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DCP/NRC1305
NSD-NRC-98-5625
Docket No.: 52-003

March 18, 1998

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: T. R. QUAY

SUBJECT: RESPONSES TO STAFF REQUESTS REGARDING THE AP600 INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA (ITAAC) - REVISION 4 (DRAFT), SECTION 3.3, BUILDINGS

Dear Mr. Quay:

Enclosed is Revision 4 (Draft) of the AP600 Certified Design Material, Section 3.3, "Buildings," as requested the staff in the ITAAC Task Group Meeting on March 12, 1998. This draft version of Revision 4 includes changes to Section 3.3 that have been incorporated as a result of responses to staff requests for additional information in regard to Revision 3 of the AP600 CDM of May 16, 1998.

Text and tables that have been changed from Revision 3 are noted in the left margin with vertical change bar. Figures changes have been incorporated, but are not noted as changes on the figures.

In additon, in Table 3.3-6, item 1.g) has been added to correctly reflect an additional ITAAC as committed in our response to RAI 640.168, dated January 30, 1998. RAI 640.185 from your letter dated March 6, 1998 asked for clarification of this ITAAC.

Please contact Mr. Eugene J. Piplica at (412) 374-5310 if you have any questions concerning this transmittal.

Brian A. McIntyre, Manager
Advanced Plant Safety and Licensing

jml

Enclosures

cc: J. N. Wilson, NRC (1L, 1E)
N. J. Liparulo, Westinghouse (w/o Enclosures)

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3.3 Buildings

Design Description

The Nuclear Island (NI) 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 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 (PCCWs) tank. The auxiliary building houses the safety-related mechanical and electrical equipment located outside the containment and shield buildings.

The annex building houses personnel access, technical support center, non-1E electrical equipment, and hot machine shop. The radwaste building houses the low level waste processing and storage.

1. a) The NI structures are seismic Category I and are designed to withstand design basis loads, which apply to the structure, without loss of structural integrity and safety function. 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) The top of the NI basemat is located below the design plant grade level per Table 3.3-1.

   c) The containment and its penetrations are designed and constructed to ASME Code Section III, Class MC.[1]

   d) The containment and its penetrations retain their pressure boundary integrity associated with the design pressure.

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

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 features of the nuclear island structures are as defined on Table 3.3-5.

g) The containment shell provides a free volume and a heat transfer surface.

2. Selected walls of the NI buildings as defined on Table 3.3-1 provide shielding during normal operations. The shield wall thicknesses of the NI buildings are defined on Table 3.3-1 except for designed openings or penetrations.

3. Selected walls of the annex building and the radwaste building as defined on Table 3.3-1 provide shielding during normal operations. The shield wall thicknesses of the annex building and the radwaste building are defined on Table 3.3-1 except for designed openings or penetrations.

4. a) Exterior walls and the basemat of the NI have a water barrier up to plant elevation 100 ft (design plant 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.

5. The radiologically controlled area of the auxiliary building at the Level 1 elevation contains adequate volume to contain the liquid volume of faulted liquid radwaste system (WLS) storage tanks. The available volume of the radiologically controlled area of the auxiliary building at the Level 1 elevation exceeds the volume of the liquid radwaste storage tanks.

6. a) Class 1E cables and raceways are identified according to applicable color-coded Class 1E divisions.

b) Class 1E divisional cables are routed in their respective divisional raceways.

c) Separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables 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.

7. Systems and components required for safe shutdown located in rooms identified in Table 3.3-4 are protected from the dynamic effects of postulated pipe breaks using pipe whip restraints.

8. The reactor cavity sump has a minimum concrete thickness as shown on Table 3.3-1 between the bottom of the sump and the steel containment.

9. The shield building roof, passive containment cooling system (PCS) storage tank, and the fire water storage tank support and retain the PCS and fire water sources.

10. The construction approach or sequence is dependent on the soil characteristics as defined below:

    - For hard soil sites with unconsolidated deposits with shear wave velocities exceeding 2000 feet per second, a review of the construction approach is not required.

    - For soft soil sites with unconsolidated deposits with shear wave velocities in the range of 1000 to 2000 feet per second, the construction approach will include two limits: i.) Shield building construction ahead of auxiliary building or ii.) Auxiliary building construction ahead of shield building.

Inspections, Tests, Analyses, and Acceptance Criteria

Table 3.3-5 specifies the inspections, tests, analyses, and associated acceptance criteria for the NI annex and radwaste buildings.

Table 3.3-1
Definition of Wall Locations and Thicknesses for NI Buildings, Annex and Radwaste Buildings[1]

Wall or Section Description	Applicable Column Lines	Applicable Elevation Level or Elevation Level Range	Concrete Thickness[2][5]	Nominal Reinforcement Vertical (in^2/ft^2) [3]	Nominal Reinforcement Horizontal (in^2/ft) [3]	Applicable Radiation Shielding Wall (Yes/No)	Applicable Dimension[4]
Top of Basemat to Plant Grade Level (Auxiliary Building)	N/A	0 to 3	-	-	-	No	33'-6"
Bottom of Containment Sump to Top Surface of Embedded Containment Shell	N/A	Difference between Level 1 and 69'-6"	-	-	-	No	3'-0"
From Grade Level to Top Surface of Shield Building Roof	N/A	3 to 14	-	-	-	No	208'-6"
Containment Building (Internal Structures)							
Shield Wall between Reactor Vessel Cavity and RCDT Room	E-W wall parallel with column line 7	From 0 to 1.1	3'-0"	-	-	Yes	-
West Reactor Vessel Cavity Wall	N-S wall parallel with column line N	From 1.2 to 2.3	7'-6"	-	-	Yes	-
North Reactor Vessel Cavity Wall	E-W wall parallel with column line 7	From 1.1 to 2.3	9'-0"	-	-	Yes	-
East Reactor Vessel Cavity Wall	N-S wall parallel with column line N	From 1.2 to 2.3	7'-6"	-	-	Yes	-
West Reactor Vessel Cavity Wall	N-S wall parallel with column line N	From 2.3 to 3	4'-0"	-	-	Yes	-

1. The applicable column lines, elevation levels, and NI basemat reinforcement are identified and included on Figures 3.3-1 through 3.3-15.
2. These wall thicknesses have a construction tolerance of ± 1 inch.
3. These concrete reinforcement values represent the minimum reinforcement required for structural requirements except for designed openings, penetrations, sumps or elevator pits. These reinforcement values also apply for each face of the applicable wall unless specifically indicated on the table.
4. These applicable dimensions have a construction tolerance of ± 3 inches.
5. For walls that are part of structural modules, the concrete thickness also includes the steel face plates.
6. Required Thickness of Surface Plates (inches)[1]

Note: Dash (-) indicates not applicable.

Table 3.3-1 (cont.)
Definition of Wall Locations and Thicknesses for NI Buildings, Annex and Radwaste Buildings[1]

Wall or Section Description	Applicable Column Lines	Applicable Elevation Level or Elevation Level Range	Concrete Thickness[2][5]	Nominal Reinforcement Vertical (in^2/ft^2) [3]	Nominal Reinforcement Horizontal (in^2/ft) [3]	Applicable Radiation Shielding Wall (Yes/No)	Applicable Dimension[4]
North Reactor Vessel Cavity Wall	E-W wall parallel with column line 7	From 2.3 to 3	4'-0"	-	-	Yes	-
East Reactor Vessel Cavity Wall	N-S wall parallel with column line N	From 2.3 to 3	4'-0"	-	-	Yes	-
South Reactor Vessel Cavity Wall	E-W wall parallel with column line 7	From 2.3 to 3	4'-0"	-	-	Yes	-
Shield Building							
Shield Building Cylinder		From 3 to 11	3'-0"			Yes	-
Shield Building Cylinder		From 6 to 7	3'-0"	4.4	3.9 (Circumferential)	Yes	-
Shield Building Cylinder		From 7 to 8	3'-0"	3.9	3.4 (Circumferential)	Yes	-
Columns between air inlets		From 11 to 12	3'-0"	62.5 in^2 (Total per column)	2.8 (Total for both faces and middle layer)	Yes	-
Tension Rings	Interface between conical roof and cylindrical portion of Shield building	From 12 to 12.1	3'-0"		75.3 in^2 (Total circumferential in tension ring)	Yes	-
Conical Roof		From 12.1 to 13	1'-6" cast-in-place concrete over 6" precast concrete ribbed conical sections			Yes	-
PCS Tank External Cylindrical Wall	PCS external wall lower section	From 12.2 to 12.3	2'-0"	1.8	1.8 (Circumferential)	Yes	-
PCS Tank External Cylindrical Wall	PCS external wall upper section	From 13.1 to 13.2	2'-0"	0.8	1.0 (Circumferential)	Yes	-
PCS tank roof		Level 14	1'-3"			No	-

Table 3.3-1 (cont.)
Definition of Wall Locations and Thicknesses for NI Buildings, Annex and Radwaste Buildings[1]

Wall or Section Description	Applicable Column Lines	Applicable Elevation Level or Elevation Level Range	Concrete Thickness[2][5]	Nominal Reinforcement Vertical (in^2/ft^2)[3]	Nominal Reinforcement Horizontal (in^2/ft)[3]	Applicable Radiation Shielding Wall (Yes/No)	Applicable Dimension[4]
Containment Structures							
Module Wall 1	West wall of refueling cavity	Wall separating IRWST and refueling cavity from 2.3 to 5	4'-0" concrete-filled structural wall module with 0.5-in.-thick steel plate on inside and outside of wall	0.35[6]	NA	No	-
Module Wall 2	South wall of west steam generator cavity	Wall separating IRWST and west steam generator cavity from 3.1 to 5	2'-6" concrete-filled structural wall module with 0.5-in.-thick steel plate on inside and outside of wall	0.46[6]	NA	No	-
M-2 Module Wall	North east boundary wall of IRWST	Wall separating IRWST maintenance floor from 3 to 5	2'-6" concrete-filled structural wall module with 0.5-in.-thick steel plate on inside and outside of wall	0.46[6]	NA	No	-

Table 3.3-1 (cont.)
Definition of Wall Locations and Thicknesses for NI Buildings, Annex and Radwaste Buildings[1]

Wall or Section Description	Applicable Column Lines	Applicable Elevation Level or Elevation Level Range	Concrete Thickness[2][5]	Nominal Reinforcement Vertical (in^2/ft^2) [3]	Nominal Reinforcement Horizontal (in^2/ft) [3]	Applicable Radiation Shielding Wall (Yes/No)	Applicable Dimension[4]
Auxiliary Building Basemat							
Auxiliary Basemat Area	Column line K to L and from Col. Line 11 wall to the intersection with the shield building	From level 0 to 1	6'-0"	**Shear Reinforcement** 0.26	**Bottom Reinforcement** 2.7 (East-West Direction)	No	-
Auxiliary Basemat Area	Column line K to L and from Col. Line 11 wall to the intersection with the shield building	From level 0 to 1	6'-0"	NA	**Top Reinforcement** 2.7 (East-West Direction)	No	-
Auxiliary Basemat Area	Column line 1 to 2 and from Column Line K-2 to N wall	From level 0 to 1	6'-0"	**Shear Reinforcement** 0.74	**Bottom Reinforcement** 4.5 (North-South Direction)	No	-
Auxiliary Basemat Area	Column line 1 to 2 and from Column Line K-2 to N wall	From level 0 to 1	6'-0"	NA	**Top Reinforcement** 3.12 (North-South Direction)	No	-

Table 3.3-1 (cont.)
Definition of Wall Locations and Thicknesses for NI Buildings, Annex and Radwaste Buildings[1]

Wall or Section Description	Applicable Column Lines	Applicable Elevation Level or Elevation Level Range	Concrete Thickness[2][5]	Nominal Reinforcement Vertical (in^2/ft^2) [3]	Nominal Reinforcement Horizontal (in^2/ft) [3]	Applicable Radiation Shielding Wall (Yes/No)	Applicable Dimension[4]
Auxiliary Building Walls/Floors							
Wall between J-2 and K-2	From 1 to 2	From 1 to 2	2'-0"	-	-	Yes	-
Column Line 2 wall	From 1 to K-2	From 1 to 2	2'-6"	-	-	Yes	-
Column Line L-2 wall	From 2 to 4	From 1 to 2	4'-0"	-	-	Yes	-
Column Line 2 wall	From K-2 to L-2	From 1 to 5	5'-0"	-	-	Yes	-
Column Line K-2	From 2 to 4	From 1 to 5	4'-9"	-	-	Yes	-
Column Line 3 wall	From J-1 to L-2	From 1 to 80-6"	2'-6"	-	-	Yes	-
Column Line J-1 wall	From 2 to 4	From 1 to 5	2'-6"	-	-	Yes	-
Column Line J-2 wall	From 2 to 4	From 1 to 5	2'-6"	-	-	Yes	-
Column Line J-1 wall	From 4 to 5	From 1 to 3.1	2'-0"	-	-	Yes	-
Column Line 4 wall	From 1 to K-2	From 1 to 90'-6"	2'-6"	-	-	Yes	-
Column Line 5 wall	From 1 to J-1	From 1 to 6	2'-0"	-	-	Yes	-
Column Line 7.1 wall	From 1 to J-1	From 1 to 2	2'-0"	-	-	Yes	-
Column Line 7.2 wall	From 1 to J-1	From 1 to 98'-0"	2'-0"	-	-	Yes	-
Column Line 7.3 wall	From 1 to K	From 1 to 2	3'-0"	1.1	0.9	Yes	-
Column Line 7.3 wall	From 1 to K	From 2 to 3	3'-0"	1.6	1.3	Yes	-
Column Line 7.3 wall	From 1 to J	From 3 to 4	2'-0"	0.7	0.7	No	-
Column Line 7.3 wall	From J to K	From 3 to 4	2'-0"	1.9	1.4	No	-

Table 3.3-1 (cont.)
Definition of Wall Locations and Thicknesses for NI Buildings, Annex and Radwaste Buildings[1]

Wall or Section Description	Applicable Column Lines	Applicable Elevation Level or Elevation Level Range	Concrete Thickness[2][5]	Nominal Reinforcement Vertical (in^2/ft^2) [3]	Nominal Reinforcement Horizontal (in^2/ft) [3]	Applicable Radiation Shielding Wall (Yes/No)	Applicable Dimension[4]
Column Line 7.3 wall	From I to K	From 4 to 5	2'-0"	1.8	1.4	No	-
Column Line 7.3 wall	From I to K	From 5 to 6	2'-0"	3.0	2.5	No	-
Column Line J-1 wall	From 1 to 2	From 2 to 97'-0"	2'-0"	-	-	Yes	-
Column Line 2 wall	From I to K-2	From 2 to 5	2'-6"	-	-	Yes	-
Column Line 2 wall	From K-2 to L2	From 2 to 97'-0"	5'-0"	-	-	Yes	-
Column Line 2 wall	From L-2 to N	From 2 to 97'-0"	2'-6"	-	-	Yes	-
Labyrinth Wall between Col. Line 3 and 4 and J-1 to J-2	N/A	2 to 3	2'-0"	-	-	Yes	-
Column Line J-2 wall	From 4 to 5	From 2 to 3.1	2'-0"	-	-	Yes	-
Column Line 4 wall	From J-2 to K-2	From 2.1 to 5	2'-6"	-	-	Yes	-
Floor	From 1 to 2 and I to N	2	2'-0"	-	-	Yes	-
Floor	From 2 to 5 and J-1 to J-2	2	0'-9"	-	-	Yes	-
Pipe Chase	From 2 to 5 and J-1 to J-2	2.1	2'-0"	-	-	Yes	-
Floor	From 2 to 5 and J-2 to K-2	2.1	2'-0"	-	-	Yes	-
Floor	From 4 to 7.3 and I to J-1	2	2'-0"	-	-	Yes	-

Table 3.3-1 (cont.)
Definition of Wall Locations and Thicknesses for NI Buildings, Annex and Radwaste Buildings[1]

Wall or Section Description	Applicable Column Lines	Applicable Elevation Level or Elevation Level Range	Concrete Thickness[2][5]	Nominal Reinforcement Vertical (in^2/ft^2) [3]	Nominal Reinforcement Horizontal (in^2/ft) [3]	Applicable Radiation Shielding Wall (Yes/No)	Applicable Dimension[4]
Column Line 1 wall	From I to N	From 1 to 2	3'-0"	4.1 (outside) 2.1 (inside)	1.1 (outside) 1.1 (inside)	No	-
Column Line 1 wall	From I to N	From 2 to 3	3'-0"	3.0 (outside) 2.6 (inside)	1.1 (outside) 1.1 (inside)	No	-
Column Line 1 wall	From I to N	From 3 to 5	2'-3"	2.5 (outside) 2.2 (inside)	2.0 (outside) 1.6 (inside)	Yes	-
Column Line 1 wall	From I to N	From 5 to 7	2'-3"	3.7 (outside) 2.7 (inside)	2.7 (outside) 2.3 (inside)	Yes	-
Column Line N wall	From 1 to 2	From 3 to 5	3'-9"	-	-	Yes	-
Column Line N wall	From 2 to 4	From 3 to 5	5'-6"	-	-	Yes	-
N-S Shield Wall (low wall)	Between K-2 and L-2 extending from column line 1 north	From 3 to 3.1	3'-0"	-	-	Yes	-
N-S Shield Wall	Between K-2 and L-2 extending from column line 1 north	From 3 to 123'-0"	2'-9"	-	-	Yes	-
E-W Shield Wall	Between 1 and 2 extending from column line east	From 3 to 123'-0"	3'-0"	-	-	Yes	-
Column Line I wall	From 1 to 7.3	From 3 to 5	2'-0"	-	-	Yes	-
Column Line 11 wall	From I to Q	From 3 to 4	2'-0"	-	-	Yes	-
Column Line K wall	From 7.3 to 11	From 3 to 4	2'-0"	-	-	Yes	-
Column Line L wall	From Shield Building Wall to 11	From 3 to 4	2'-0"	-	-	Yes	-
Column Line L wall	From Shield Building Wall to 11	From 4 to 5	2'-0"	2.3	1.8	Yes	-

Table 3.3-1 (cont.)
Definition of Wall Locations and Thicknesses for NI Buildings, Annex and Radwaste Buildings[1]

Wall or Section Description	Applicable Column Lines	Applicable Elevation Level or Elevation Level Range	Concrete Thickness[2][5]	Nominal Reinforcement Vertical (in^2/ft^2) [3]	Nominal Reinforcement Horizontal (in^2/ft) [3]	Applicable Radiation Shielding Wall (Yes/No)	Applicable Dimension[4]
Column Line L wall	From Shield Building Wall to 11	From 5 to 6	2'-0"	2.2	1.8	No	-
Column Line M wall	From Shield Building Wall to 11	From 3 to 4	2'-0"	-	-	Yes	-
Column Line P wall	From Shield Building Wall to 11	From 3 to 4	2'-0"	-	-	Yes	-
Column Line Q wall	From Shield Building Wall to 11	From 3 to 6	2'-0"	-	-	Yes	-
Column Line 11 wall	From I to L	From 4 to 6	2'-0"	-	-	Yes	-
Column Line 11 wall	From L to M	From 4 to 5	4'-0"	-	-	Yes	-
Column Line 11 wall	From M to P	From 4 to 5	2'-0"	-	-	Yes	-
Column Line 11 wall	From P to Q	From 4 to 5	4'-0"	-	-	Yes	-
Column Line 11 wall	From L to Q	From 5 to 6	2'-0"	-	-	Yes	-
Floor	From 1 to 2 From I to N	3	3'-0"	-	-	Yes	-
Floor	From 2 to 4 From K-2 to L-2	94'-3"	4'-9"	-	-	Yes	-
Floor	From I to J-2 and 4 to intersecting vertical wall before column line 5	3.1	2'-0"	-	-	Yes	-
Floor	From I to shield bldg wall and from intersecting vertical wall before column line 5 to 5	3.1	0'-9"	-	-	Yes	-
Floor	From 5 to 7.3 and I to shield bldg wall	3	2'-0"	-	-	Yes	-

Table 3.3-1 (cont.)
Definition of Wall Locations and Thicknesses for NI Buildings, Annex and Radwaste Buildings[1]

Wall or Section Description	Applicable Column Lines	Applicable Elevation Level or Elevation Level Range	Concrete Thickness[2][5]	Nominal Reinforcement Vertical (in^2/ft^2) [3]	Nominal Reinforcement Horizontal (in^2/ft) [3]	Applicable Radiation Shielding Wall (Yes/No)	Applicable Dimension[4]
Floor	From K to L and Shield Bldg wall to column line 10	3	0'-9"	-	-	Yes	-
Floor	From 1 to 2 and L-2 to N	125'-0"	3'-0"	-	-	Yes	-
Floor	From 1 to 2 and L-2 to N	119'-9"	2'-0"	-	-	Yes	-
Column Line 9.2 wall	From I to J and K to L	From 4 to 5	2'-0"	-	-	Yes	-
Labyrinth Wall between Column Line 7.3 and 9.2 and J to K	Corner wall	From 4 to 5	2'-0"	-	-	Yes	-
Column Line J wall	From 7.3 to 9.2	From 4 to 5	2'-0"	-	-	Yes	-
Main Control Room Floor	From 9.2 to 11 and I to L	4	2'-0"	-	-	Yes	-
Floor	Bounded by shield bldg, 7.3, J, 9.2 and L	4	2'-0"	-	-	Yes	-
Column Line I wall	From 7.3 to 11	From 4 to 5	2'-0"	-	-	Yes	-
Floor	From 9.2 to 11 and L to M	4	2'-0"	-	-	Yes	-
Floor	From 9.2 to 11 and P to Q	4	2'-0"	-	-	Yes	-
Column Line N wall	From 1 to 4	From 5 to 7	2'-0"	-	-	Yes	-
Column Line 1 wall	From 1 to 2	From 5 to 7	2'-0"	-	-	Yes	-
Column Line 2 wall	From 1 to J-1	From 5 to 6	2'-0"	-	-	Yes	-

Table 3.3-1 (cont.)
Definition of Wall Locations and Thicknesses for NI Buildings, Annex and Radwaste Buildings[1]

Wall or Section Description	Applicable Column Lines	Applicable Elevation Level or Elevation Level Range	Concrete Thickness[2][5]	Nominal Reinforcement Vertical (in^2/ft^2) [3]	Nominal Reinforcement Horizontal (in^2/ft) [3]	Applicable Radiation Shielding Wall (Yes/No)	Applicable Dimension[4]
Column Line J-1 wall	From 2 to 4	From 5 to 6	2'-0"	-	-	Yes	-
Column Line 4 wall	From 1 to intersection with shield bldg wall	From 5 to 7	2'-0"	-	-	Yes	-
Floor	From 1 to 2 and 1 to L-2	4	2'-0"	-	-	Yes	-
Floor	From 1 to half way to 2 and L-2 to N	4	2'-0"	-	-	Yes	-
Floor	From 2 to 3 and J-1 to J-2	4	2'-0"	-	-	Yes	-
Floor	From 3 to 4 and J-1 to K-2	4	2'-0"	-	-	Yes	-
Floor	From 2 to 4 and 1 to J-1	6	1'-3"	-	-	Yes	-
Roof	From 1 to 4 and 1 to N	7	1'-3"	-	-	Yes	-
Floor	From 4 to short of column line 5 and from 1 to intersection with Shield Bldg Wall	5	0'-9"	-	-	Yes	-
Floor	From short of column line 5 to column line 5 and from 1 to intersection with shield bldg wall	133'-0"	0'-9"	-	-	Yes	-
Floor	From 5 to 7.3 and from 1 to intersection with shield bldg wall	5	0'-9"	-	-	Yes	-

Table 3.3-1 (cont.)
Definition of Wall Locations and Thicknesses for NI Buildings, Annex and Radwaste Buildings[1]

Wall or Section Description	Applicable Column Lines	Applicable Elevation Level or Elevation Level Range	Concrete Thickness[2][5]	Nominal Reinforcement Vertical (in^2/ft^2) [3]	Nominal Reinforcement Horizontal (in^2/ft) [3]	Applicable Radiation Shielding Wall (Yes/No)	Applicable Dimension[4]
Annex Building							
Column line 2 wall	From E to H	From 3.1 to 5	19 3/4"	-	-	Yes	-
Column line 4 wall	From E to H	From 3.1 to 7	2'-0"	-	-	Yes	-
N-S Shield Wall between E and J	From 2 to 4	From 3.1 to 5	1'-0"	-	-	Yes	-
Column line 4.1 wall	From E to H	From 3.1 to 5	2'-0"	-	-	Yes	-
E-W Labyrinth Wall between column line 7.1 and 7.8 and G to H	N/A	3 to 112'-0"	2'-0"	-	-	Yes	-
N-S Labyrinth Wall between column line 7.8 and 9 and G to H	N/A	3 to 112'-0"	2'-0"	-	-	Yes	-
N-S Shield Wall on Column line F	From 4.1 North	From 3 to 4	1'-0"	-	-	Yes	-
Column Line 9 wall	From E to connecting wall between G and H	From 3.1 to 4	2'-0"	-	-	Yes	-
Column Line E wall	From 9 to 13	From 3 to 5	2'-0"	-	-	Yes	-
Column Line 13 wall	From E to 11	From 3 to 5	2'-0"	-	-	Yes	-
Column Line 11 wall	From 11.09 to 13	From 3 to 5	2'-0"	-	-	Yes	-

Table 3.3-1 (cont.)
Definition of Wall Locations and Thicknesses for NI Buildings, Annex and Radwaste Buildings[1]

Wall or Section Description	Applicable Column Lines	Applicable Elevation Level or Elevation Level Range	Concrete Thickness[2][5]	Nominal Reinforcement Vertical (in^2/ft^2) [3]	Nominal Reinforcement Horizontal (in^2/ft) [3]	Applicable Radiation Shielding Wall (Yes/No)	Applicable Dimension[4]
Corridor Wall between G and H	From 9 to 13	From 3 to 5	1'-6"	-	-	Yes	-
Column Line 9 wall	From I to H	From 4 to 6	2'-0"	-	-	Yes	-
Floor	2 to 4 from shield wall between E and F to column line H	5	0'-6"	-	-	Yes	-
Floor	From 4 to 4.1 and E to H	5	1'-0"	-	-	Yes	-
Floor	From 9 to 13 and E to I.1	4	0'-6"	-	-	Yes	-
Floor	From 9 to 13 and E to I.1	5	0'-8"	-	-	Yes	-
Containment Filtration Rm A (North Wall)	Between column line E to H	From 5 to 6	1'-0"	-	-	Yes	-
Containment Filtration Rm A (East wall)	Between column line E to F	From 5 to 6	1'-0"	-	-	Yes	-
Containment Filtration Rm A (West wall)	Between column line G to H	From 5 to 6	1'-0"	-	-	Yes	-
Containment Filtration Rm A (Floor)	Between column line E to H	5	1'-0"	-	-	Yes	-
Containment Filtration Rm B (Floor)	Between column line E to H	6	0'-6"	-	-	Yes	-
Containment Filtration Rm B (West wall)	Between column line G to H	From 146'-3" to 6	1'-0"	-	-	Yes	-
North wall (Room 50351)	N/A	3 to top of wall	16 in.	-	-	Yes	-

Table 3.3-1 (cont.)
Definition of Wall Locations and Thicknesses for NI Buildings, Annex and Radwaste Buildings[1]

Wall or Section Description	Applicable Column Lines	Applicable Elevation Level or Elevation Level Range	Concrete Thickness[2][5]	Nominal Reinforcement Vertical (in^2/ft^2) [3]	Nominal Reinforcement Horizontal (in^2/ft) [3]	Applicable Radiation Shielding Wall (Yes/No)	Applicable Dimension[4]
East Wall (Room 50351)	DR from 2R past 3R	3 to top of wall	16 in.	-	-	Yes	-
South wall (Room 50351)	2R from FR to DR	3 to top of wall	24 in.	-	-	Yes	-
West wall (Room 50351)	DR from 2R past 3R	3 to top of wall	16 in.	-	-	Yes	-
East wall (Room 50352)	FR from 1R to 2R	3 to top of wall	24 in.	-	-	Yes	-
South wall (Room 50352)	1R from FR to DR	3 to top of wall	24 in.	-	-	Yes	-
West Wall (Room 50352)	DR from 1R to 2R	3 to top of wall	24 in.	-	-	Yes	-

Table 3.3-2 NI Building Room Boundaries Required to Have Flood Barrier Floors and Walls		
Boundary/ Maximum Flood Level (inches)	**Between Room Number to Room Number**	
Floor/36	12306	12211
Floor/3	12303	12203/12207
Floor/3	12313	12203/12207
Floor/1	12300	12201/12202/12207 12203/12204/12205
Floor/3	12312	12212
Wall/36	12306	12305
Floor/1	12401	12301/12302/12303 12312/12313
Wall/1	12401	12411/12412
Floor/36	12404	12304
Floor/12	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

Table 3.3-3 Class 1E Divisions in NI Fire Areas				
Fire Area Number	Class 1E Divisions			
	A	C	B	D
1200 AF 01	Yes	Yes	-	-
1200 AF 02	Yes	Yes	Yes	-
1200 AF 03	-	-	Yes	Yes
1200 AF 04	Yes	Yes	-	-
1201 AF 02	-	-	Yes	-
1201 AF 03	-	-	-	Yes
1201 AF 04	-	-	-	Yes
1201 AF 05	-	-	Yes	Yes
1201 AF 06	-	-	Yes	Yes
1202 AF 03	-	Yes	-	-
1202 AF 04	Yes	-	-	-
1204 AF 01	Yes	-	-	-
1220 AF 01	-	-	Yes	Yes
1220 AF 02	-	-	-	Yes
1230 AF 01	Yes	Yes	-	-
1242 AF 02	Yes		-	

Note: Dash (-) indicates not applicable.

Table 3.3-4
NI Rooms with Postulated High Energy Line Breaks/Essential Targets/Pipe Whip Restraints and Related Hazard Source

Room Number	Room Description	Essential Target Description	Hazard Source
11201	Steam Generator Compartment-01	Automatic depressurization system (ADS) Stage 4 valves (RCS-V004A, RCS-V004C, RCS-V014A, and RCS-V014C	1) Reactor Coolant System (RCS)-Pressurizer Spray Line, 4" L110A: Terminal End Break at RCS Cold Leg 1A 2) RCS-Pressurizer Spray Line, 4" L106: Terminal End Break at RCS Cold Leg 1B
11209	Pipe Chase to CVS Equipment Room	CVS makeup, CVS letdown, CVS hydrogen supply, and SGS steam generator blowdown piping	1) Steam Generator System (SGS)-Blowdown Line, 4" L009A: Terminal End Break at Containment Penetration P27 2) SGS-Blowdown Line, 4" L009B: Terminal End Break at Containment Penetration P28 3) CVS-Makeup Line, 3" L056: Terminal End Break at In-Line Anchor
11303	Lower Pressurizer Compartment	SGS steam generator blowdown and steam generator drain piping. RCS pressurizer pressure and level instrumentation, pressurizer support steel	1) RCS-CVS Purification Line, 3" L112: Intermediate Break at Outlet to Valve CVS-V082
11400	Maintenance Floor Mezzanine	Steam generator supports	1) SGS-Startup Feedwater Line, 6" L005B: Terminal End Break at Containment Penetration P45
11401	Steam Generator 01 Compartment	ADS Stage 4 valves (RCS-V004A, RCS-V004C, RCS-V014A, and RCS-V014C)	1) RCS Pressurizer Spray Line, 4" L106: Terminal End Break at In-Line Anchor
11403	Pressurizer Spray Valve Room	ADS Stage 4 valves (RCS-V004A, RCS-V004C, RCS-V014A, and RCS-V014C)	1) RCS Pressurizer Spray Line, 4" L213: Intermediate Break at 4x2 Tee Connection to Auxiliary Spray Line 2) RCS CVS Letdown Line, 3" L111: Intermediate Break at Inlet to Valve CVS-V001

Table 3.3-4 (cont.)
NI Rooms with Postulated High Energy Line Breaks/Essential Targets/Pipe Whip Restraints and Related Hazard Source

Room Number	Room Description	Essential Target Description	Hazard Source
11503	Upper Pressurizer Compartment	ADS Stage 1, 2, and 3 valves, lower tier platform support steel	1) RCS-Pressurizer Spray Line, 4" L215: Terminal End Break at Pressurizer Nozzle
11601	Steam Generator-01 Feed Water Nozzle Area	RCS head vent piping SGS level instrumentation piping	1) SGS-Startup Feedwater Line, 6" L005A: Terminal End Break at Steam Generator Loop 1 Nozzle 2) SGS-Main Feedwater Line, 16" L003A: Terminal End Break at Steam Generator Loop 1 Nozzle
11602	Steam Generator-02 Feedwater Nozzle Area	SGS level instrumentation piping	1) SGS-Main Feedwater line, 16" L003B: Terminal End Break at Steam Generator Loop 2 Nozzle
11603	Lower ADS Valve Area	ADS Stage 2 and 3 valves (RCS-V002B, RCS-V003B, RCS-V012B, and RCS-V013B) Raceways and cable for Divisions A/C and B/D	1) RCS-Automatic Depressurization System Stage 1 Line, 4" L010B: Terminal End Break at Inlet to Valve RCS V011B
11703	Upper ADS Valve Area	ADS Stage 2 and 3 valves (RCS-V002A, RCS-V003A, RCS-V012A, and RCS-V013A) Raceways and cables for Division A/C	1) RCS-Automatic Depressurization System Stage 1 Line, 4" L010A: Terminal End Break at Inlet to Valve RCS V011A
12244	Lower Annulus Valve Area	CVS Makeup valve – CVS-V090	1) CVS-Makeup Line, 3" L131: Terminal End at In-Line Anchor

Table 3.3-5
Key Dimensions of NI Building Features
Reference Column Lines are Defined Relative to Containment Centerline

Reference Column Line	Reference Distance From Containment Centerline (ft-in North/South/East/West)	Nominal Wall Inside Surface Distances and Relationship to Reference Column Lines at Elevation Level 1 (ft-in)	Tolerance on Measured Distance (± in)
I	87 ft-6 in /East of Cont. CL.	X1 (Distance between Inside Surface of walls at Col Ln. I & N when Measured between Col 1 and 2) = 85 ft-0 in.	± 12 in
N	On Containment Centerline Along N-S direction		
J	69 ft-6 in /East of Cont. CL.	X2 (Distance between Inside Surface of walls at Col Ln. I & J when Measured between Col 7.3 and 11) = 15 ft-0 in	± 12in
K	51 ft-6 in /East of Cont. CL.	X3 (Distance between Inside Surface of walls at Col Ln. J & K when Measured between Col 7.3 and 11) = 16 ft-0 in	± 12in
L	26 ft-0 in /East of Cont. CL.	X4 (Distance between Inside Surface of walls at Col Ln. K & L when Measured between Col 7.3 and 11) = 23 ft-6 in	± 12in
M	8 ft-0 in /East of Cont. CL.	X5 (Distance between Inside Surface of walls at Col Ln. L & M when Measured between Col 7.3 and 11) = 16 ft-0 in	± 12in
P	10 ft-0 in /West of Cont. CL.	X6 (Distance between Inside Surface of walls at Col Ln. M & P when Measured between Col 7.3 and 11) = 16 ft-0 in	± 12in
Q	28 ft-0 in /West of Cont. CL.	X7 (Distance between Inside Surface of walls at Col Ln. P & Q when Measured between Col 7.3 and 11) = 15 ft-0 in	± 12in
1	137 ft-0 in /South of Cont. CL	X8 (Distance between Inside Surface of walls at Col Ln. 1 & 2 when Measured at interface with Col. I) = 19 ft-0 in	± 12in
2	115 ft-0 in /South of Cont. CL		
4	71 ft-0 in /South of Cont. CL	X9 (Distance between Inside Surface of walls at Col Ln. 1 & 4 when Measured at interface with Col. I) = 63 ft-0 in	± 12in

Table 3.3-5 (cont.)
Key Dimensions of NI Building Features
Reference Column Lines are Defined Relative to Containment Centerline

Reference Column Line	Reference Distance From Containment Centerline (ft-in North/South/East/West)	Nominal Wall Inside Surface Distances and Relationship to Reference Column Lines at Elevation Level 1 (ft-in)	Tolerance on Measured Distance (± in)
7.3	45 ft-9 in /North of Cont. CL	X10 (Distance between Inside Surface of walls at Col Ln. 7.3 & 11 when Measured at interface with Col. I) = 67 ft-9 in	± 12in
11	117 ft-0 in /North of Cont. CL		
7	On Containment Centerline Along East-West Direction	X11 [Radial Distance from Center of Containment (Intersection of Col. Lines N and 7) to Outside Surface of Shield Building when Measured along Col. Lines 7 and N] = 72 ft-6 in	+ 15 in - 3 in
--	--	X12 (Distance between Outside Surface of walls at Col Ln. I & N when Measured at Col. Line 1) = 91 ft-0 in	+3 ft -1 ft
--	--	X13 (Distance From Outside Surface of wall at Col Ln. 1 to Col. Line 7 when Measured at Col. Line I) = 138 ft-0 in	+3 ft -1 ft
--	--	X14 (Distance From Outside Surface of wall at Col Ln. 11 to Col. Line 7 when Measured at Col. Line I) = 118 ft-0 in	+3 ft -1 ft
--	--	X15 (Distance between Outside Surface of walls at Col Ln. I & Q when Measured at Col. Line 11) = 117 ft-6 in	+3 ft -1 ft
--	--	X16 (Distance From Outside Surface of wall at Col Ln. Q to Col. Line N when Measured at Col. Line 11) = 29 ft-0 in	+3 ft -1 ft
--	--	X17 (Distance between Outside Surface of shield building wall to shield building centerline when Measured between Col. Lines N to Q) = 72 ft-6 in	+3 ft -1 ft
--	--	X18 (Distance between shield building centerline to Reactor Vessel centerline when Measured along Col. Line N in North-South Direction) = 7 ft-6 in	± 3 in

Table 3.3-6
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1.a) The NI structures are seismic Category I and are designed to withstand design basis loads specified in the Design Description (Section 3.3 paragraph 1.a), which apply to the structure, without loss of safety function.	An inspection of the as-built concrete thickness and reinforcement cross-sectional area (density) (excluding designed openings or penetrations will be performed for the critical NI structural sections defined on Table 3.3-1. This inspection data will be reconciled with the applicable structural section data defined on Table 3.3-1 which represents the required concrete and reinforcement to withstand the design basis loads specified in the Design Description (Section 3.3 paragraph 1.a).	An inspection report exists that concludes that the as-built concrete and reinforcement quantities for the critical seismic Category I building sections defined on Table 3.3-1 were used during construction.
1.b) The top of the NI basemat is located below the design plant level per Table 3.3-1.	Inspection of the as-built nuclear island basemat structure will be conducted.	The top of the NI basemat is located below the design plant level consistent with the dimension defined on Table 3.3-1.
1.c) The containment and its penetrations are designed and constructed to ASME Code Section III, Class MC.[1]	See Certified Design Material, Subsection 2.2.1, Containment System.	See Certified Design Material, Subsection 2.2.1, Containment System.
1.d) The containment and its penetrations retain their pressure boundary integrity associated with the design pressure.	See Certified Design Material, Subsection 2.2.1, Containment System.	See Certified Design Material, Subsection 2.2.1, Containment System.
1.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 Certified Design Material, Subsection 2.2.1, Containment System.	See Certified Design Material, Subsection 2.2.1, Containment System.

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

Table 3.3-6 (cont.)
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1.f) The key features 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 for key features defined on Table 3.3-5.	The as-built inspection report exists and concludes that the key features of the Nuclear Island Structures are consistent with the dimensions defined on Table 3.3-5.
1.g) The containment shell provides a free volume and a heat transfer surface.	The maximum containment shell 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 shell maximum inside height from the operating deck is 121'-1" (with tolerance of +12", -6"), and the inside diameter is 130 feet nominal (with tolerance of +12", -6").
2. Selected walls of the NI buildings as defined on Table 3.3-1 provide shielding during normal operations. The shield wall thicknesses of the NI buildings are defined on Table 3.3-1 except for designed openings or penetrations.	Inspection of the as-built NI building wall thicknesses, identified on Table 3.3-1 will be performed.	The as-built inspection report exists and concludes that the shield walls of the NI buildings as defined on Table 3.3-1 are consistent with the minimum shield wall thicknesses defined on Table 3.3-1.
3. Selected walls of the annex building and the radwaste building as defined on Table 3.3-1 provide shielding during normal operations. The shield wall thicknesses of the annex building and the radwaste building are defined on Table 3.3-1 except for designed openings or penetrations.	Inspection of the as-built annex building and the radwaste building wall thicknesses, identified on Table 3.3-1 will be performed.	The as-built inspection report exists and concludes that the shield walls of the annex building and the radwaste building as defined on Table 3.3-1 are consistent with the minimum shield wall thicknesses defined on Table 3.3-1.
4.a) Exterior walls and the basemat of the NI have a water barrier up to plant elevation 100 ft (design plant grade).	Inspection of the as-built exterior walls and the basemat of the NI up to plant elevation 100 ft, 0 in. for application of water barrier will be performed during construction before the walls are poured.	An as-built inspection report exists that confirms that a water barrier exists on the NI exterior walls up to plant elevation of 100 ft and below the basemat.
4.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.	Inspection of the rooms identified in Table 3.3-2 will be performed to confirm that the floors and walls prevent flooding up to the maximum flood level in the room.	An as-built inspection 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 elevations.

Table 3.3-6 (cont.) Inspections, Tests, Analyses, and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
4.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.	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 to confirm that the floors and walls prevent flooding of the other rooms to a maximum flood level of 108 ft.	An as-built inspection report exists that confirms that provisions to prevent flooding are provided.
5. The as-built available volume of the radiologically controlled area of the auxiliary building between Level 1 to Level 2 elevations exceed the volume of the liquid radwaste storage tanks.	Inspection will be performed of the as-built radiologically controlled area of the auxiliary building between Level 1 to Level 2 elevations to define volume.	An as-built inspection report exists and concludes that the available room volumes of the radiologically controlled area of the auxiliary building at Level 1 exceed the volume of the liquid radwaste storage tanks.
6.a) Class 1E cables 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.	Class 1E cables and raceways are identified by the appropriate color code.
6.b) Class 1E divisional cables are routed in their respective divisional raceways.	Inspections of the as-built Class 1E divisional cables and raceways will be conducted.	Class 1E cables are routed in raceways assigned to the same division. There are no other safety division cables in a raceway assigned to a different division.
6.c) Separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables in accordance with the fire areas as identified in Table 3.3-3.	Inspections of the as-built Class 1E division cables and raceways located in the fire areas identified in Table 3.3-3 will be conducted.	Results of the inspection will confirm that the separation between Class 1E divisions is consistent with Table 3.3-3.

Table 3.3-6 (cont.)
Inspections, Tests, Analyses, and Acceptance Criteria

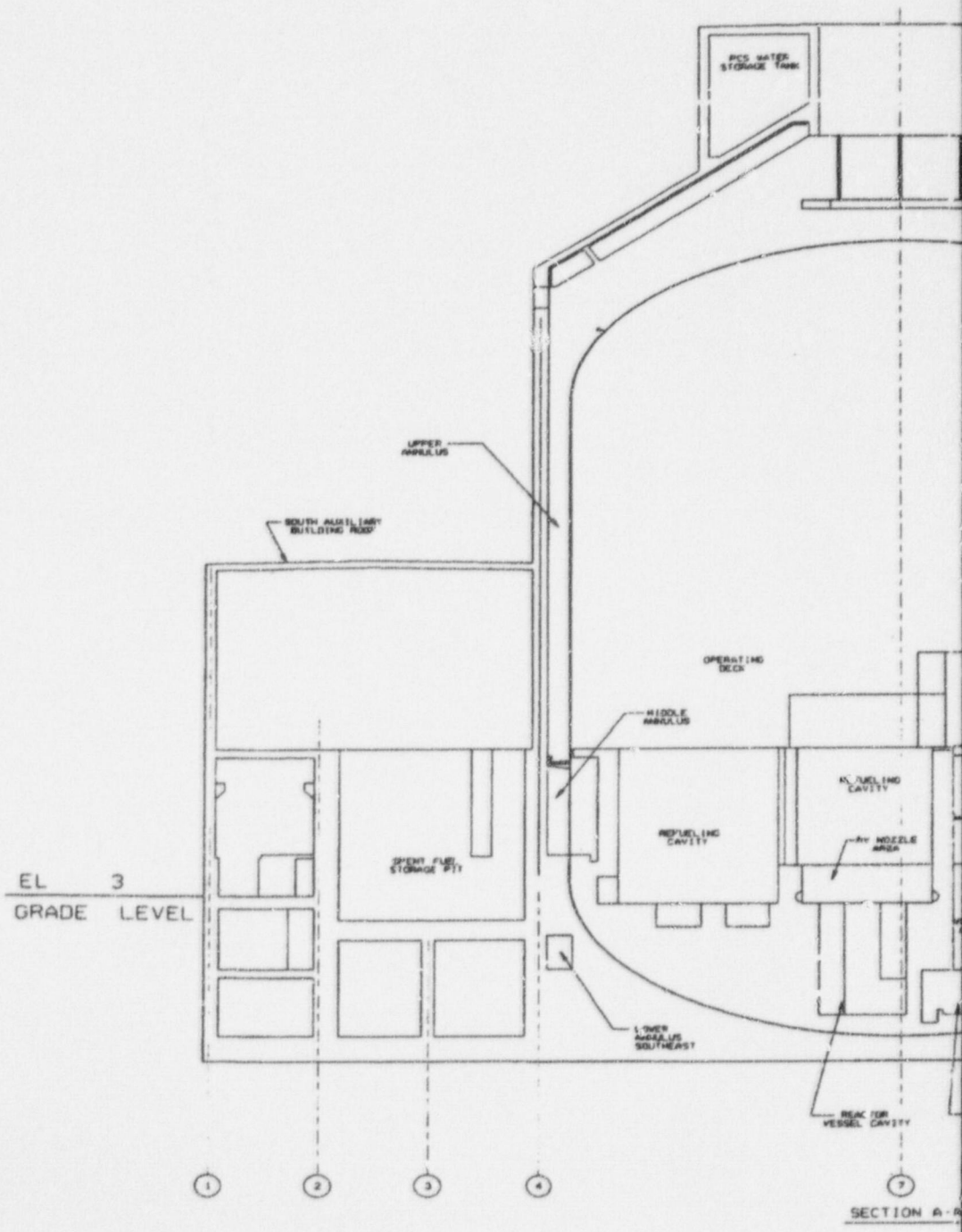
Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6.d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables.	Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following: – Within the main control room and remote shutdown area, the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch. – Within other plant areas (limited hazard areas), the minimum separation is defined by one of the following: 1) The minimum vertical separation is 5 feet and the minimum horizontal separation is 3 feet. 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 <2/0 AWG.	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 followings: – Within the main control room and remote shutdown area, the vertical separation is 3 inches or more and the horizontal separation is 1 inch or more. – Within other plant areas (limited hazard areas), the separation meets one of the following: 1) The vertical separation is 5 feet or more and the horizontal separation is 3 feet or more except. 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 <2/0 AWG.

Table 3.3-6 (cont.)
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
	3) For configurations that involve exclusively limited energy content cables (instrumentation and control), these minimum distances are 3 inches and 1 inches respectively.	3) For configurations that involve exclusively limited energy content cables (instrumentation and control), these minimum distances are 3 inches and 1 inch respectively.
	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.	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.
	5) For configuration involving enclosed raceways. The minimum separation is 1 inch in both horizontal and vertical directions.	5) For configurations that involve enclosed raceway. The minimum vertical and horizontal separation is 1 inch.
	– Where minimum separation distances are not maintained, the circuits are run in enclosed raceways or barriers are provided.	– Where minimum separation distances are not met, the circuits are run in enclosed raceways or barriers are provided.
	– Separation distances less than those specified above and not run in enclosed raceways or provided with barriers are based on analysis.	– A report exists and concludes that separation distances less than those specified above and not provided with enclosed raceways or barriers have been analyzed.

Table 3.3-6 (cont.) Inspections, Tests, Analyses, and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
	– 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.	– 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. Systems and components required for safe shutdown located in rooms identified in Table 3.3-4 are protected from the dynamic effects of postulated pipe breaks using pipe whip restraints.	An inspection will be performed of the as-built high energy pipe break pipe whip restraints features for systems located in rooms identified in Table 3.3-4.	An as-built Pipe Rupture Hazard Analysis Report exists and concludes that equipment required for safe shutdown located in rooms identified in Table 3.3-4 can withstand the effects of postulated pipe rupture without loss of required safety function.
8. The reactor cavity sump has a minimum concrete thickness as shown in Table 3.3-1 between the bottom of the sump and the steel containment.	Inspection of the as-built containment building internal structures will be performed.	The as-built inspection report exists and concludes that the reactor cavity sump has a minimum concrete thickness as shown on Table 3.3-1 between the bottom of the sump and the steel containment.
9. The shield building roof, PCS storage tank, and the fire water storage tank support and retain the PCS and fire water sources.	Visual 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 and fire water storage tank for significant water leakage (>100 gal/hr as measured by water level change).	The as-built inspection report exists and concludes that the water leakage does not exceed 100 gal/hr.
10. The construction approach for soft soil sites includes two limits:	A visual inspection of the as-built auxiliary building, shield building, and containment structures will be performed during construction to confirm that one of the two limits were met:	The as-built inspection concludes that the construction limits have not been exceeded.

Table 3.3-6 (cont.) Inspections, Tests, Analyses, and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
i.) Shield building construction ahead of auxiliary building or	i.) The north walls of the auxiliary building are completed to elevation level 2 prior to placement of concrete in the shield building above elevation level 2 or in-containment structures above elevation level 2.	
ii.) Auxiliary building construction ahead of shield building. **This commitment applies for only soft solid sites having unconsolidated deposits with shear wave velocities in the range from 1,000 to 2,000 feet per second.**	ii.) The concrete was not placed in the auxiliary building above elevation level 4 before the shield building was completed to elevation level 2.	


PCS WATER STORAGE TANK
UPPER ANNULUS
SOUTH AUXILIARY BUILDING ADD'
OPERATING DECK
MIDDLE ANNULUS
REFUELING CAVITY
SPENT FUEL STORAGE PIT
EL 3
GRADE LEVEL
LOWER ANNULUS SOUTHEAST
REACTOR VESSEL CAVITY
1
2
3
4
7

SECTION A-

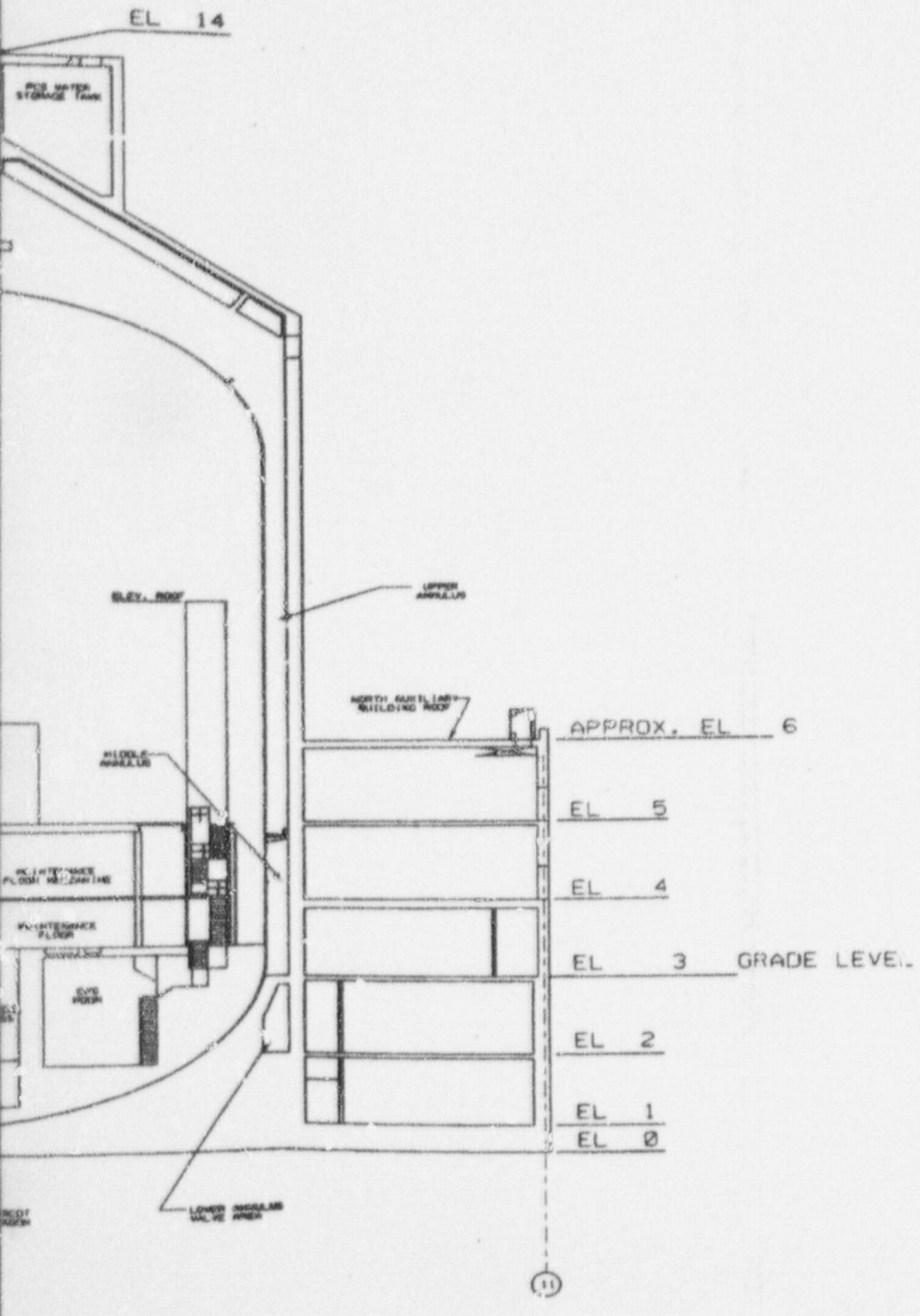
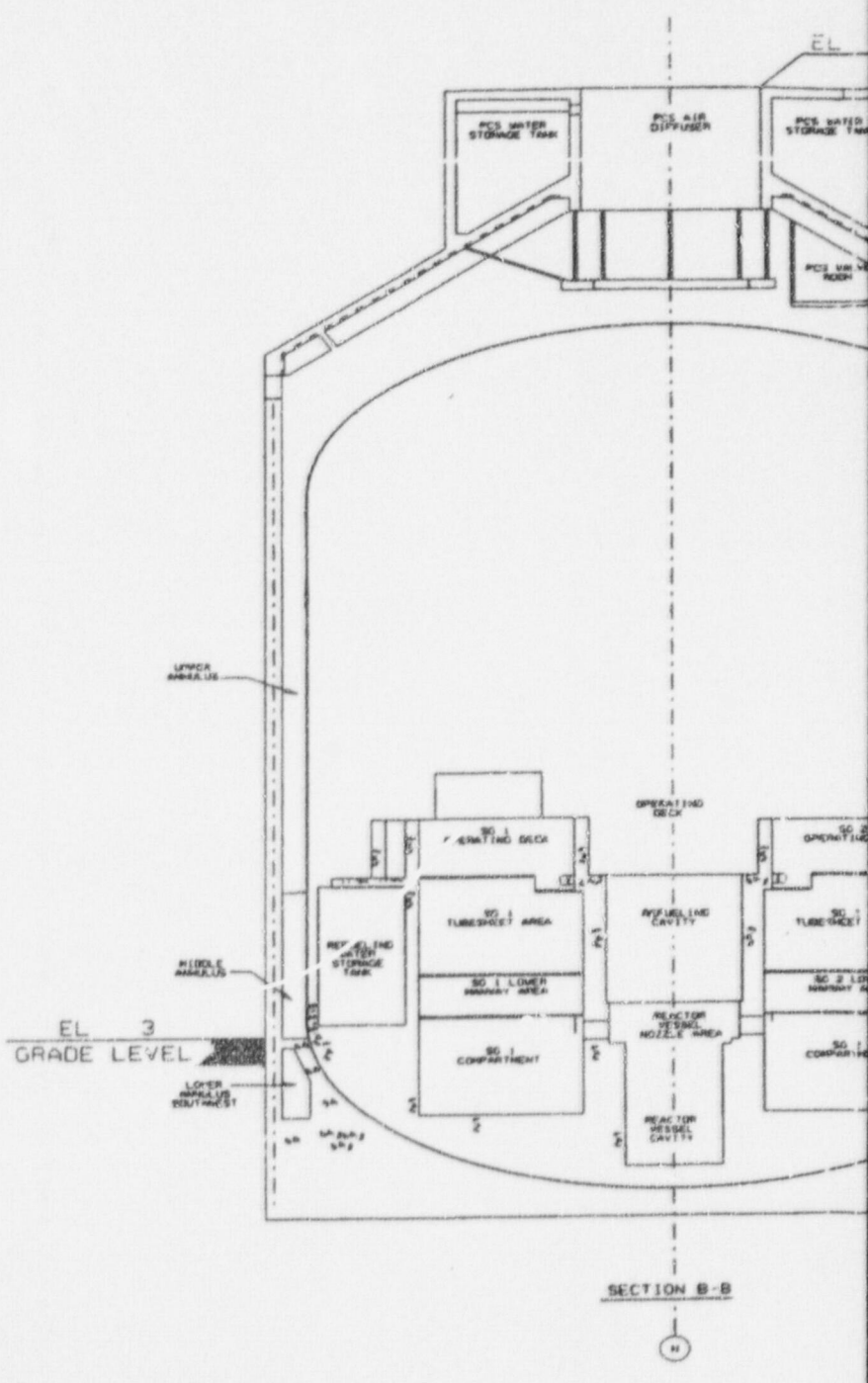


Figure 3.3-1
Section A-A with Building Levels


EL
PCS WATER STORAGE TANK
PCS AIR DIFFUSER
OPERATING DECK
SG 1 TUBESHEET AREA
REFUELING CAVITY
SG 1 LOWER ANNULUS AREA
REACTOR VESSEL NOZZLE AREA
SG 1 COMPARTMENT
REACTOR VESSEL CAVITY
EL 3
GRADE LEVEL
SECTION B-B

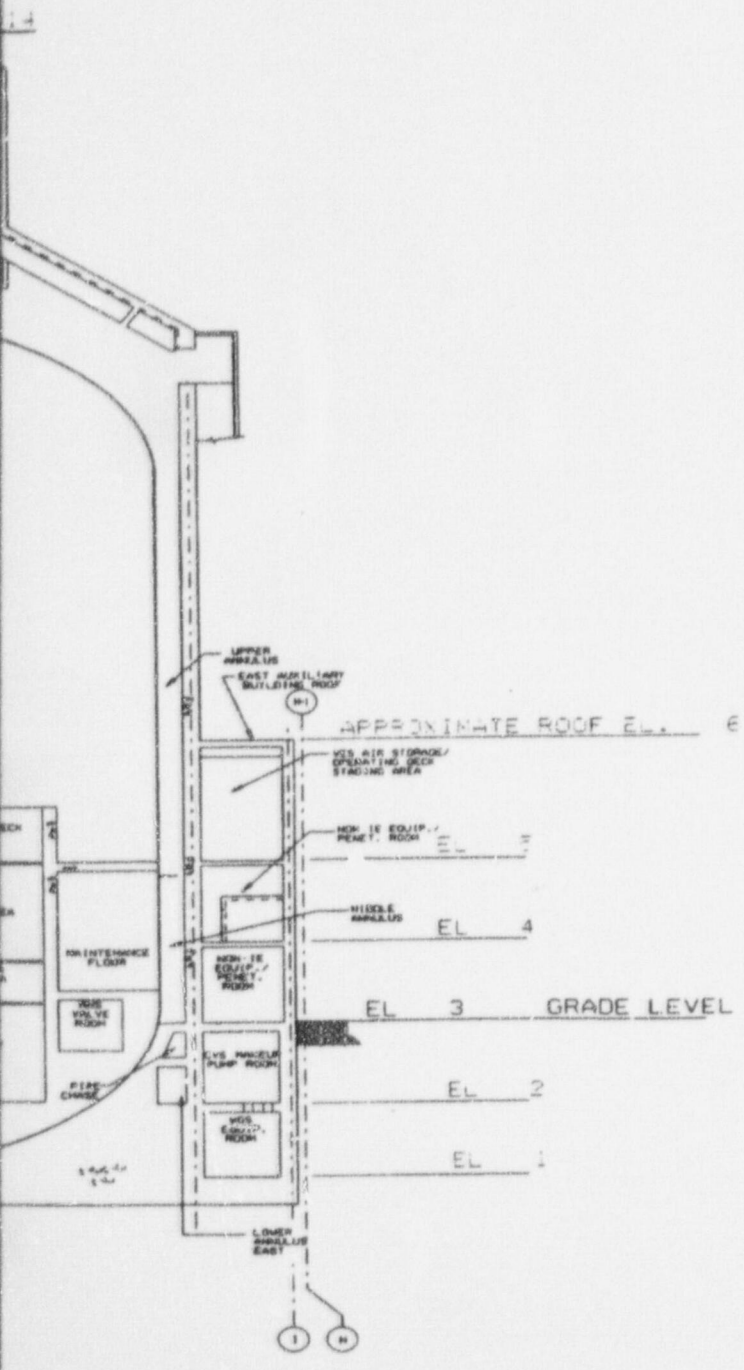
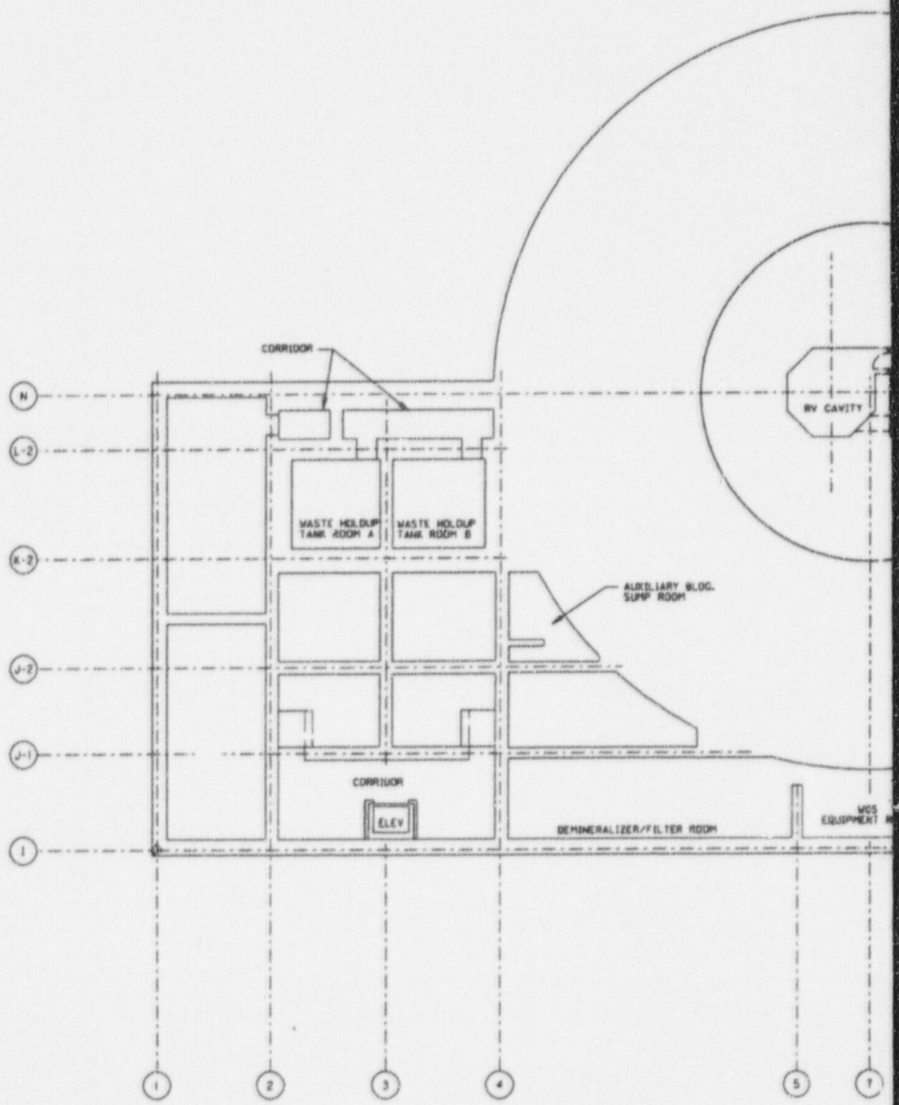


Figure 3.3-2
Section B-B with Building Levels


CORRIDOR
RV CAVITY
WASTE HOLDUP TANK ROOM A
WASTE HOLDUP TANK ROOM B
AUXILIARY BLDG. SUMP ROOM
CORRIDOR
ELEV
DEMINERALIZER/FILTER ROOM
N
L-2
K-2
J-2
J-1
1
1
2
3
4
5
7

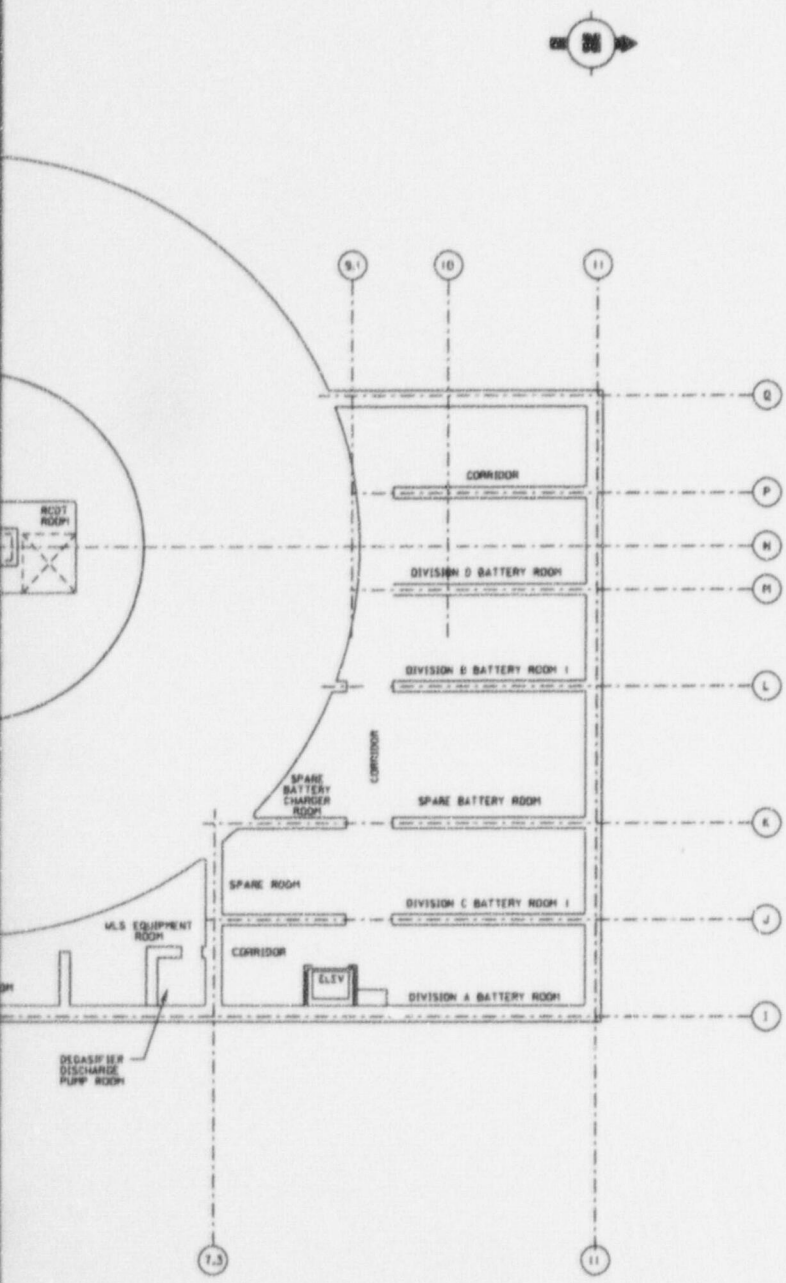
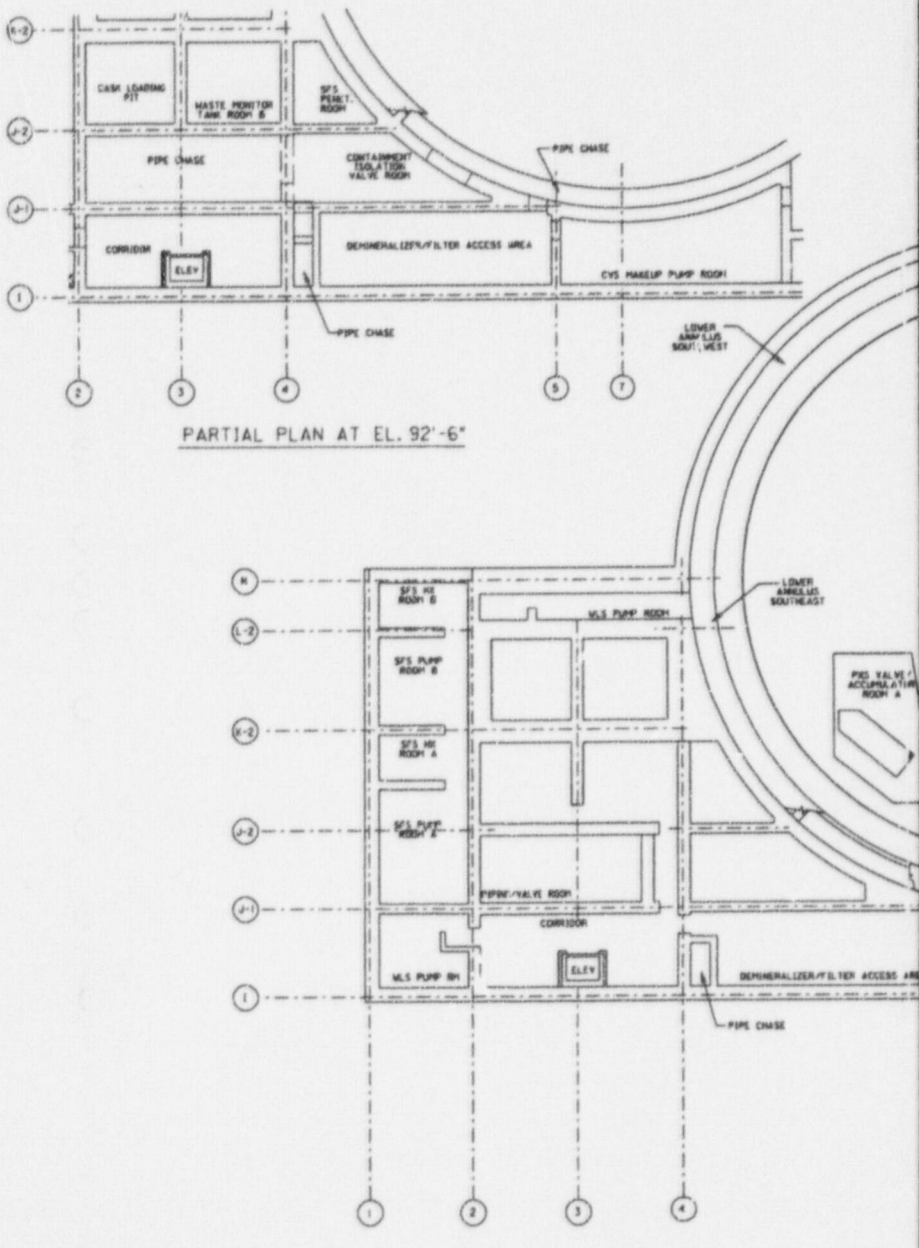


Figure 3.3-3
NI Plan View Level 1



PARTIAL PLAN AT EL. 92'-6"

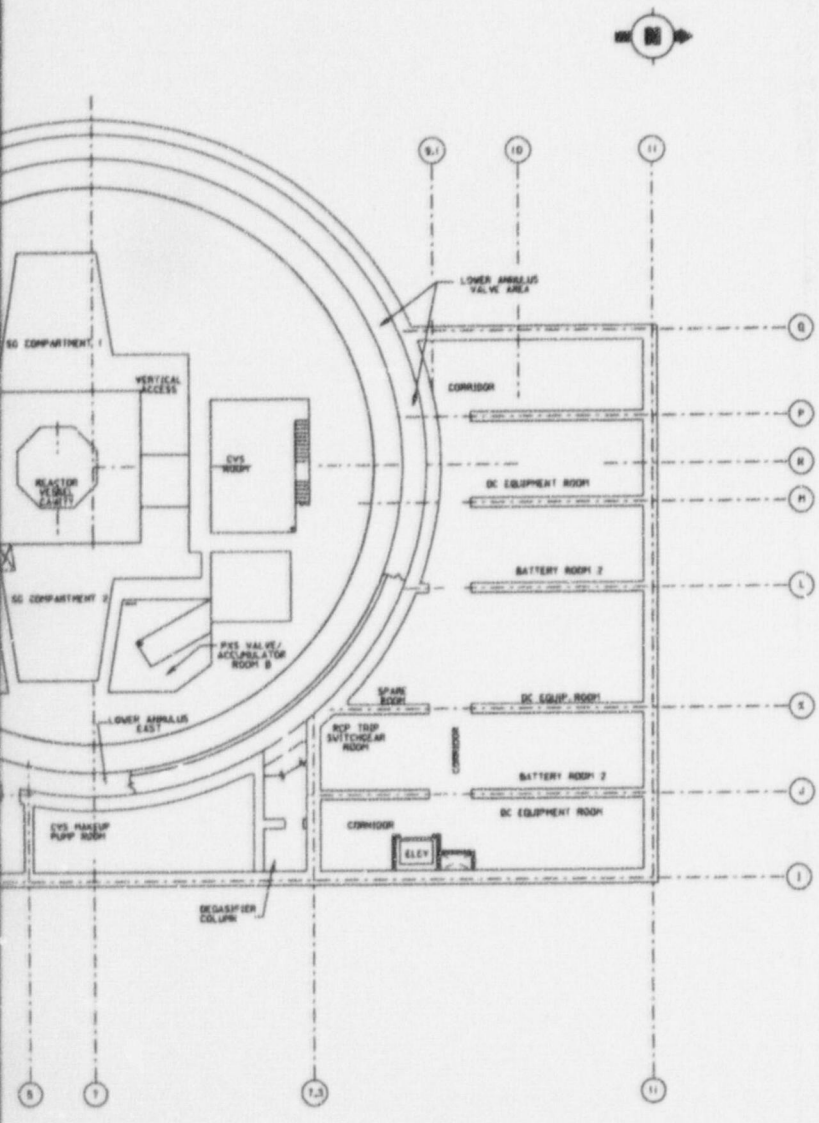
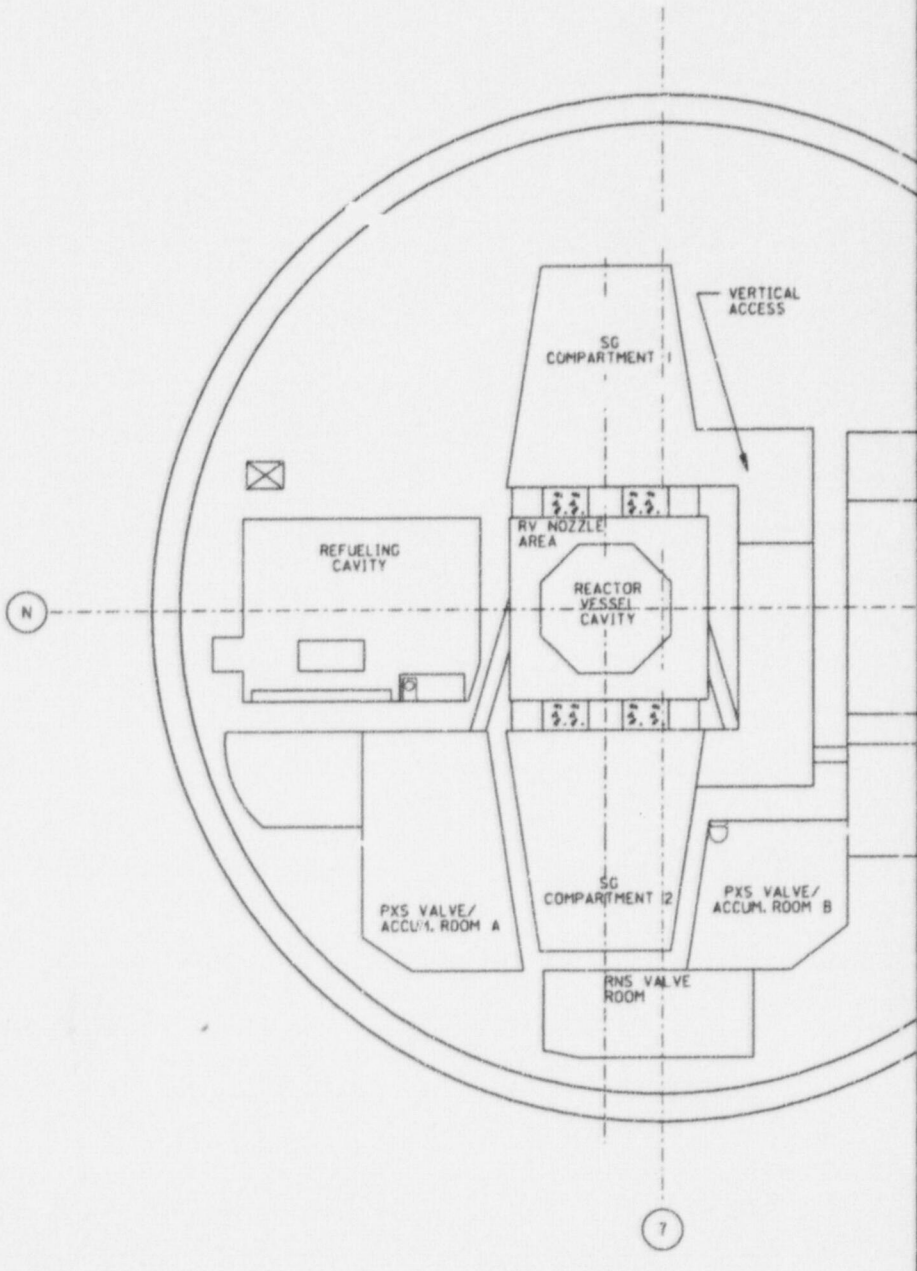


Figure 3.3-4
NI Plan View Level 2


VERTICAL ACCESS
SG COMPARTMENT 1
RV NOZZLE AREA
REFUELING CAVITY
REACTOR VESSEL CAVITY
N
PXS VALVE/ ACCUM. ROOM A
SG COMPARTMENT 2
PXS VALVE/ ACCUM. ROOM B
RNS VALVE ROOM
7

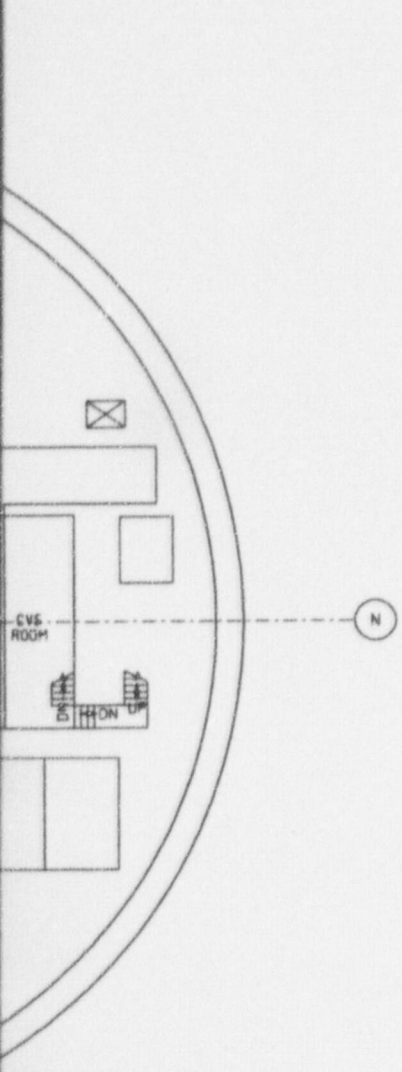
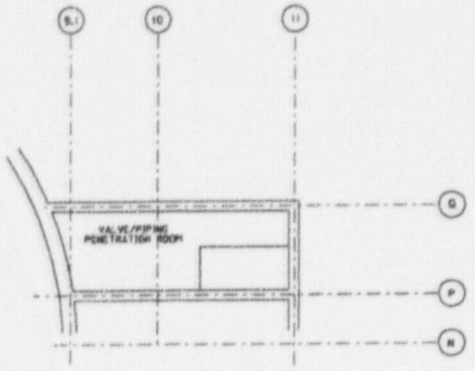
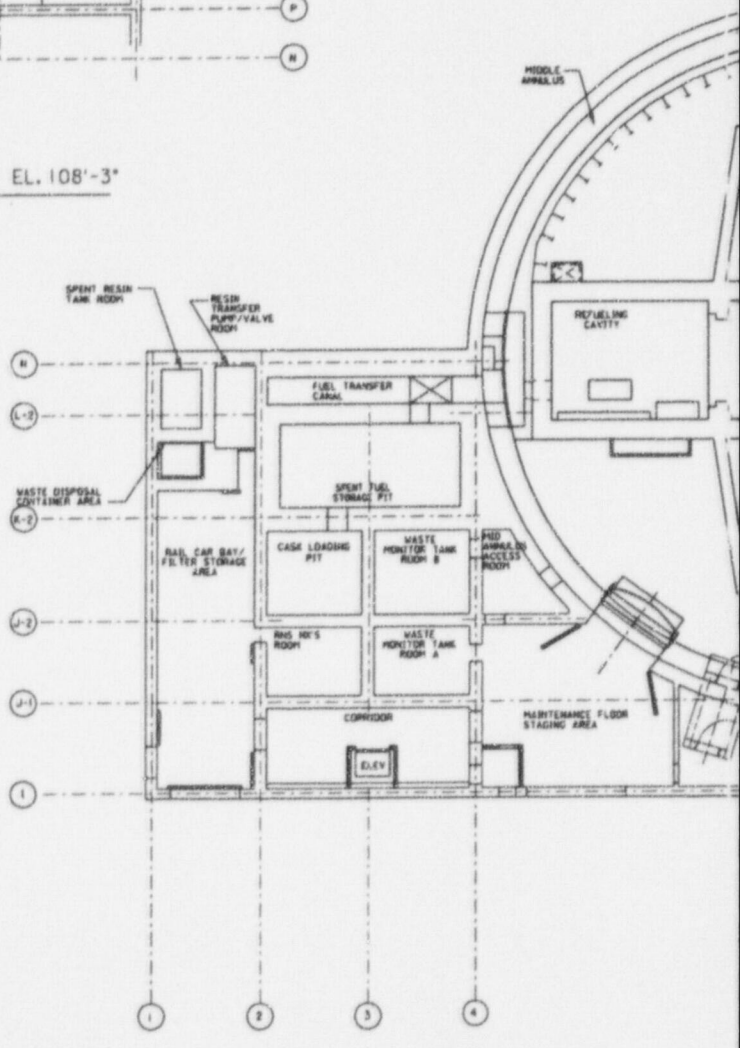


Figure 3.3-5
NI Plan View Level 2.1



PARTIAL PLAN AT EL. 108'-3"



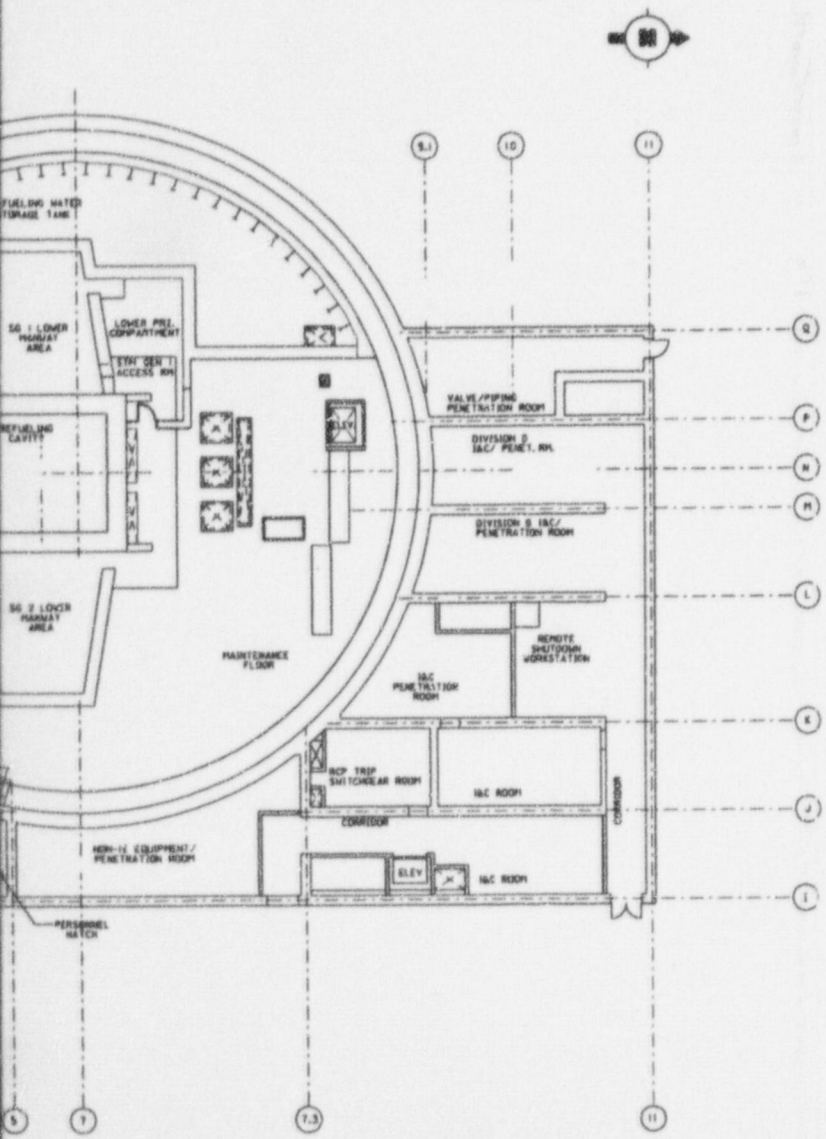
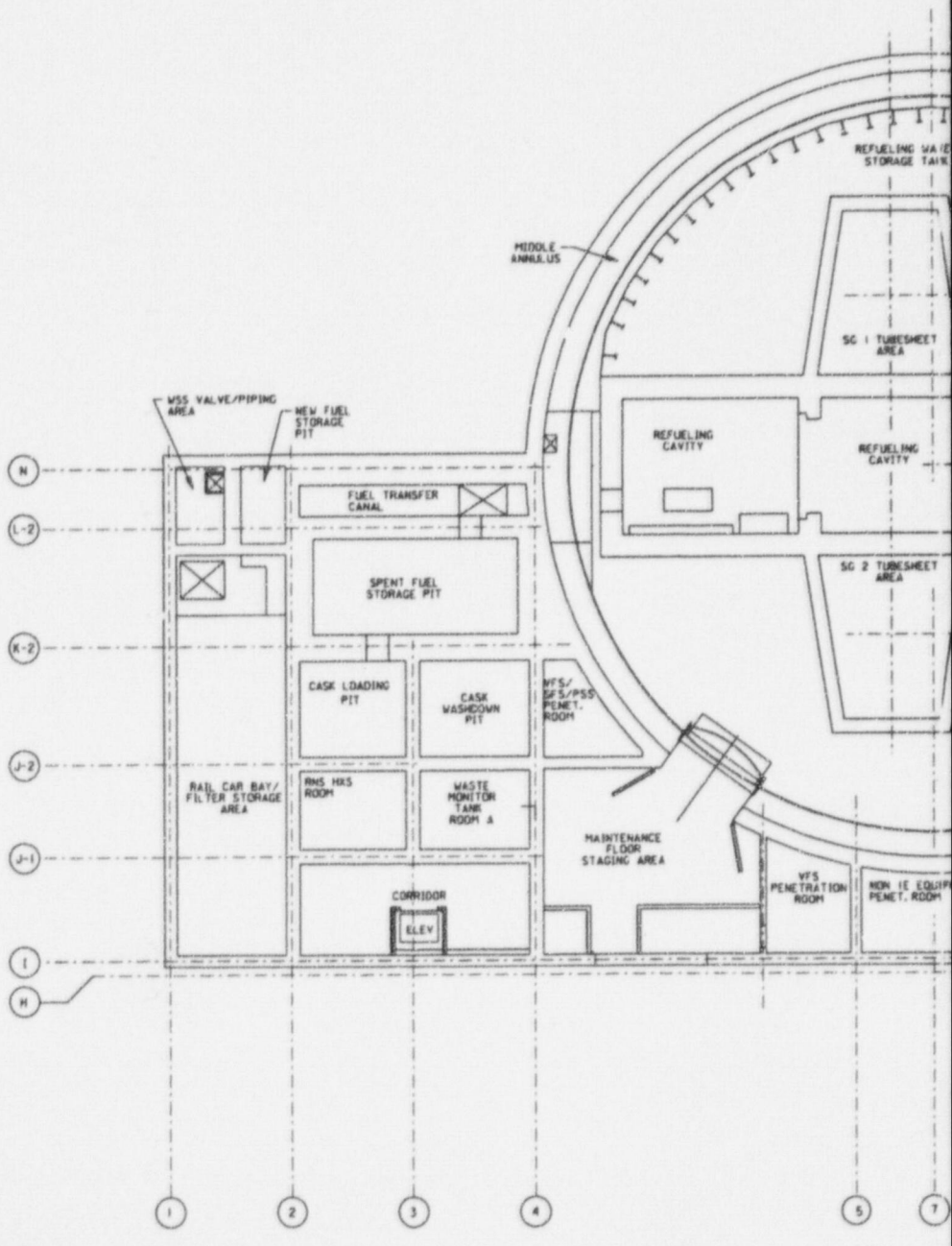


Figure 3.3-6
NI Plan View Level 3


MIDDLE ANNULUS
WSS VALVE/PIPING AREA
NEW FUEL STORAGE PIT
FUEL TRANSFER CANAL
SPENT FUEL STORAGE PIT
CASK LOADING PIT
CASK WASHDOWN PIT
VFS/SFS/PSS PENET. ROOM
RAIL CAR BAY/ FILTER STORAGE AREA
RNS HXS ROOM
WASTE MONITOR TANK ROOM A
CORRIDOR
ELEV
MAINTENANCE FLOOR STAGING AREA
VFS PENETRATION ROOM
REFUELING CAVITY
REFUELING CAVITY
SG 1 TUBESHEET AREA
SG 2 TUBESHEET AREA
N
L-2
K-2
J-2
J-1
I
H
1
2
3
4
5
7

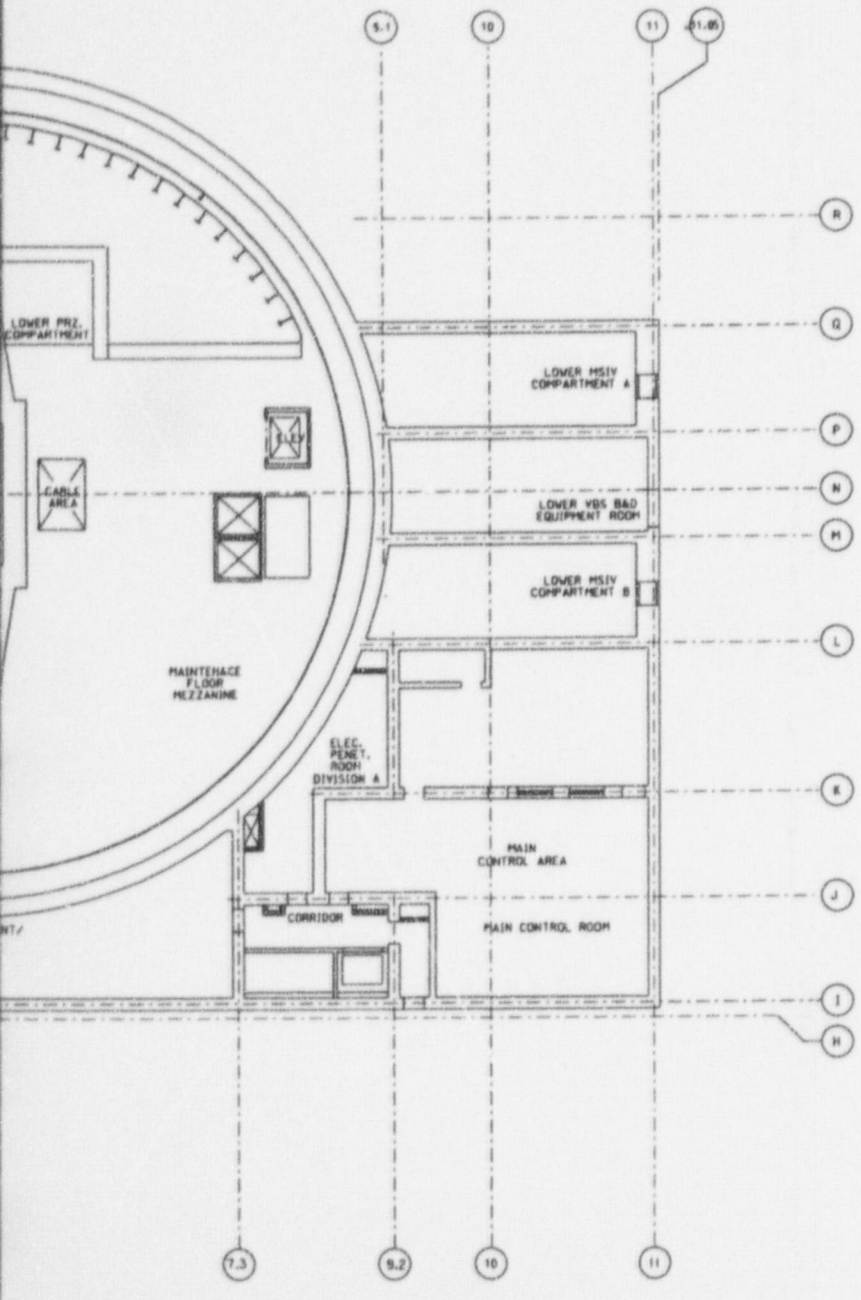
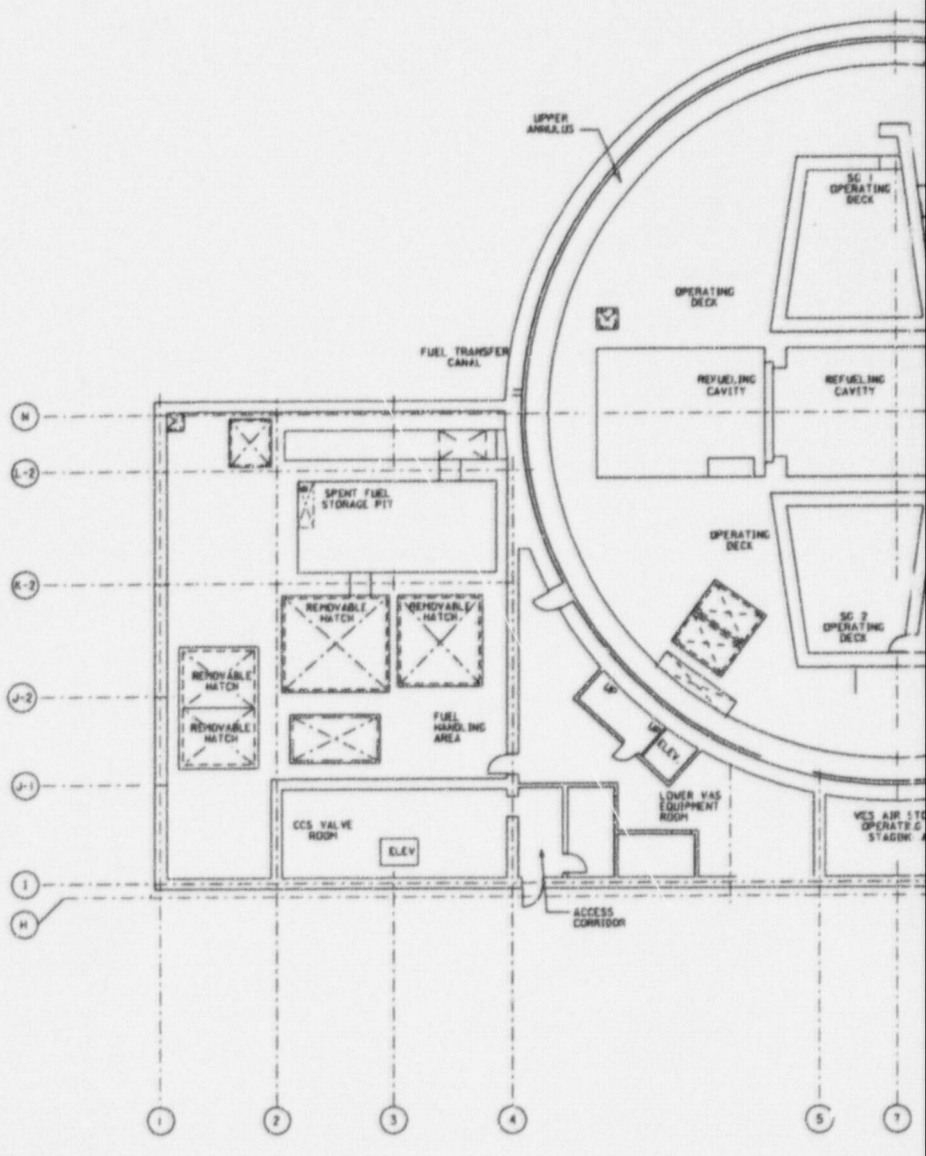


Figure 3.3-7
NI Plan View Level 4


UPPER ANNULUS
SG 1 OPERATING DECK
OPERATING DECK
FUEL TRANSFER CANAL
REFUELING CAVITY
REFUELING CAVITY
SPENT FUEL STORAGE PIT
OPERATING DECK
REMOVABLE HATCH
REMOVABLE HATCH
REMOVABLE HATCH
REMOVABLE HATCH
FUEL HANDLING AREA
SG 2 OPERATING DECK
UP
UP
ELEV
LOWER VAS EQUIPMENT ROOM
CCS VALVE ROOM
ELEV
ACCESS CORRIDOR
M
L-2
K-2
J-2
J-1
1
H
1
2
3
4
5
7

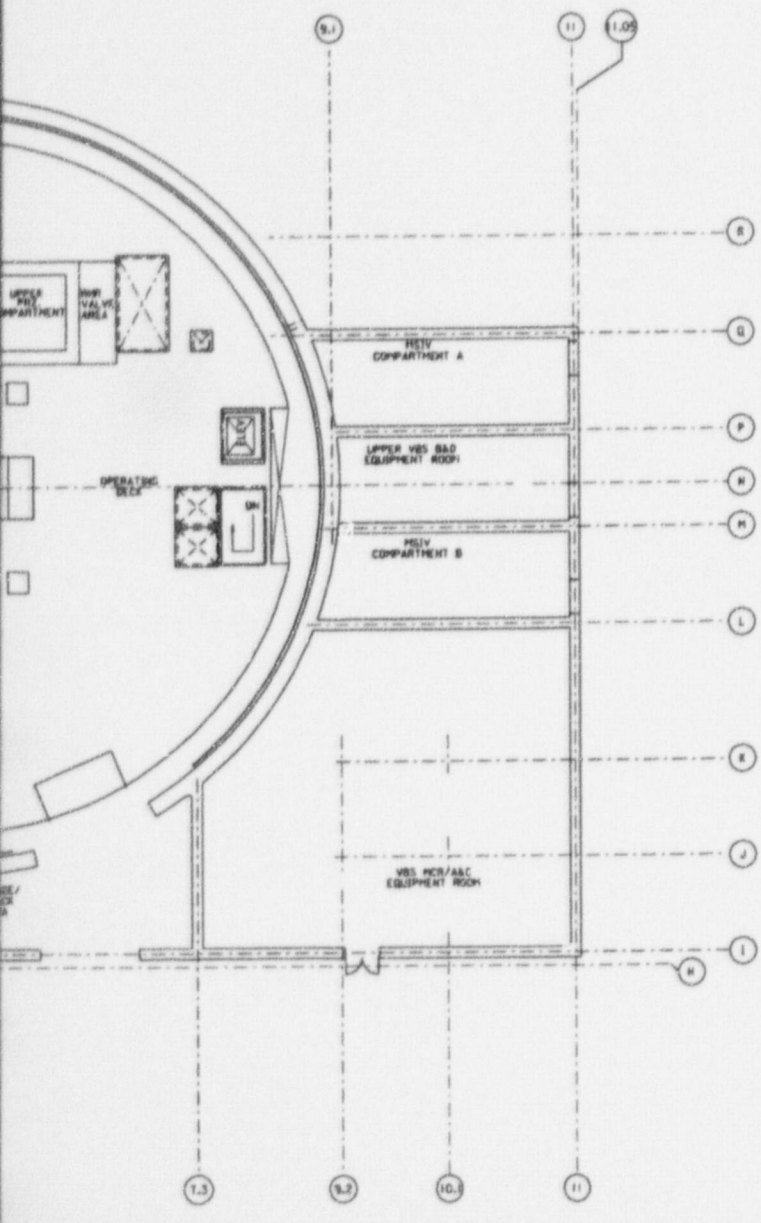
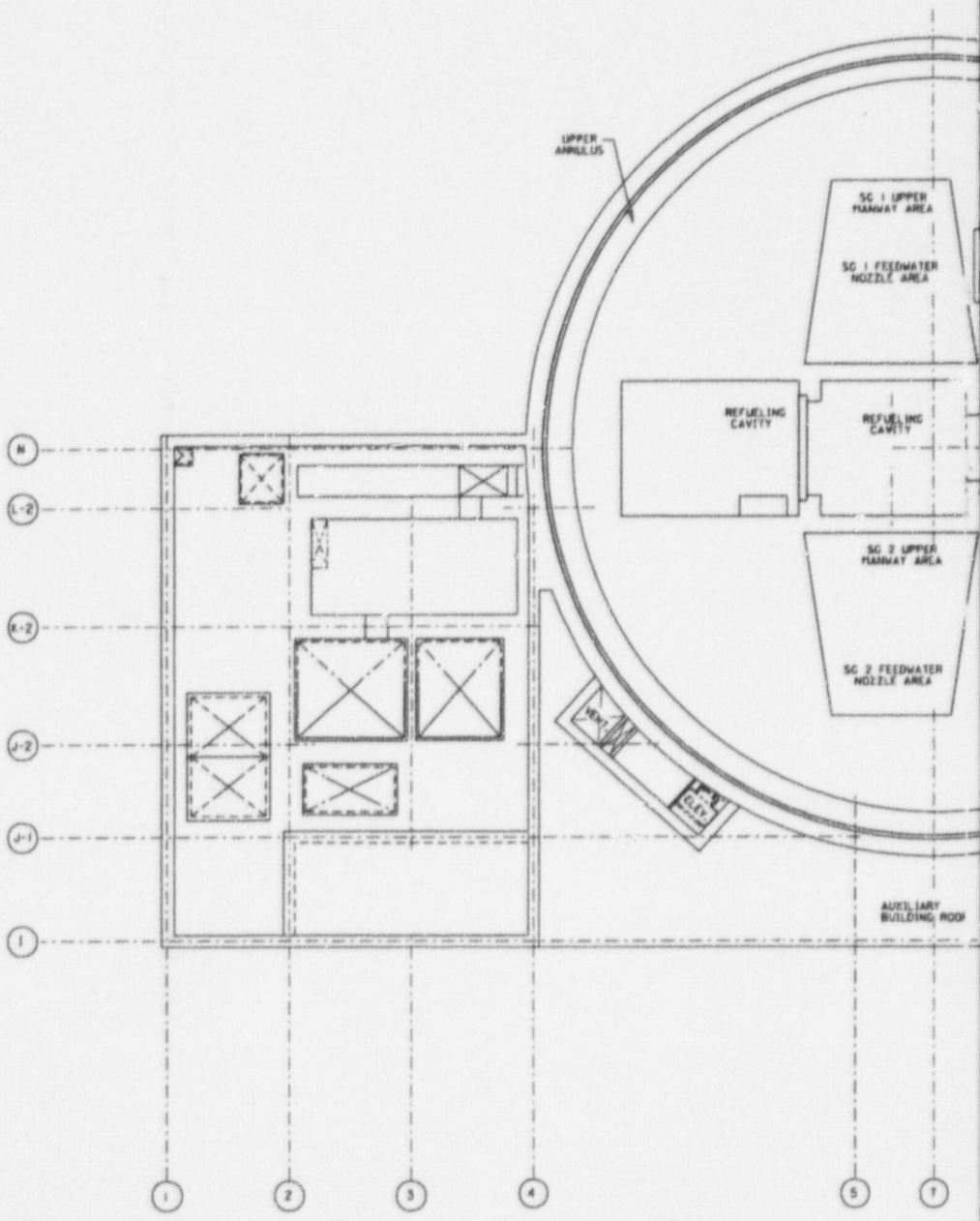


Figure 3.3-8
NI Plan View Level 5


UPPER ANNULUS
SG 1 UPPER MANWAY AREA
SG 1 FEEDWATER NOZZLE AREA
REFUELING CAVITY
REFUELING CAVITY
SG 2 UPPER MANWAY AREA
SG 2 FEEDWATER NOZZLE AREA
AUXILIARY BUILDING ROOF
N
L-2
K-2
J-2
J-1
1
1
2
3
4
5
7

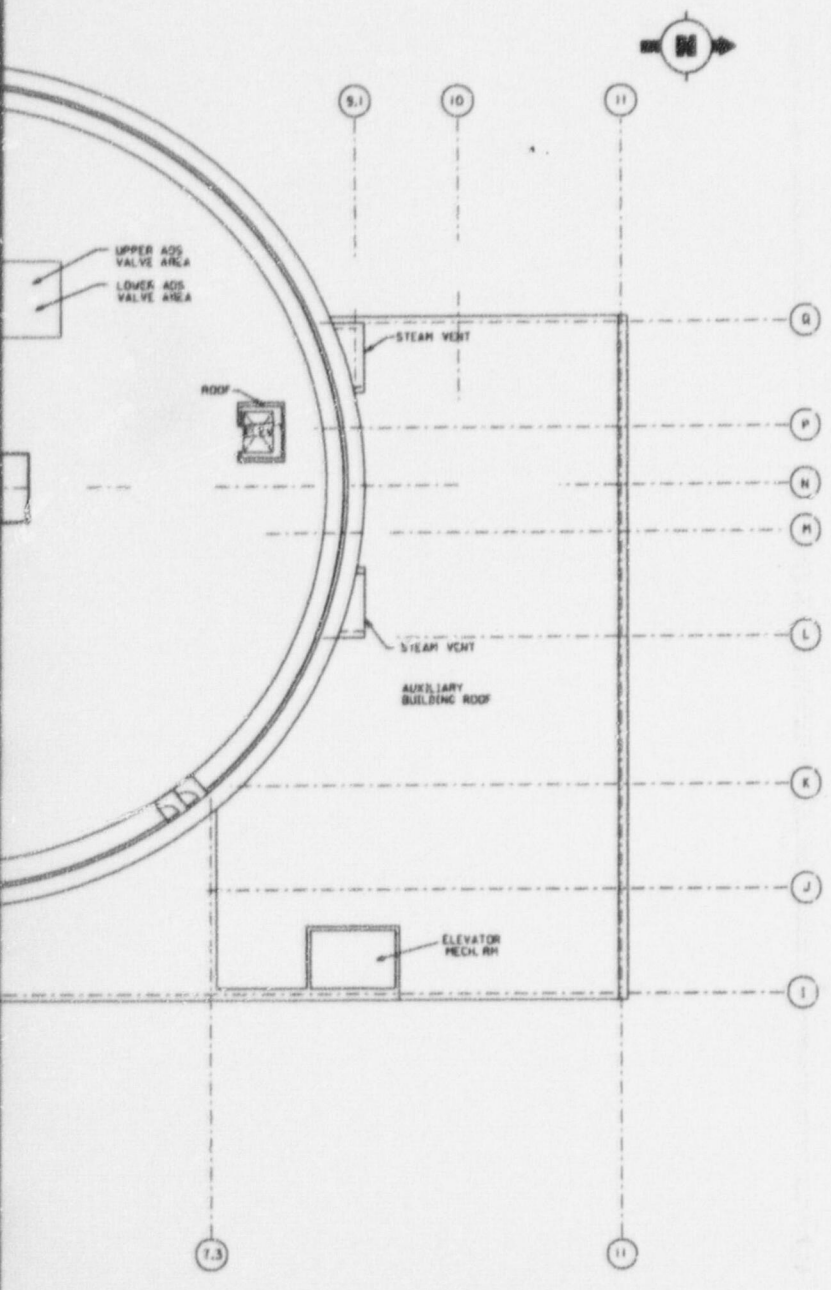
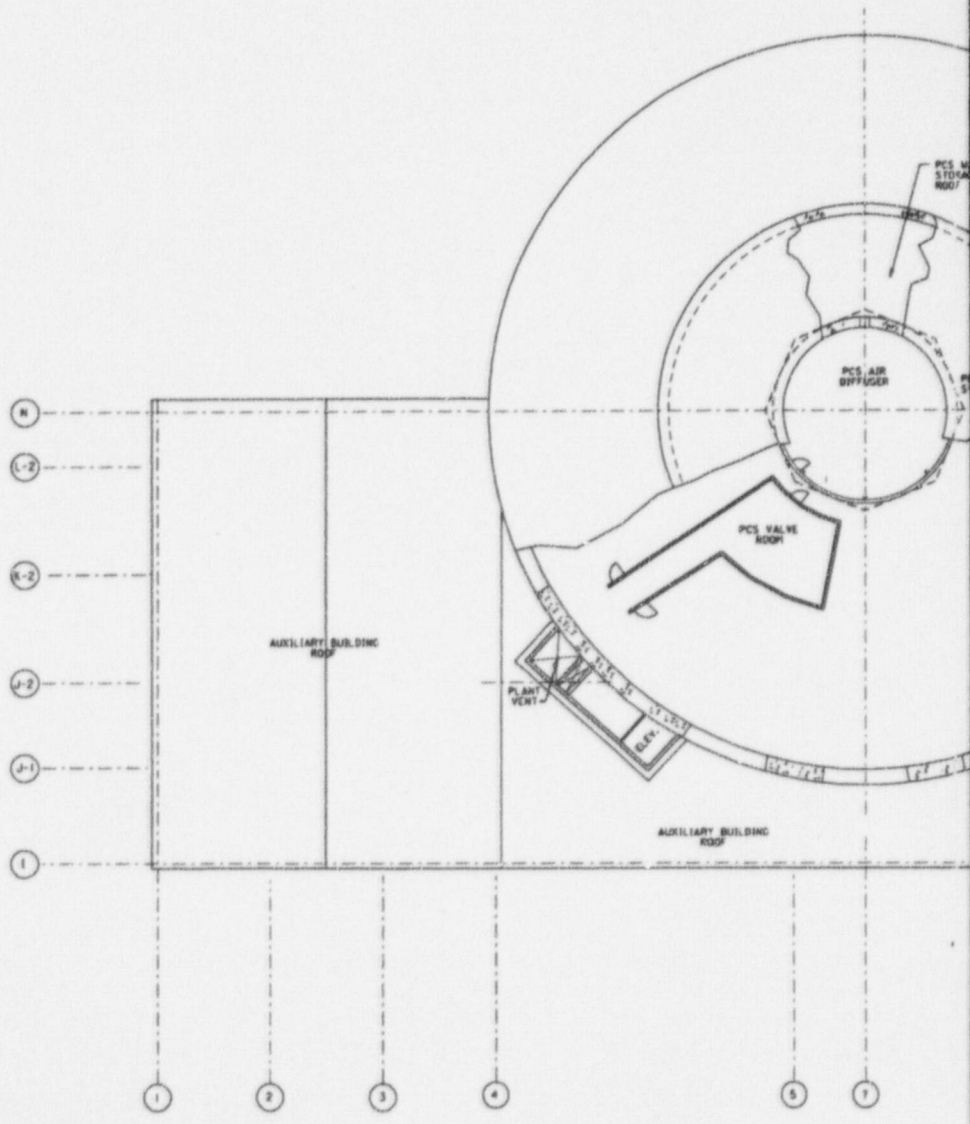


Figure 3.3-9
NI Plan View Level 6


PCS AIR DIFFUSER
PCS VALVE ROOM
AUXILIARY BUILDING ROOF
PLANT VENT
ELEV.
AUXILIARY BUILDING ROOF
N
L-2
K-2
J-2
J-1
1
1
2
3
4
5
7

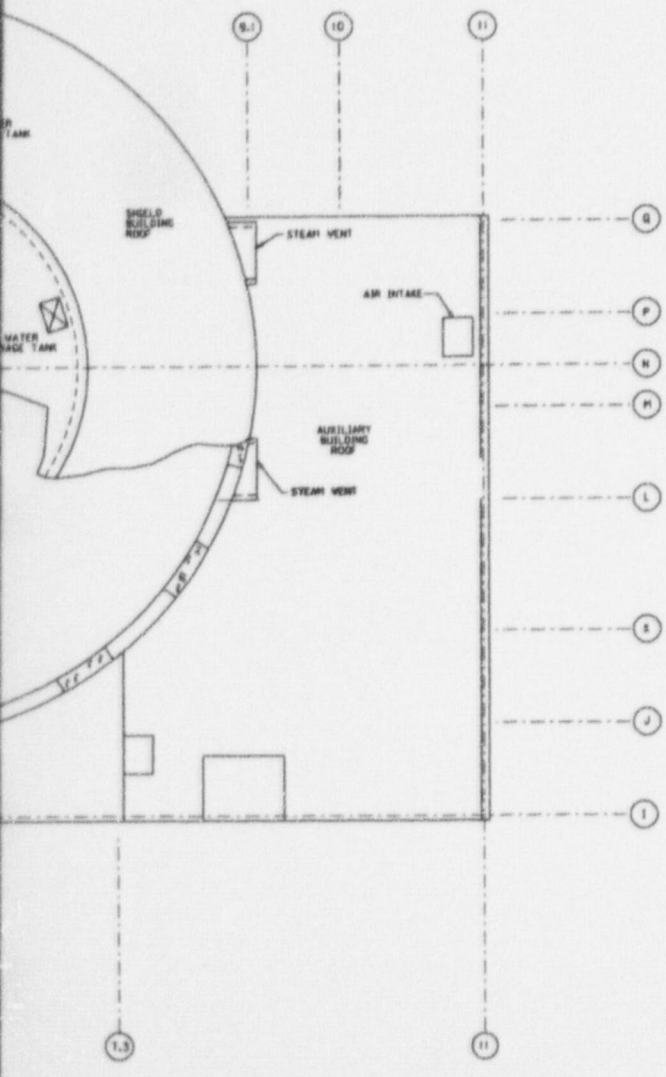
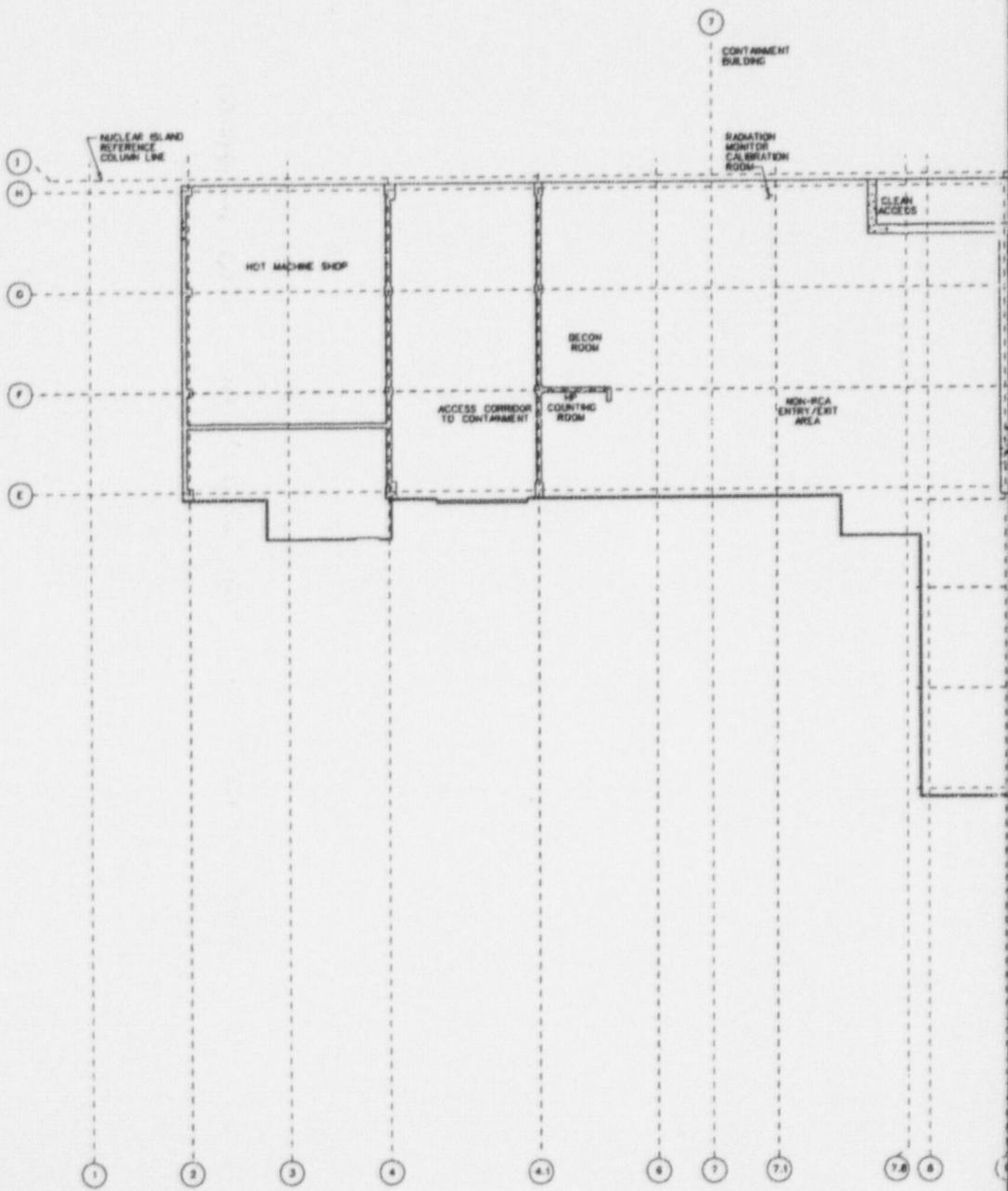


Figure 3.3-10
NI Plan View Level 7


7
CONTAINMENT BUILDING
NUCLEAR ISLAND REFERENCE COLUMN LINE
RADIATION MONITOR CALIBRATION ROOM
CLEAN ACCESS
HOT MACHINE SHOP
DECON ROOM
ACCESS CORRIDOR TO CONTAINMENT
HP COUNTING ROOM
NON-RCA ENTRY/EXIT AREA
J
H
G
F
E
1
2
3
4
4.1
6
7
7.1
7.8
8

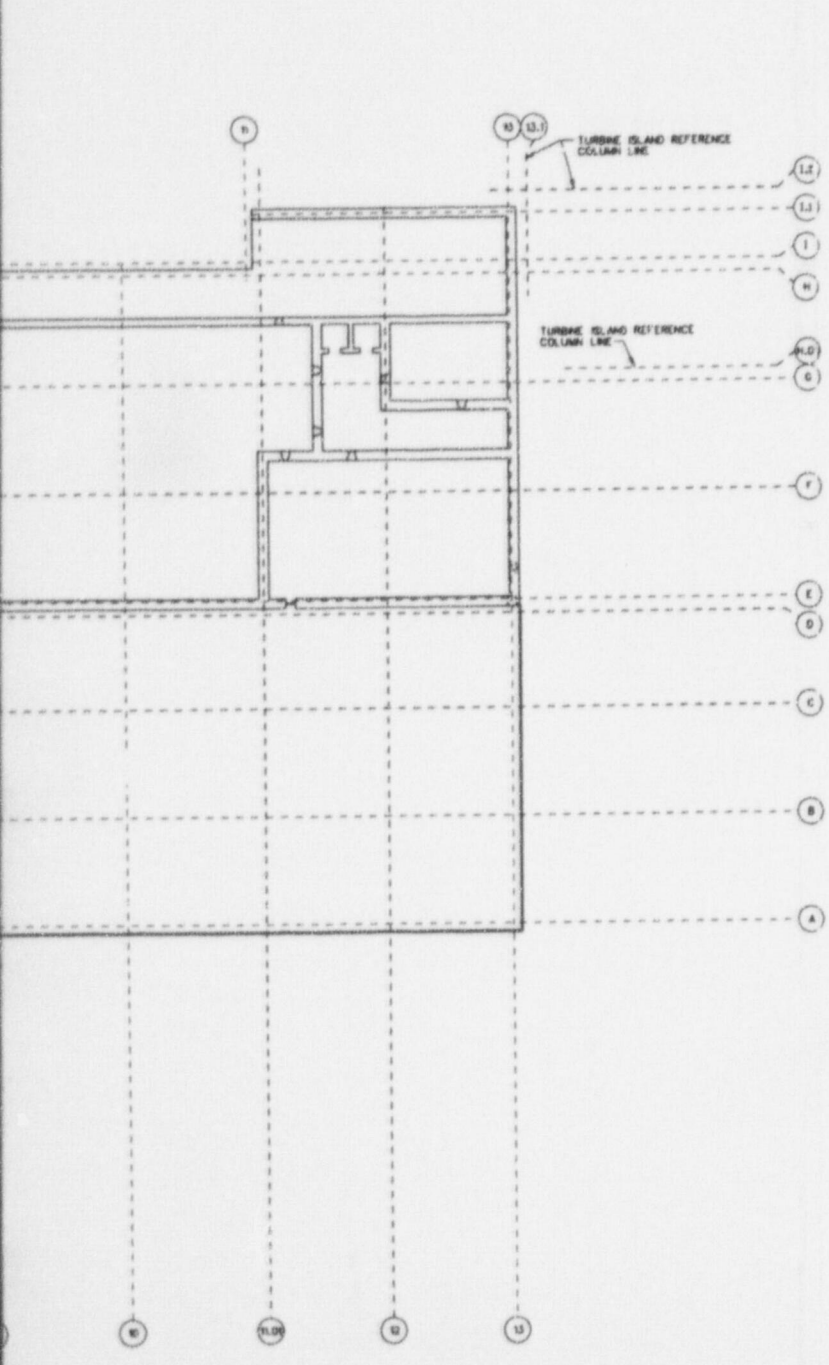
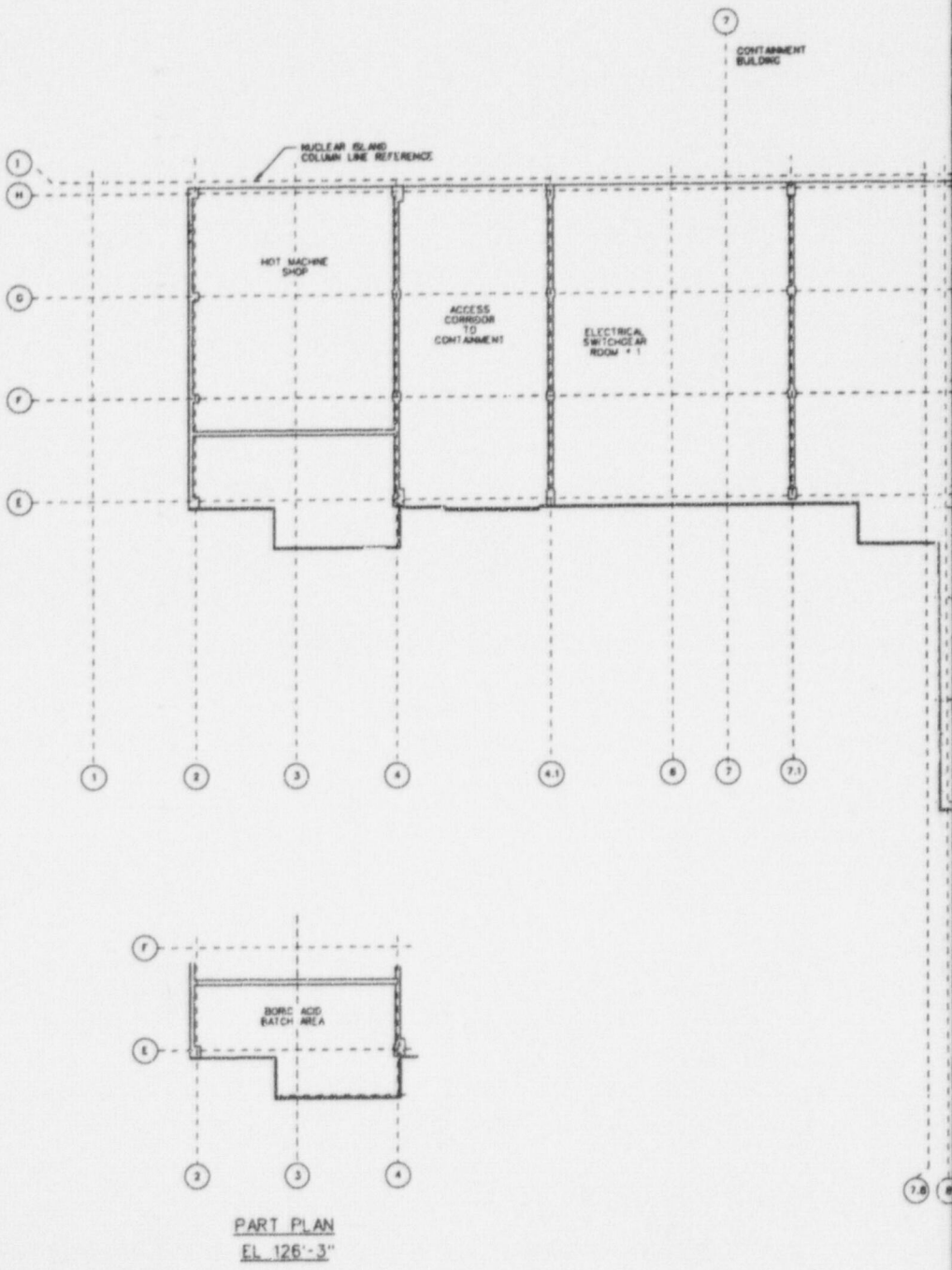


Figure 3.3-11
Annex Building Plan View Level 1



PART PLAN
EL 126'-3"

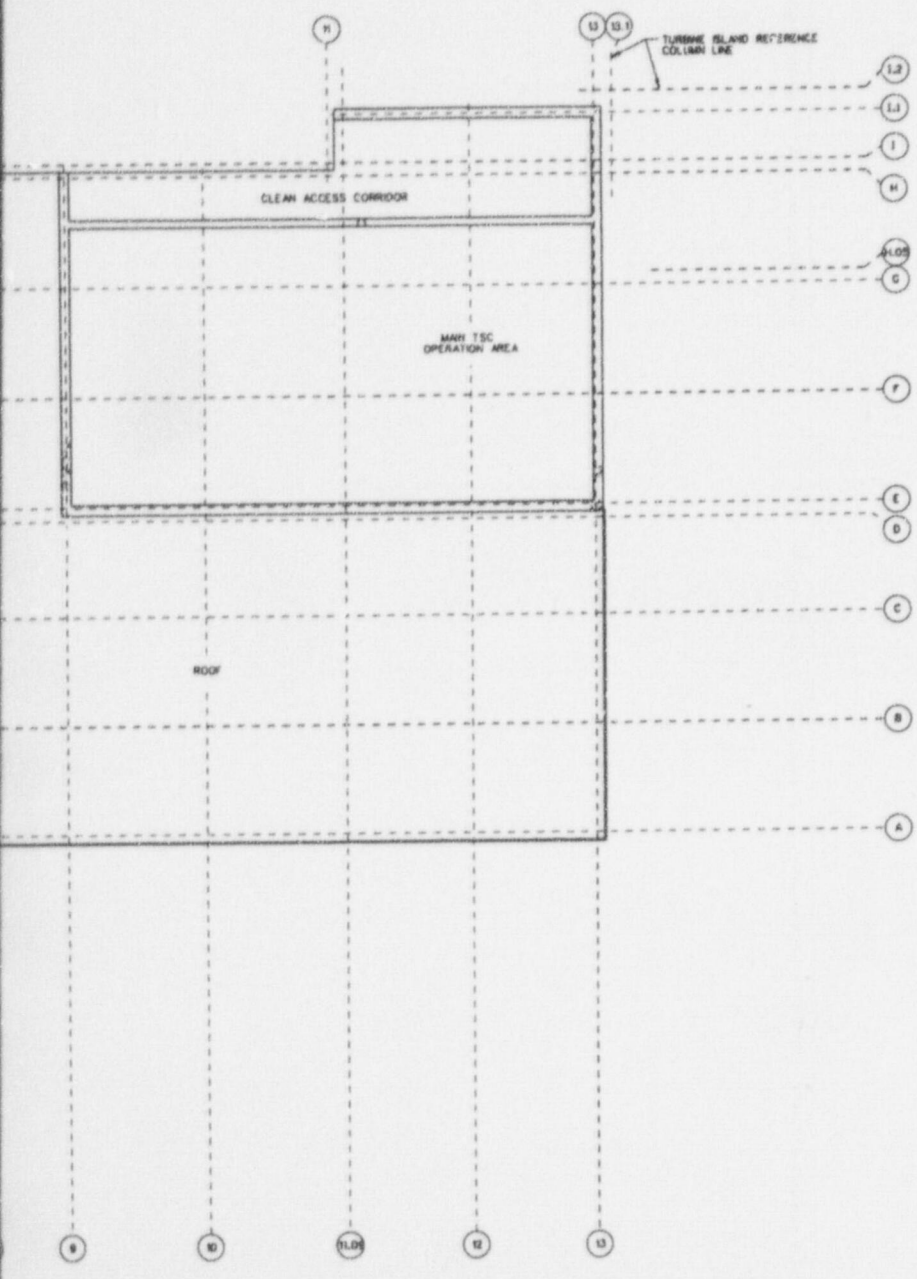
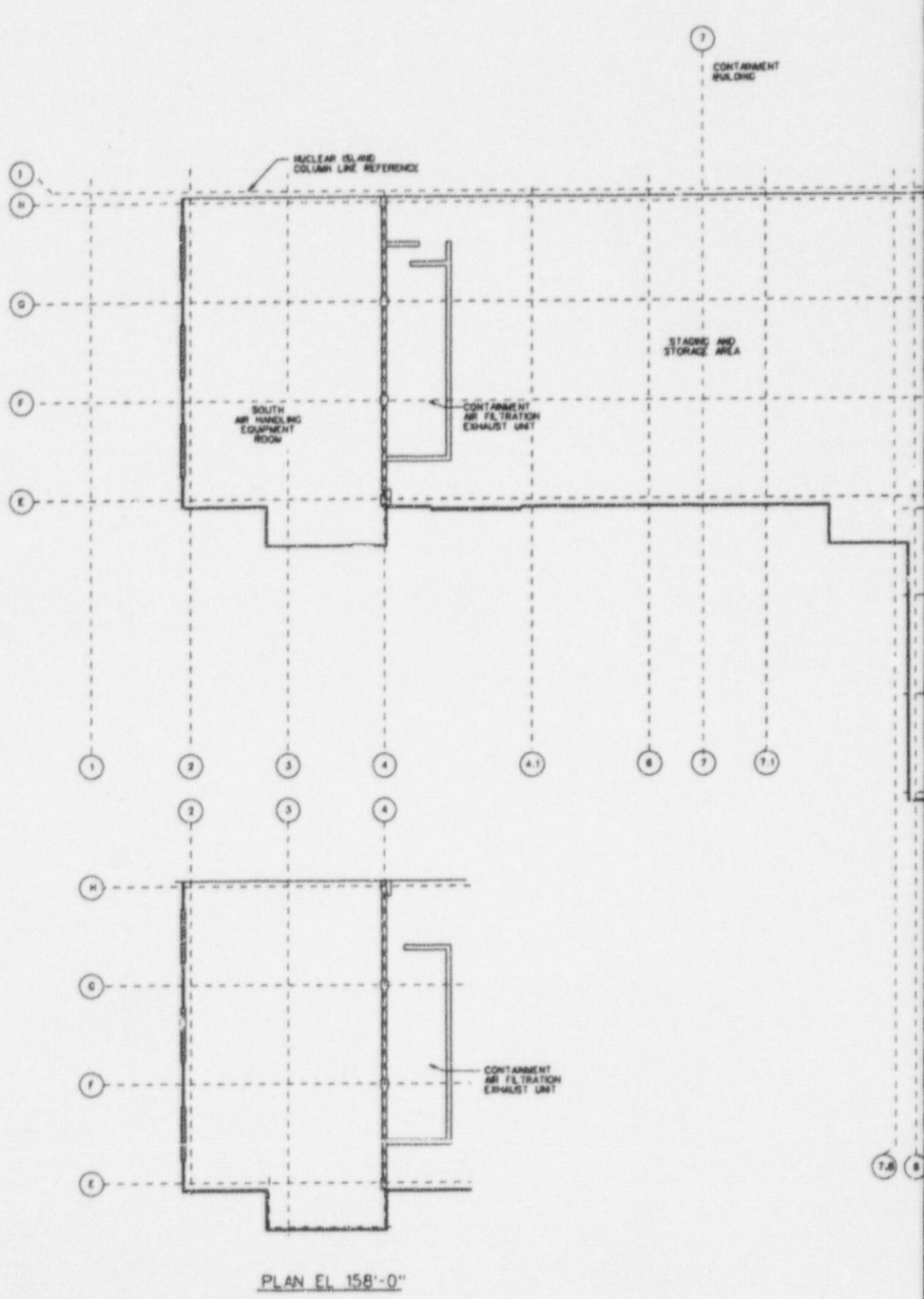


Figure 3.3-12
Annex Building Plan View Level 2


CONTAINMENT BUILDING
NUCLEAR ISLAND COLUMN LINE REFERENCE
STAGING AND STORAGE AREA
SOUTH AIR HANDLING EQUIPMENT ROOM
CONTAINMENT AIR FILTRATION EXHAUST UNIT
CONTAINMENT AIR FILTRATION EXHAUST UNIT

PLAN EL 158'-0"

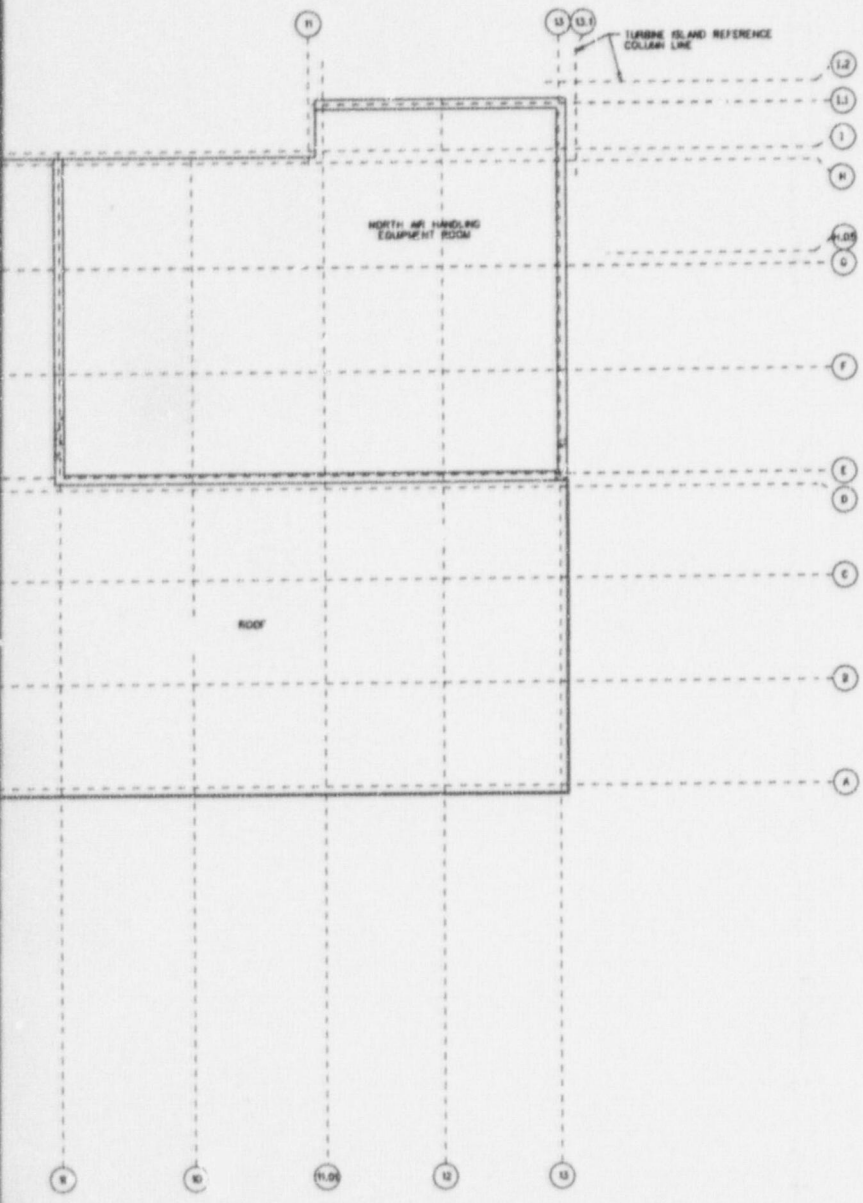
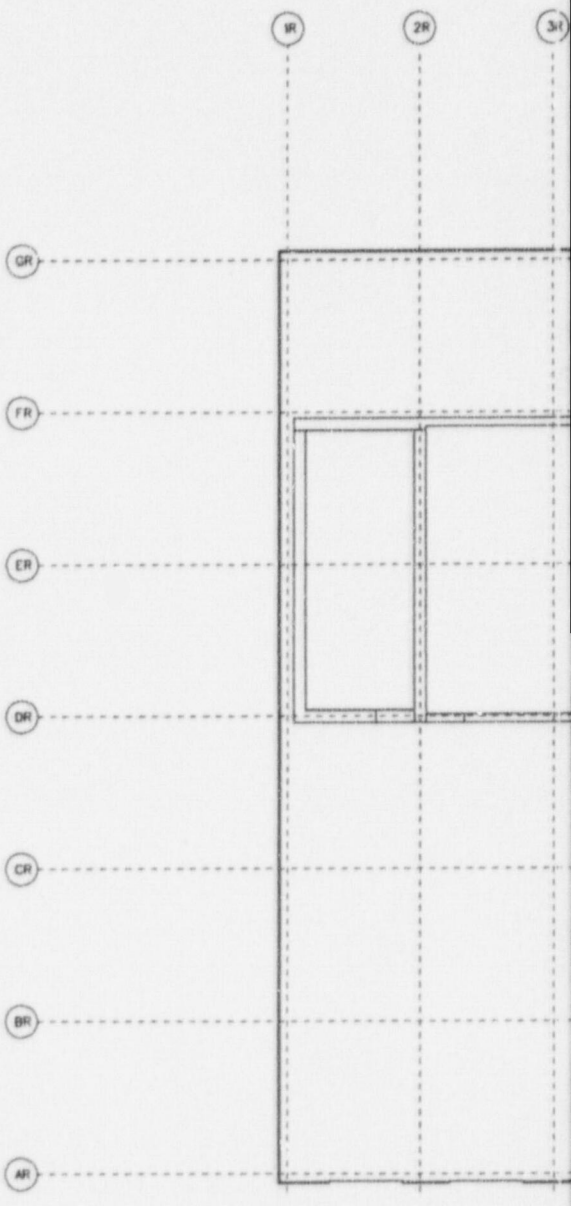


Figure 3.3-13
Annex Building Plan View Level 3

BUILDINGS
Revision: 4 (Draft)
Effective: 3/16/98



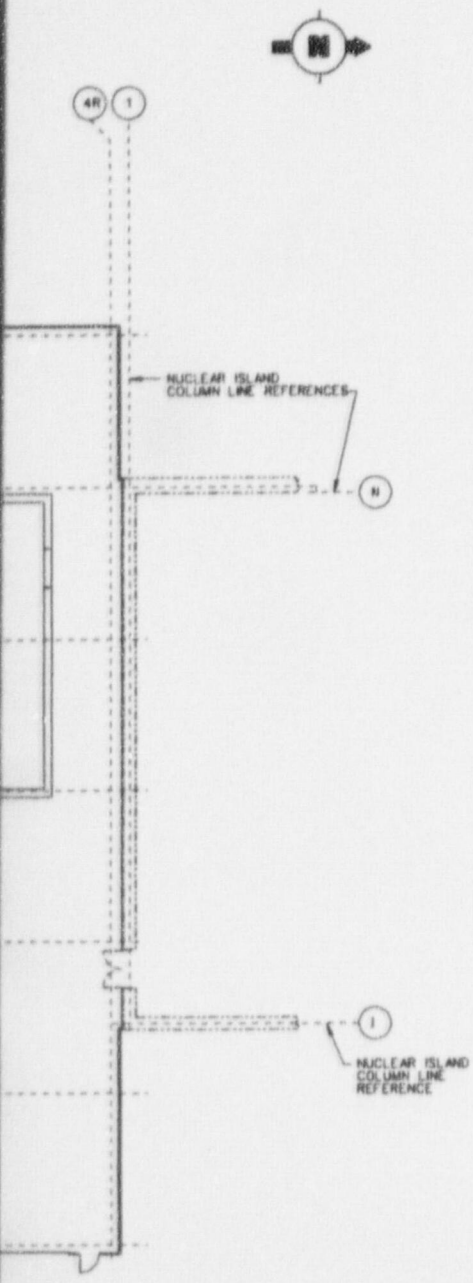
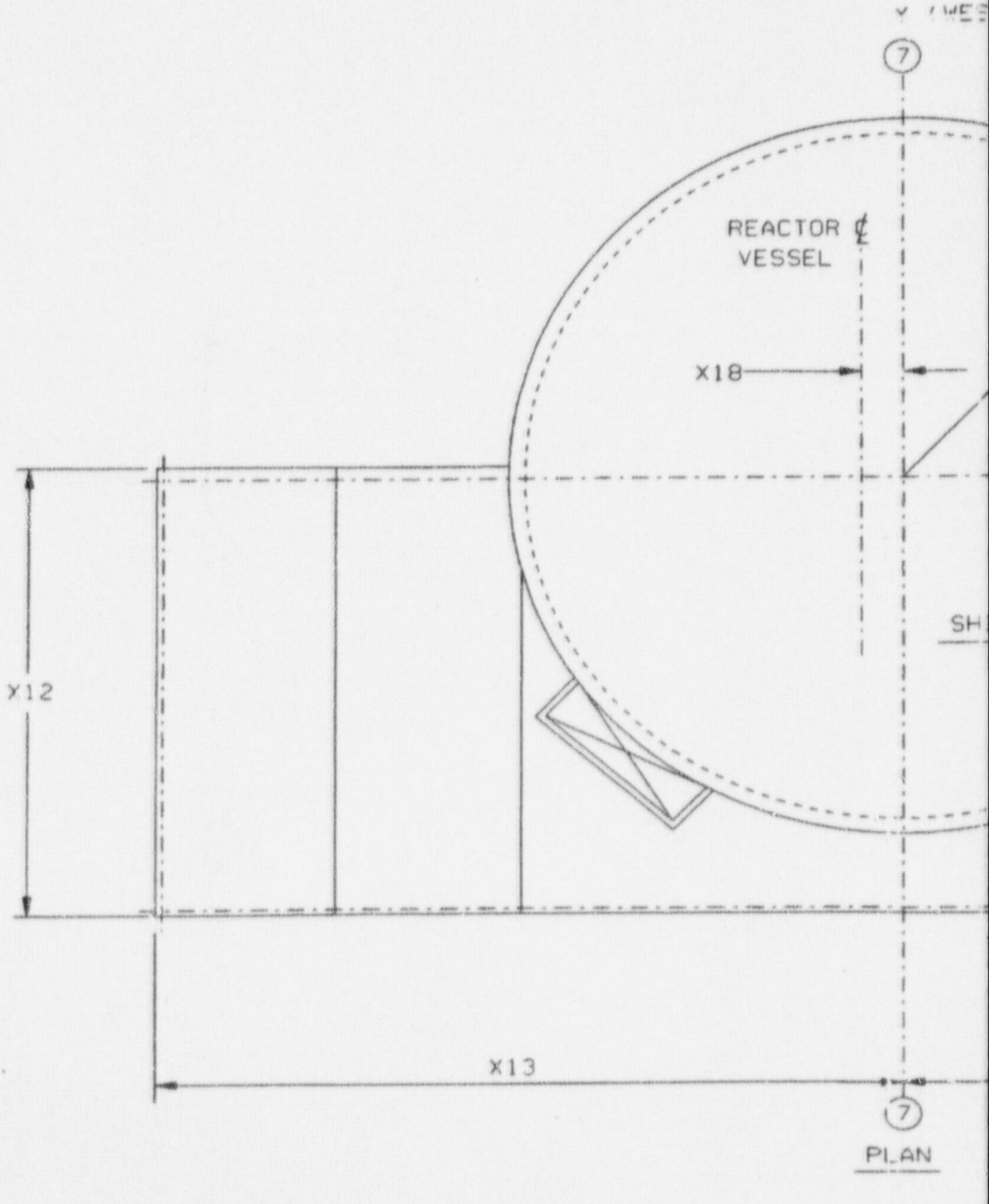


Figure 3.3-14
Radwaste Building Plan View Level 1


7
REACTOR ℄
VESSEL
X18
X12
X13
7
PLAN

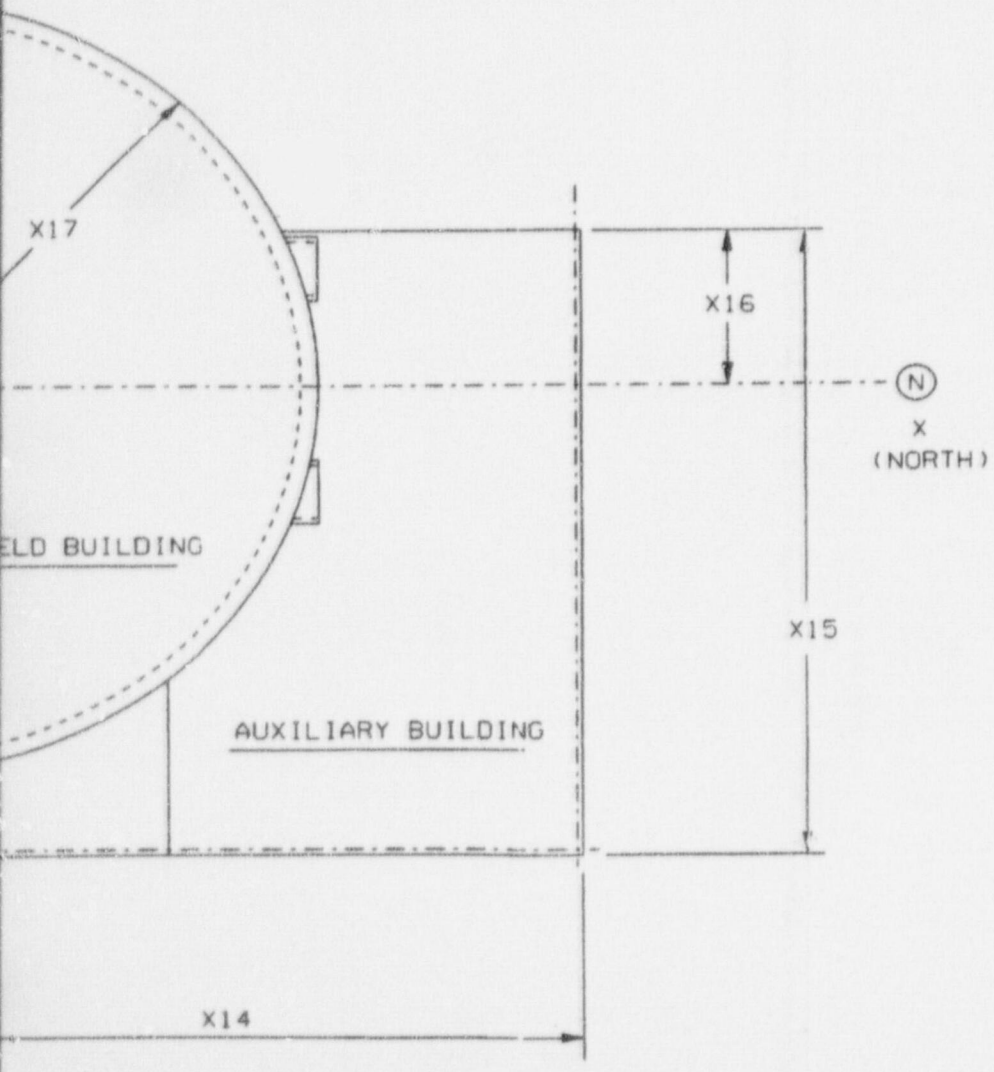


Figure 3.3-15
Nuclear Island Structures Dimension at Elevation Level 1

ABBREVIATIONS:

BLDG. ---- BUILDING
CONT. ---- CONTAINMENT
ELECT. ---- ELECTRICAL
ELEV. ---- ELEVATOR
EQUIP. ---- EQUIPMENT
HR. ---- HOUR
MAINT. ---- MAINTENANCE
SYS. ---- SYSTEM

NOTES FOR FIGURES:

1. THE FOLLOWING STRUCTURES, SYSTEMS, AND COMPONENTS DEPICTED ON THESE FIGURES ARE NOT SEISMIC CATEGORY I:

   - VERTICAL ACCESS OPENINGS
     STAIRS
     ELEVATORS
     UNIT VENT

Figure 3.3-16
Legend