxiliary	78'-0"	above	0.15 (0.5)	

Table 3.4-2 (5 of 17)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC Level Relative to Flood Elevation	Flood Elevation m (ft)	Note
87	1-841-E-BC01D	125V DC CLASS 1E BATTERY CHARGER	078-A05D	Auxiliary	78'-0"	above	0.15 (0.5)	
88	1-841-E-BC02D	125V DC CLASS 1E BATTERY CHARGER	078-A05D	Auxiliary	78'-0"	above	0.15 (0.5)	
89	1-841-E-MC01D	125V DC CONTROL CENTER	078-A05D	Auxiliary	78'-0"	above	0.15 (0.5)	
90	1-842-E-IN01D	120V AC CLASS 1E INVERTER	078-A05D	Auxiliary	78'-0"	above	0.15 (0.5)	
91	1-842-E-TR01D	REGULATING TRANSFORMER	078-A05D	Auxiliary	78'-0"	above	0.15 (0.5)	
92	1-603-M-HC01C	BATTERY ROOM ELECTRIC DUCT HEATER	078-A07C	Auxiliary	78'-0"	above	0.15 (0.5)	
93	1-841-E-BT01C	125V DC CLASS 1E BATTERY	078-A07C	Auxiliary	78'-0"	above	0.15 (0.5)	
94	1-603-M-HC01D	BATTERY ROOM ELECTRIC DUCT HEATER	078-A07D	Auxiliary	78'-0"	above	0.15 (0.5)	
95	1-841-E-BT01D	125V DC CLASS 1E BATTERY	078-A07D	Auxiliary	78'-0"	above	0.15 (0.5)	
96	1-543-J-LT-0006B	AF STORAGE TANK A LEVEL TRANSMITTER	078-A10C	Auxiliary	78'-0"	above	0.15 (0.5)	
97	1-543-J-LT-0005A	AF STORAGE TANK B LEVEL TRANSMITTER	078-A10D	Auxiliary	78'-0"	above	0.15 (0.5)	
98	1-603-M-AH21C	CLASS 1E BATTERY ROOM EXHAUST FAN	078-A11A	Auxiliary	78'-0"	above	0.15 (0.5)	
99	1-603-M-AH21D	CLASS 1E BATTERY ROOM EXHAUST FAN	078-A11B	Auxiliary	78'-0"	above	0.15 (0.5)	
100	1-461-V-0383	ESSENTIAL WATER CHILLER 1A OUTLET ISO. VALVE	078-A11C	Auxiliary	78'-0"	above	0.15 (0.5)	
101	1-461-V-0901	ESSENTIAL WATER CHILLER 1A MODULATION VALVE	078-A11C	Auxiliary	78'-0"	above	0.15 (0.5)	
102	1-607-M-HV31A	ESSENTIAL CHILLER ROOM CUBICLE COOLER	078-A11C	Auxiliary	78'-0"	above	0.15 (0.5)	
103	1-633-M-CH01A	ESSENTIAL CHILLER	078-A11C	Auxiliary	78'-0"	above	0.15 (0.5)	
104	1-633-M-PP01A	ESSENTIAL CENTRAL CHILLED WATER PUMP	078-A11C	Auxiliary	78'-0"	above	0.15 (0.5)	
105	1-461-V-0384	ESSENTIAL WATER CHILLER 1B OUTLET ISO. VALVE	078-A11D	Auxiliary	78'-0"	above	0.15 (0.5)	
106	1-461-V-0902	ESSENTIAL WATER CHILLER 1B MODULATION VALVE	078-A11D	Auxiliary	78'-0"	above	0.15 (0.5)	
107	1-607-M-HV31B	ESSENTIAL CHILLER ROOM CUBICLE COOLER	078-A11D	Auxiliary	78'-0"	above	0.15 (0.5)	
108	1-633-M-CH01B	ESSENTIAL CHILLER	078-A11D	Auxiliary	78'-0"	above	0.15 (0.5)	
109	1-633-M-PP01B	ESSENTIAL CENTRAL CHILLED WATER PUMP	078-A11D	Auxiliary	78'-0"	above	0.15 (0.5)	

Table 3.4-2 (6 of 16)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC Level Relative to Flood Elevation	Flood Elevation m (ft)	Note
110	1-461-V-0131	ESSENTIAL WATER CHILLER 2A OUTLET ISO. VALVE	078-A12C	Auxiliary	78'-0"	above	0.15 (0.5)	
111	1-461-V-0905	ESSENTIAL WATER CHILLER 2A MODULATION VALVE	078-A12C	Auxiliary	78'-0"	above	0.15 (0.5)	
112	1-607-M-HV32A	ESSENTIAL CHILLER ROOM CUBICLE COOLER	078-A12C	Auxiliary	78'-0"	above	0.15 (0.5)	
113	1-633-M-CH02A	ESSENTIAL CHILLER	078-A12C	Auxiliary	78'-0"	above	0.15 (0.5)	
114	1-633-M-PP02A	ESSENTIAL CENTRAL CHILLED WATER PUMP	078-A12C	Auxiliary	78'-0"	above	0.15 (0.5)	
115	1-461-V-0132	ESSENTIAL WATER CHILLER 2B OUTLET ISO. VALVE	078-A12D	Auxiliary	78'-0"	above	0.15 (0.5)	
116	1-461-V-0906	ESSENTIAL WATER CHILLER 2B MODULATION VALVE	078-A12D	Auxiliary	78'-0"	above	0.15 (0.5)	
117	1-607-M-HV32B	ESSENTIAL CHILLER ROOM CUBICLE COOLER	078-A12D	Auxiliary	78'-0"	above	0.15 (0.5)	
118	1-633-M-CH02B	ESSENTIAL CHILLER	078-A12D	Auxiliary	78'-0"	above	0.15 (0.5)	
119	1-633-M-PP02B	ESSENTIAL CENTRAL CHILLED WATER PUMP	078-A12D	Auxiliary	78'-0"	above	0.15 (0.5)	
120	1-603-M-AH20D	CLASS 1E BATTERY ROOM SUPPLY FAN	078-A13D	Auxiliary	78'-0"	above	0.15 (0.5)	
121	1-527-V-0009	AUX. FEEDWATER TURBINE STEAM ISOLATION VALVE	078-A15C	Auxiliary	78'-0"	above	0.15 (0.5)	
122	1-542-J-FT-049C	AF FLOW TRANSMITTER TO STEAM GENERATOR 1	078-A15C	Auxiliary	78'-0"	above	0.15 (0.5)	
123	1-542-J-PT-007C	AF PUMP PP01B SUCTION PRESSURE TRANSMITTER	078-A15C	Auxiliary	78'-0"	above	0.15 (0.5)	
124	1-542-J-PT-025C	AF PUMP PP01B DISCHARGE PRESSURE TRANSMITTER	078-A15C	Auxiliary	78'-0"	above	0.15 (0.5)	
125	1-542-M-PP01A	AUXILIARY FEEDWATER PUMP C TURBINE DRIVEN	078-A15C	Auxiliary	78'-0"	above	0.15 (0.5)	
126	1-542-V-0036	AF PUMP 01A FLOW MODULATING VALVE	078-A15C	Auxiliary	78'-0"	above	0.15 (0.5)	
127	1-543-V-1621	TANK CROSSTIE VALVE	078-A15C	Auxiliary	78'-0"	above	0.15 (0.5)	
128	1-607-M-HV05	TURBINE DRIVEN AFW PUMP ROOM CUBICLE COOLER	078-A15C	Auxiliary	78'-0"	above	0.15 (0.5)	
129	1-527-V-0010	AUX. FEEDWATER TURBINE STEAM ISOLATION VALVE	078-A15D	Auxiliary	78'-0"	above	0.15 (0.5)	

Table 3.4-2 (7 of 16)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC Level Relative to Flood Elevation	Flood Elevation m (ft)	Note
130	1-542-J-FT-050D	AF FLOW TRANSMITTER TO STEAM GENERATOR 2	078-A15D	Auxiliary	78'-0"	above	0.15 (0.5)	
131	1-542-J-PT-008D	AF PUMP PP01A SUCTION PRESSURE TRANSMITTER	078-A15D	Auxiliary	78'-0"	above	0.15 (0.5)	
132	1-542-J-PT-026D	AF PUMP PP01A DISCHARGE PRESSURE TRANSMITTER	078-A15D	Auxiliary	78'-0"	above	0.15 (0.5)	
133	1-542-M-PP01B	AUXILIARY FEEDWATER PUMP D TURBINE DRIVEN	078-A15D	Auxiliary	78'-0"	above	0.15 (0.5)	
134	1-542-V-0037	AF PUMP 01B FLOW MODULATING VALVE	078-A15D	Auxiliary	78'-0"	above	0.15 (0.5)	
135	1-543-V-1622	TANK CROSSTIE VALVE	078-A15D	Auxiliary	78'-0"	above	0.15 (0.5)	
136	1-607-M-HV06	TURBINE DRIVEN AFW PUMP ROOM CUBICLE COOLER	078-A15D	Auxiliary	78'-0"	above	0.15 (0.5)	
137	1-543-J-LT-0003A	AF STORAGE TANK A LEVEL TRANSMITTER	078-A19A	Auxiliary	78'-0"	above	0.15 (0.5)	
138	1-543-J-LT-0004B	AF STORAGE TANK B LEVEL TRANSMITTER	078-A19B	Auxiliary	78'-0"	above	0.15 (0.5)	
139	1-542-J-FT-047A	AF FLOW TRANSMITTER TO STEAM GENERATOR 1	078-A20A	Auxiliary	78'-0"	above	0.15 (0.5)	
140	1-542-J-PT-005A	AF PUMP PP02A SUCTION PRESSURE TRANSMITTER	078-A20A	Auxiliary	78'-0"	above	0.15 (0.5)	
141	1-542-J-PT-023A	AF PUMP PP02A DISCHARGE PRESSURE TRANSMITTER	078-A20A	Auxiliary	78'-0"	above	0.15 (0.5)	
142	1-542-M-PP02A	AUXILIARY FEEDWATER PUMP A MOTOR DRIVEN	078-A20A	Auxiliary	78'-0"	above	0.15 (0.5)	
143	1-542-V-0035	AF PUMP 02A FLOW MODULATING VALVE	078-A20A	Auxiliary	78'-0"	above	0.15 (0.5)	
144	1-543-V-1601	TANK OUTLET VALVE	078-A20A	Auxiliary	78'-0"	above	0.15 (0.5)	
145	1-607-M-HV33A	MOTOR DRIVEN AFW PUMP ROOM CUBICLE COOLER	078-A20A	Auxiliary	78'-0"	above	0.15 (0.5)	
146	1-542-J-FT-048B	AF FLOW TRANSMITTER TO STEAM GENERATOR 2	078-A20B	Auxiliary	78'-0"	above	0.15 (0.5)	
147	1-542-J-PT-006B	AF PUMP PP02B SUCTION PRESSURE TRANSMITTER	078-A20B	Auxiliary	78'-0"	above	0.15 (0.5)	
148	1-542-J-PT-024B	AF PUMP PP02B DISCHARGE PRESSURE TRANSMITTER	078-A20B	Auxiliary	78'-0"	above	0.15 (0.5)	

Table 3.4-2 (8 of 16)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC Level Relative to Flood Elevation	Flood Elevation m (ft)	Note
149	1-542-M-PP02B	AUXILIARY FEEDWATER PUMP B MOTOR DRIVEN	078-A20B	Auxiliary	78'-0"	above	0.15 (0.5)	
150	1-542-V-0038	AF PUMP 02B FLOW MODULATING VALVE	078-A20B	Auxiliary	78'-0"	above	0.15 (0.5)	
151	1-543-V-1602	TANK OUTLET VALVE	078-A20B	Auxiliary	78'-0"	above	0.15 (0.5)	
152	1-607-M-HV33B	MOTOR DRIVEN AFW PUMP ROOM CUBICLE COOLER	078-A20B	Auxiliary	78'-0"	above	0.15 (0.5)	
153	1-603-M-HV07A	CLASS 1E SWITCHGEAR 01A ROOM CUBICLE COOLER	078-A25A	Auxiliary	78'-0"	above	0.15 (0.5)	
154	1-823-E-SW01A	CLASS 1E 4.16 KV SWITCHGEAR	078-A25A	Auxiliary	78'-0"	above	0.15 (0.5)	
155	1-825-E-LC01A	CLASS 1E 480V LOAD CENTER	078-A25A	Auxiliary	78'-0"	above	0.15 (0.5)	
156	1-603-M-HV07B	CLASS 1E SWITCHGEAR 01B ROOM CUBICLE COOLER	078-A25B	Auxiliary	78'-0"	above	0.15 (0.5)	
157	1-823-E-SW01B	CLASS 1E 4.16 KV SWITCHGEAR	078-A25B	Auxiliary	78'-0"	above	0.15 (0.5)	
158	1-825-E-LC01B	CLASS 1E 480V LOAD CENTER	078-A25B	Auxiliary	78'-0"	above	0.15 (0.5)	
159	1-603-M-HV03A	CHANNEL A DC&IP EQUIP. ROOM CUBICLE COOLER	078-A56A	Auxiliary	78'-0"	above	0.15 (0.5)	
160	1-841-E-BC01A	125V DC CLASS 1E BATTERY CHARGER	078-A56A	Auxiliary	78'-0"	above	0.15 (0.5)	
161	1-841-E-BC02A	125V DC CLASS 1E BATTERY CHARGER	078-A56A	Auxiliary	78'-0"	above	0.15 (0.5)	
162	1-841-E-MC01A	125V DC CONTROL CENTER	078-A56A	Auxiliary	78'-0"	above	0.15 (0.5)	
163	1-842-E-IN01A	120V AC CLASS 1E INVERTER	078-A56A	Auxiliary	78'-0"	above	0.15 (0.5)	
164	1-842-E-TR01A	REGULATING TRANSFORMER	078-A56A	Auxiliary	78'-0"	above	0.15 (0.5)	
165	1-603-M-HV03B	CHANNEL B DC&IP EQUIP. ROOM CUBICLE COOLER	078-A56B	Auxiliary	78'-0"	above	0.15 (0.5)	
166	1-842-E-IN01B	120V AC CLASS 1E INVERTER	078-A56B	Auxiliary	78'-0"	above	0.15 (0.5)	
167	1-841-E-BC01B	125V DC CLASS 1E BATTERY CHARGER	078-A56B	Auxiliary	78'-0"	above	0.15 (0.5)	
168	1-841-E-BC02B	125V DC CLASS 1E BATTERY CHARGER	078-A56B	Auxiliary	78'-0"	above	0.15 (0.5)	
169	1-841-E-MC01B	125V DC CONTROL CENTER	078-A56B	Auxiliary	78'-0"	above	0.15 (0.5)	
170	1-842-E-TR01B	REGULATING TRANSFORMER	078-A56B	Auxiliary	78'-0"	above	0.15 (0.5)	

Table 3.4-2 (9 of 16)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC Level Relative to Flood Elevation	Flood Elevation m (ft)	Note
171	1-825-E-LC02	CLASS 1E 480V SWING LOAD CENTER	078-A58B	Auxiliary	78'-0"	above	0.15 (0.5)	
172	1-827-E-MC04C	CLASS 1E 480V MOTOR CONTROL CENTER	100-A02C	Auxiliary	100'-0"	above	0.15 (0.5)	
173	1-827-E-MC04D	CLASS 1E 480V MOTOR CONTROL CENTER	100-A02D	Auxiliary	100'-0"	above	0.15 (0.5)	
174	1-461-V-0181	EDG CCW ISOLATION VALVE	100-A03C	Auxiliary	100'-0"	above	0.15 (0.5)	
175	1-591-M-DG01A	DIESEL GENERATOR A	100-A03C	Auxiliary	100'-0"	above	0.15 (0.5)	
176	1-602-M-HV12C	EDG ROOM EMERGENCY CUBICLE COOLER	100-A03C	Auxiliary	100'-0"	above	0.15 (0.5)	
177	1-602-M-HV13C	EDG ROOM EMERGENCY CUBICLE COOLER	100-A03C	Auxiliary	100'-0"	above	0.15 (0.5)	
178	1-602-M-HX03	EDG ROOM ELECTRIC UNIT HEATER	100-A03C	Auxiliary	100'-0"	above	0.15 (0.5)	
179	1-602-M-HX07	EDG ROOM ELECTRIC UNIT HEATER	100-A03C	Auxiliary	100'-0"	above	0.15 (0.5)	
180	1-461-V-0182	EDG CCW ISOLATION VALVE	100-A03D	Auxiliary	100'-0"	above	0.15 (0.5)	
181	1-591-M-DG01B	DIESEL GENERATOR B	100-A03D	Auxiliary	100'-0"	above	0.15 (0.5)	
182	1-602-M-HV12D	EDG ROOM EMERGENCY CUBICLE COOLER	100-A03D	Auxiliary	100'-0"	above	0.15 (0.5)	
183	1-602-M-HV13D	EDG ROOM EMERGENCY CUBICLE COOLER	100-A03D	Auxiliary	100'-0"	above	0.15 (0.5)	
184	1-602-M-HX04	EDG ROOM ELECTRIC UNIT HEATER	100-A03D	Auxiliary	100'-0"	above	0.15 (0.5)	
185	1-602-M-HX08	EDG ROOM ELECTRIC UNIT HEATER	100-A03D	Auxiliary	100'-0"	above	0.15 (0.5)	
186	1-543-M-TK01A	AUXILIARY FEEDWATER STORAGE TANK A	100-A07C	Auxiliary	100'-0"	above	0.15 (0.5)	
187	1-543-M-TK01B	AUXILIARY FEEDWATER STORAGE TANK B	100-A07D	Auxiliary	100'-0"	above	0.15 (0.5)	
188	1-603-M-AH20A	CLASS 1E BATTERY ROOM SUPPLY FAN	100-A11A	Auxiliary	100'-0"	above	0.15 (0.5)	
189	1-603-M-AH21A	CLASS 1E BATTERY ROOM EXHAUST FAN	100-A11A	Auxiliary	100'-0"	above	0.15 (0.5)	
190	1-603-M-HC01A	BATTERY ROOM ELECTRIC DUCT HEATER	100-A11A	Auxiliary	100'-0"	above	0.15 (0.5)	
191	1-841-E-BT01A	125V DC CLASS 1E BATTERY	100-A11A	Auxiliary	100'-0"	above	0.15 (0.5)	
192	1-603-M-AH20B	CLASS 1E BATTERY ROOM SUPPLY FAN	100-A11B	Auxiliary	100'-0"	above	0.15 (0.5)	
193	1-603-M-AH21B	CLASS 1E BATTERY ROOM EXHAUST FAN	100-A11B	Auxiliary	100'-0"	above	0.15 (0.5)	
194	1-603-M-HC01B	BATTERY ROOM ELECTRIC DUCT HEATER	100-A11B	Auxiliary	100'-0"	above	0.15 (0.5)	
195	1-841-E-BT01B	125V DC CLASS 1E BATTERY	100-A11B	Auxiliary	100'-0"	above	0.15 (0.5)	

Table 3.4-2 (10 of 16)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC Level Relative to Flood Elevation	Flood Elevation m (ft)	Note
196	1-603-M-HV06A	480V CLASS 1E MCC 01B RM CUBICLE COOLER	100-A12A	Auxiliary	100'-0"	above	0.15 (0.5)	
197	1-827-E-MC01A	CLASS 1E 480V MOTOR CONTROL CENTER	100-A12A	Auxiliary	100'-0"	above	0.15 (0.5)	
198	1-603-M-HV06B	480V CLASS 1E MCC 01A RM CUBICLE COOLER	100-A12B	Auxiliary	100'-0"	above	0.15 (0.5)	
199	1-827-E-MC01B	CLASS 1E 480V MOTOR CONTROL CENTER	100-A12B	Auxiliary	100'-0"	above	0.15 (0.5)	
200	1-441-V-0300	IRWST RETURN LINE ISOLATION VALVE	100-A13A	Auxiliary	100'-0"	above	0.15 (0.5)	
201	1-441-V-0655	SHUTDOWN COOLING CONTAINMENT ISOLATION VALVE	100-A13A	Auxiliary	100'-0"	above	0.15 (0.5)	
202	1-441-V-0691	SHUTDOWN COOLING WARMUP BYPASS VALVE	100-A13A	Auxiliary	100'-0"	above	0.15 (0.5)	
203	1-491-V-002	RCS HOT LEG SAMPLE CTMT ISOLATION VALVE	100-A13A	Auxiliary	100'-0"	above	0.15 (0.5)	
204	1-606-M-HV19A	MECHANICAL PENETRATION RM CUBICLE COOLER	100-A13A	Auxiliary	100'-0"	above	0.15 (0.5)	
205	1-441-V-0301	IRWST RETURN LINE ISOLATION VALVE	100-A13B	Auxiliary	100'-0"	above	0.15 (0.5)	
206	1-441-V-0656	SHUTDOWN COOLING CONTAINMENT ISOLATION VALVE	100-A13B	Auxiliary	100'-0"	above	0.15 (0.5)	
207	1-441-V-0690	SHUTDOWN COOLING WARMUP BYPASS VALVE	100-A13B	Auxiliary	100'-0"	above	0.15 (0.5)	
208	1-451-V-0524	CHARGING LINE ISOLATION VALVE	100-A13B	Auxiliary	100'-0"	above	0.15 (0.5)	
209	1-606-M-HV19B	MECHANICAL PENETRATION RM CUBICLE COOLER	100-A13B	Auxiliary	100'-0"	above	0.15 (0.5)	
210	1-606-M-HV20A	MECHANICAL PENETRATION RM CUBICLE COOLER	100-A16A	Auxiliary	100'-0"	above	0.15 (0.5)	
211	1-606-M-HV20B	MECHANICAL PENETRATION RM CUBICLE COOLER	100-A16B	Auxiliary	100'-0"	above	0.15 (0.5)	
212	1-441-V-0636	SAFETY INJECTION CONTAINMENT ISOLATION VALVE	100-A16C	Auxiliary	100'-0"	above	0.15 (0.5)	
213	1-441-V-0616	SAFETY INJECTION CONTAINMENT ISOLATION VALVE	100-A16D	Auxiliary	100'-0"	above	0.15 (0.5)	
214	1-451-V-0501	VOLUME CONTROL TANK OUTLET ISOLATION VALVE	100-A26A	Auxiliary	100'-0"	above	0.15 (0.5)	

Table 3.4-2 (11 of 16)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC Level Relative to Flood Elevation	Flood Elevation m (ft)	Note
215	1-451-V-0504	VOLUME CONTROL TANK OUTLET ISOLATION VALVE	100-A26A	Auxiliary	100'-0"	above	0.15 (0.5)	
216	1-595-M-TK02A	DIESEL FUEL OIL DAY TANK A	120-A03C	Auxiliary	120'-0"	above	0.15 (0.5)	
217	1-602-M-AH07C	DIESEL FUEL OIL AND LUBE OIL TANK ROOM EXHAUST FAN	120-A03C	Auxiliary	120'-0"	above	0.15 (0.5)	
218	1-595-M-TK02B	DIESEL FUEL OIL DAY TANK B	120-A03D	Auxiliary	120'-0"	above	0.15 (0.5)	
219	1-602-M-AH07D	DIESEL FUEL OIL AND LUBE OIL TANK ROOM EXHAUST FAN	120-A03D	Auxiliary	120'-0"	above	0.15 (0.5)	
220	1-542-V-0043	AF PUMP 02A FLOW MODULATING VALVE	120-A06C	Auxiliary	120'-0"	above	0.15 (0.5)	
221	1-542-V-0044	AF PUMP 02B FLOW MODULATING VALVE	120-A06C	Auxiliary	120'-0"	above	0.15 (0.5)	
222	1-542-V-0045	AF PUMP 01A FLOW MODULATING VALVE	120-A06D	Auxiliary	120'-0"	above	0.15 (0.5)	
223	1-542-V-0046	AF PUMP 01B FLOW MODULATING VALVE	120-A06D	Auxiliary	120'-0"	above	0.15 (0.5)	
224	1-441-E-SQ01C	MOTOR STARTER FOR VSI-653	120-A09C	Auxiliary	120'-0"	above	0.15 (0.5)	
225	1-603-M-HV09A	ELECT. PENETRATION ROOM (C) CUBICLE COOLER	120-A09C	Auxiliary	120'-0"	above	0.15 (0.5)	
226	1-441-E-SQ01D	MOTOR STARTER FOR VSI-654	120-A09D	Auxiliary	120'-0"	above	0.15 (0.5)	
227	1-603-M-HV09B	ELECT. PENETRATION ROOM (D) CUBICLE COOLER	120-A09D	Auxiliary	120'-0"	above	0.15 (0.5)	
228	1-603-M-HV14B	480V CLASS 1E MCC 03B ROOM CUBICLE COOLER	120-A15B	Auxiliary	120'-0"	above	0.15 (0.5)	
229	1-827-E-MC03B	CLASS 1E 480V MOTOR CONTROL CENTER	120-A15B	Auxiliary	120'-0"	above	0.15 (0.5)	
230	1-441-V-0601	SHUTDOWN COOLING LINE ISOLATION VALVE	120-A16A	Auxiliary	120'-0"	above	0.15 (0.5)	
231	1-441-V-0646	SAFETY INJECTION CONTAINMENT ISOLATION VALVE	120-A16A	Auxiliary	120'-0"	above	0.15 (0.5)	
232	1-441-V-0600	SHUTDOWN COOLING LINE ISOLATION VALVE	120-A16B	Auxiliary	120'-0"	above	0.15 (0.5)	
233	1-491-V-004	PZR SURGE LINE SAMPLE CTMT ISOLATION VALVE	120-A16B	Auxiliary	120'-0"	above	0.15 (0.5)	
234	1-491-V-006	PZR STEAM SPACE SAMPLE CTMT ISOLATION VALVE	120-A16B	Auxiliary	120'-0"	above	0.15 (0.5)	

Table 3.4-2 (12 of 16)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC Level Relative to Flood Elevation	Flood Elevation m (ft)	Note
235	1-441-V-0626	SAFETY INJECTION CONTAINMENT ISOLATION VALVE	120-A16B	Auxiliary	120'-0"	above	0.15 (0.5)	
236	1-754-J-RU01	REMOTE SHUTDOWN CONSOLE	137-A06D	Auxiliary	137'-6"	above	0.15 (0.5)	
237	1-603-M-HV10A	480V CLASS 1E MCC 03C ROOM CUBICLE COOLER	137-A10C	Auxiliary	137'-6"	above	0.15 (0.5)	
238	1-827-E-MC03C	CLASS 1E 480V MOTOR CONTROL CENTER	137-A10C	Auxiliary	137'-6"	above	0.15 (0.5)	
239	1-603-M-HV10B	480V CLASS 1E MCC 03D ROOM CUBICLE COOLER	137-A10D	Auxiliary	137'-6"	above	0.15 (0.5)	
240	1-827-E-MC03D	CLASS 1E 480V MOTOR CONTROL CENTER	137-A10D	Auxiliary	137'-6"	above	0.15 (0.5)	
241	1-603-M-HV11A	ELECT. PENETRATION ROOM (C) CUBICLE COOLER	137-A11C	Auxiliary	137'-6"	above	0.15 (0.5)	
242	1-603-M-HV11B	ELECT. PENETRATION ROOM (D) CUBICLE COOLER	137-A11D	Auxiliary	137'-6"	above	0.15 (0.5)	
243	1-603-M-HV15A	480V CLASS 1E MCC 04A ROOM CUBICLE COOLER	137-A15A	Auxiliary	137'-6"	above	0.15 (0.5)	
244	1-827-E-MC04A	CLASS 1E 480V MOTOR CONTROL CENTER	137-A15A	Auxiliary	137'-6"	above	0.15 (0.5)	
245	1-603-M-HV15B	480V CLASS 1E MCC 04B ROOM CUBICLE COOLER	137-A15B	Auxiliary	137'-6"	above	0.15 (0.5)	
246	1-827-E-MC04B	CLASS 1E 480V MOTOR CONTROL CENTER	137-A15B	Auxiliary	137'-6"	above	0.15 (0.5)	
247	1-603-M-HV12A	PENETRATION MUX A ROOM CUBICLE COOLER	137-A17A	Auxiliary	137'-6"	above	0.15 (0.5)	
248	1-603-M-HV12B	PENETRATION MUX B ROOM CUBICLE COOLER	137-A17B	Auxiliary	137'-6"	above	0.15 (0.5)	
249	1-603-M-HV13A	ELECT. PENETRATION ROOM (A) CUBICLE COOLER	137-A18A	Auxiliary	137'-6"	above	0.15 (0.5)	
250	1-603-M-HV13B	ELECT. PENETRATION ROOM (B) CUBICLE COOLER	137-A18B	Auxiliary	137'-6"	above	0.15 (0.5)	
251	1-603-M-HV14A	480V CLASS 1E MCC 03A ROOM CUBICLE COOLER	137-A23A	Auxiliary	137'-6"	above	0.15 (0.5)	
252	1-827-E-MC03A	CLASS 1E 480V MOTOR CONTROL CENTER	137-A23A	Auxiliary	137'-6"	above	0.15 (0.5)	
253	1-521-V-0011	MAIN STEAM ISOLATION VALVE FOR SG 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
254	1-521-V-0012	MAIN STEAM ISOLATION VALVE FOR SG 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	

Table 3.4-2 (13 of 16)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC Level Relative to Flood Elevation	Flood Elevation m (ft)	Note
255	1-521-V-0015	MSIV BLOCK VALVE FOR STEAM GENERATOR 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
256	1-521-V-0016	MSIV BLOCK VALVE FOR STEAM GENERATOR 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
257	1-521-V-0101	ATMOSPHERIC DUMP VALVE FOR STEAM GENERATOR 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
258	1-521-V-0102	ATMOSPHERIC DUMP VALVE FOR STEAM GENERATOR 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
259	1-521-V-0105	ATMOSPHERIC DUMP ISOLATION VALVE FOR SG 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
260	1-521-V-0106	ATMOSPHERIC DUMP ISOLATION VALVE FOR SG 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
261	1-521-V-0110	AF TURBINE STEAM SUPPLY VALVE FOR SG 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
262	1-521-V-1301	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
263	1-521-V-1303	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
264	1-521-V-1305	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
265	1-521-V-1307	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
266	1-521-V-1309	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
267	1-541-V-0121	MAIN FEEDWATER ISOLATION VALVE	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
268	1-541-V-0122	MAIN FEEDWATER ISOLATION VALVE	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
269	1-541-V-0131	MAIN FEEDWATER ISOLATION VALVE	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
270	1-541-V-0132	MAIN FEEDWATER ISOLATION VALVE	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
271	1-521-V-1302	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
272	1-521-V-1304	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
273	1-521-V-1306	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	

Table 3.4-2 (14 of 16)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC Level Relative to Flood Elevation	Flood Elevation m (ft)	Note
274	1-521-V-1308	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
275	1-521-V-1310	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 1	137-A31C	Auxiliary	137'-6"	above	1.82 (6.0)	
276	1-521-V-0013	MAIN STEAM ISOLATION VALVE FOR SG 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
277	1-521-V-0014	MAIN STEAM ISOLATION VALVE FOR SG 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
278	1-521-V-0017	MSIV BLOCK VALVE FOR STEAM GENERATOR 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
279	1-521-V-0018	MSIV BLOCK VALVE FOR STEAM GENERATOR 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
280	1-521-V-0103	ATMOSPHERIC DUMP VALVE FOR STEAM GENERATOR 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
281	1-521-V-0104	ATMOSPHERIC DUMP VALVE FOR STEAM GENERATOR 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
282	1-521-V-0107	ATMOSPHERIC DUMP ISOLATION VALVE FOR SG 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
283	1-521-V-0108	ATMOSPHERIC DUMP ISOLATION VALVE FOR SG 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
284	1-521-V-0109	AF TURBINE STEAM SUPPLY VALVE FOR SG 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
285	1-521-V-1311	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
286	1-521-V-1313	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
287	1-521-V-1315	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
288	1-521-V-1317	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
289	1-521-V-1319	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
290	1-541-V-0123	MAIN FEEDWATER ISOLATION VALVE	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
291	1-541-V-0124	MAIN FEEDWATER ISOLATION VALVE	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
292	1-541-V-0133	MAIN FEEDWATER ISOLATION VALVE	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	

Table 3.4-2 (15 of 16)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC Level Relative to Flood Elevation	Flood Elevation m (ft)	Note
293	1-541-V-0134	MAIN FEEDWATER ISOLATION VALVE	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
294	1-521-V-1312	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
295	1-521-V-1314	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
296	1-521-V-1316	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
297	1-521-V-1318	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
298	1-521-V-1320	MAIN STEAM SAFETY VALVE FOR STEAM GENERATOR 2	137-A31D	Auxiliary	137'-6"	above	1.82 (6.0)	
299	1-603-M-AH22C	RSP ROOM SUPPLY FAN	137-A43D	Auxiliary	137'-6"	above	0.15 (0.5)	
300	1-603-M-AH22D	RSP ROOM SUPPLY FAN	137-A43D	Auxiliary	137'-6"	above	0.15 (0.5)	
301	1-603-M-AH23C	RSP ROOM EXHAUST FAN	137-A43D	Auxiliary	137'-6"	above	0.15 (0.5)	
302	1-603-M-AH23D	RSP ROOM EXHAUST FAN	137-A43D	Auxiliary	137'-6"	above	0.15 (0.5)	
303	1-603-M-HC03C	RSP ROOM ELECTRIC DUCT HEATER	137-A43D	Auxiliary	137'-6"	above	0.15 (0.5)	
304	1-603-M-HC03D	RSP ROOM ELECTRIC DUCT HEATER	137-A43D	Auxiliary	137'-6"	above	0.15 (0.5)	
305	1-603-M-HV18A	REMOTE SHUTDOWN PANEL ROOM CUBICLE COOLER	137-A43D	Auxiliary	137'-6"	above	0.15 (0.5)	
306	1-603-M-HV18B	REMOTE SHUTDOWN PANEL ROOM CUBICLE COOLER	137-A43D	Auxiliary	137'-6"	above	0.15 (0.5)	
307	1-603-M-HV16B	I&C EQUIPMENT ROOM CUBICLE COOLER	157-A01D	Auxiliary	156'-0"	above	0.61 (2.0)	
308	1-751-J-PM01	REACTOR OPERATOR CONSOLE	157-A12C	Auxiliary	156'-0"	above	0.61 (2.0)	
309	1-751-J-PM02	TURBINE & ELECTRIC OPERATOR CONSOLE	157-A12C	Auxiliary	156'-0"	above	0.61 (2.0)	
310	1-751-J-PM03	SHIFT SUPERVISOR CONSOLE	157-A12C	Auxiliary	156'-0"	above	0.61 (2.0)	
311	1-751-J-PM04	SHIFT TECHNICAL ADVISOR CONSOLE	157-A12C	Auxiliary	156'-0"	above	0.61 (2.0)	
312	1-751-J-PM05	SAFETY CONSOLE	157-A12C	Auxiliary	156'-0"	above	0.61 (2.0)	
313	1-603-M-HV17A	I&C EQUIPMENT ROOM CUBICLE COOLER	157-A19C	Auxiliary	156'-0"	above	0.61 (2.0)	
314	1-603-M-HV17B	I&C EQUIPMENT ROOM CUBICLE COOLER	157-A19D	Auxiliary	156'-0"	above	0.61 (2.0)	

Table 3.4-2 (16 of 16)

Item No.	Equipment No.	Equipment Description	Location	Building	Floor Elevation	SSC Level Relative to Flood Elevation	Flood Elevation m (ft)	Note
315	1-603-M-HV16A	I&C EQUIPMENT ROOM CUBICLE COOLER	157-A25C	Auxiliary	156'-0"	above	0.61 (2.0)	
316	1-602-M-AH02C	EDG ROOM EXHAUST FAN	174-A01C	Auxiliary	174'-0"	above	0.15 (0.5)	
317	1-602-M-AH02D	EDG ROOM EXHAUST FAN	174-A01D	Auxiliary	174'-0"	above	0.15 (0.5)	
318	1-461-M-TK01A	COMPONENT COOLING WATER SURGE TANK A	174-A03C	Auxiliary	174'-0"	above	0.15 (0.5)	
319	1-461-M-TK01B	COMPONENT COOLING WATER SURGE TANK B	174-A03D	Auxiliary	174'-0"	above	0.15 (0.5)	
320	1-601-M-AH10	CONTROL ROOM AREA SMOKE REMOVAL FAN	174-A12C	Auxiliary	174'-0"	above	0.15 (0.5)	
321	1-602-M-HV11C	EDG ROOM NORMAL SUPPLY AHU	174-A14C	Auxiliary	174'-0"	above	0.15 (0.5)	
322	1-602-M-HV11D	EDG ROOM NORMAL SUPPLY AHU	174-A14D	Auxiliary	174'-0"	above	0.15 (0.5)	
323	1-601-M-HV01A	CONTROL ROOM SUPPLY AIR HANDLING UNIT	174-A24C	Auxiliary	174'-0"	above	0.15 (0.5)	
324	1-601-M-HV01B	CONTROL ROOM SUPPLY AIR HANDLING UNIT	174-A24D	Auxiliary	174'-0"	above	0.15 (0.5)	

(1) These components are protected by flood barrier against internal flooding. Also, these components are not required to be protected from flooding sources due to redundancy of other trains/components.

Security-Related Information – Withheld Under 10 CFR 2.390

Figure 3.4-1 Location of Watertight doors and Flood Barrier Plan View Elevation 55'-0"

Figure 3.4-2 Location of Watertight doors and Flood Barrier Plan View Elevation 78'-0"

Security-Related Information – Withheld Under 10 CFR 2.390

Figure 3.4-3 Location of Watertight doors and Flood Barrier Plan View Elevation 100’-0”

Figure 3.4-4 Location of Watertight doors and Flood Barrier Plan View Elevation 120’-0”

Figure 3.4-5 Location of Watertight doors and Flood Barrier Plan View Elevation 137'-6"

Figure 3.4-6 Location of Watertight doors and Flood Barrier Plan View Elevation 156'-0"

Figure 3.4-7 Location of Watertight doors and Flood Barrier Plan View Elevation 174'-0"