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Your ref: Project Number 740
Our ref: DCP/NRC1749

June 5, 2006

Subject: AP1000 COL Standard Design Change Resubmittal of Sensitive and Non-Sensitive
Versions of APP-GW-GLR-016, Revision 0

In support of Combined License application pre-application activities, Westinghouse is submitting an AP1000 Standard Combined License technical report. These reports complete and document, on a generic basis, activities required for COL information items in the AP1000 Design Control Document. This report is submitted as part of the NuStart Bellefonte COL Project (NRC Project Number 740). The information included in this report is generic and is expected to apply to all projects referencing the AP1000 Design Certification.

The purpose for the submittal of this report and the expected pre-application review was explained in a March 5, 2006 letter from NuStart to the NRC.

Pursuant to 10 CFR 50.30(b), APP-GW-GLR-016, Rev. 0, "AP1000 Pressurizer Design," Technical Report Number 36, is submitted as Enclosure 1 under the attached Oath of Affirmation. Enclosure 1 contains sensitive material relative to the physical protection of an AP1000 Nuclear Plant that should be withheld from public disclosure pursuant to 10 CFR 2.390(d). Enclosure 2 is the redacted version of Enclosure 1 with the sensitive material relative to the physical protection of an AP1000 Nuclear Plant withheld from public disclosure pursuant to 10 CFR 2.390(d).

It is expected that when the NRC review of these reports is complete, the subject COL Information Items will be considered deferred as noted in the report for COL applicants referencing the AP1000 Design Certification.

Questions or requests for additional information related to the content and preparation of these reports should be directed to Westinghouse. Please send copies of such questions or requests to the prospective applicants for combined licenses referencing the AP1000 Design Certification. A representative for each applicant is included on the cc: list of this letter.

Very truly yours,

A handwritten signature in black ink, appearing to read "A. Sterdis".

A. Sterdis, Manager
Licensing and Customer Interface
Regulatory Affairs and Standardization

/Attachment

1. "Oath of Affirmation," dated June 5, 2006

/Enclosures

1. APP-GW-GLR-016, Rev. 0, "AP1000 Pressurizer Design," (Technical Report Number 36), Sensitive Version
2. APP-GW-GLR-016, Rev. 0, "AP1000 Pressurizer Design," (Technical Report Number 36), Non-Sensitive Version

cc:	S. Bloom	- U.S. NRC	1E	1A
	S. Coffin	- U.S. NRC	1E	1A
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	A. Monroe	- SCANA	1E	
	C. Pierce	- Southern Company	1E	
	E. Schmiech	- Westinghouse	1E	
	G. Zinke	- NuStart/Entergy	1E	

ATTACHMENT 1

“Oath of Affirmation”

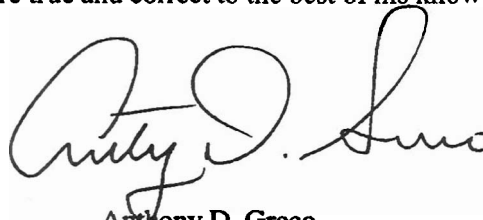
ATTACHMENT 1

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of:)
NuStart Bellefonte COL Project)
NRC Project Number 740)

APPLICATION FOR REVIEW OF
"AP1000 GENERAL COMBINED LICENSE INFORMATION"
FOR COL APPLICATION PRE-APPLICATION REVIEW

Anthony D. Greco, being duly sworn, states that he is Senior Vice President, Human Resources and Corporate Relations, for Westinghouse Electric Company; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission this document; that all statements made and matters set forth therein are true and correct to the best of his knowledge, information and belief.

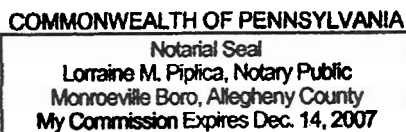


Anthony D. Greco
Senior Vice President

Subscribed and sworn to
before me this 5th day
of June 2006.



Notary Public



Member, Pennsylvania Association Of Notaries

DCP/NRC1749
June 5, 2006

ENCLOSURE 1

**Contains sensitive material relative to the physical protection of an AP1000 Nuclear Plant
that should be withheld from public disclosure pursuant to 10 CFR 2.390(d)**

APP-GW-GLR-016, Rev. 0

“AP1000 Pressurizer Design”

Technical Report Number 36

AP1000 Standard Combined License Technical Report

AP1000 Pressurizer Design

Revision 0

Public Version with information withheld under 10 CFR 2.390

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1.0 INTRODUCTION

This report summarizes the design changes for the AP1000 pressurizer. The pressurizer dimensions were altered from that supporting the AP1000 Design Certification in order to obtain satisfactory results of the AP1000 Piping Analysis Report. The requirements for the design of the pressurizer are identified in the AP1000 Design Control Document (DCD, Reference 1) Tier 2, Subsections 5.1.3.5 and 5.4.5.

Due to the change in dimensions to the pressurizer, the pressurizer compartment walls were also altered. The dimensions of the walls are identified in the AP1000 Design Control Document (DCD, Reference 1) Tier 1, Subsection 3, Table 3.3-1.

This report also describes the changes to the surrounding platforms and piping supports affected by the changes in pressurizer dimensions.

This report and the associated figures available for NRC audit will permit the acceptance of the standard plant design change of the AP1000 pressurizer.

2.0 TECHNICAL BACKGROUND

The AP1000 Piping Analysis Report includes a static and dynamic analysis of the Pressurizer Safety and Automatic Depressurization System (ADS) that contains the ADS 1, 2, & 3 piping and valves located above the pressurizer. Satisfactory results of the AP1000 Piping Analysis Report could not have been achieved without reducing the elevation of the ADS 1, 2, & 3 piping and valves.

Lowering the elevation of the ADS piping and valves was required to obtain more favorable Safe Shutdown Earthquake (SSE) response spectra at the pipe support locations, the pressurizer nozzles and the pressurizer ring girder that is welded to the bottom of the Module Q6-01 structural steel frame. This report describes all of the changes to the DCD that are related to the proposed AP1000 Revision 1 pressurizer and pressurizer supports and the justification for each change. The primary change described in this report is the change in height and diameter of the pressurizer.

2.1 *Pressurizer Vessel*

The AP1000 Revision 1 pressurizer configuration is based on the 2100 ft³ South Texas Pressurizer vessel. The inside diameter, vessel length, and wall thickness of the cylindrical portion of the pressurizer is identical to the South Texas vessel. The radius and wall thickness of the upper and lower spherical heads are also identical to the South Texas vessel. All other features of the pressurizer, such as nozzle configurations, nozzle locations, support lugs, the vessel support configuration, and the number, configuration and location of the heaters are significantly different than the configurations of the South Texas vessel.

As outlined in Table 5.1-2 of the DCD, the inside diameter of the pressurizer was increased from 90 inches to 100 inches and the vessel height was decreased from 607 inches to 503 inches. The internal volume of the pressurizer was held constant. Also, the pressurizer spray capacity in Table 5.1-2 was incorrectly shown to be 500 gpm. This value was changed to the correct value of 700 gpm.

Figure 5.1-3 currently provides sections T-T and R-R which reference AP1000 drawings which are not included in the DCD. These sections were removed from the figure due to the references to these drawings.

2.2 Pressurizer 14-inch ADS Safety Nozzles

The vertical angular position of the 14-inch ADS safety nozzles was changed. This change was due to the change in the upper hemispherical head radius and to obtain the correct interface between the ADS safety nozzle and piping.

2.3 Pressurizer Manway

The pressurizer manway inside diameter was reduced in size from 21.00 inches to 18.00 inches. The purpose of reducing the size of the man-way was to meet a Utility Requirements Document (URD) requirement to “use essentially the same design and support equipment as used for the steam generator manways.” Therefore, the design configuration for the AP1000 pressurizer manway, manway cover, manway studs and nuts are to be identical to the manway configuration that was established for the AP1000 steam generator.

The current Revision 0 pressurizer 21.00 inch manway is located on the pressurizer upper spherical head on a vertical angular orientation of 45 degrees. Multiple positions of the 18.00 inch manway on the spherical head were evaluated for compliance with Section NB-3338.2 of the ASME Code. To provide the required arc distance between the center lines of the 18-inch manway and the 14-inch ADS nozzles, the manway would have to be located at the 225 degree position on the pressurizer head and at a vertical angular orientation of no greater than 50 degrees.

The various manway positions on the spherical head that were evaluated placed the manway adjacent to one of the V-braces that are associated with the ADS piping platform. All of the positions that were evaluated significantly restricted the space required for a stud tensioner that would be utilized for removing the manway studs. Therefore, locating the manway on the cylindrical portion of the pressurizer is required to provide sufficient clearance at the manway for the removal of the manway studs and cover.

2.4 Pressurizer Instrumentation Nozzle

The upper four level instrumentation nozzles and the upper temperature nozzle were moved from the cylindrical portion of the pressurizer to the upper spherical head. The nozzles were moved to the upper spherical head due to interference with the installation of the pressurizer ring girder support during installation.

2.5 Pressurizer Supports

2.5.1 Ring Girder

The ring girder inside and outside diameters were increased. This change is done to accommodate the increase in pressurizer diameter outlined in Section 2.1.

At the 225 degree position, an opening is needed in the support ring in order to lower the ring girder over the pressurizer manway. The opening in the ring girder is based on the outside diameter of the 18-inch manway.

The ring girder rests on top of the pressurizer upper lateral/ADS support brackets. The elevation at the top of these brackets changes from El. 164'-1.36" to El. 152'-3.00". Also, the attachment point elevation of the sway struts to the ring girder will change from El. 164'-11.36" to El. 153'-0.00".

The attachment point of the support struts to the ring girder has been moved so that the support struts intersect at the center of the ring. For the original design, the support struts intersected the ring girder at the external edge. This configuration reduces the moments in the ring girder.

2.5.2 Pressurizer Upper Lateral Supports

The upper lateral support struts elevation will be lowered from the current El. 164'-11.36" to El. 153'-0.00" to accommodate the change in pressurizer dimensions. The support struts are shorter and the angles formed at the struts with the reinforced concrete wall are shallower. However, the basic concept of a support ring and 8 support struts has been maintained. The DCD figure, 3.8.3-6 (Sheet 4 of 4) was altered to show the pin to pin dimensions instead of the bracket to centerline dimensions in the previous drawing. These dimensions were deemed more appropriate for this figure.

2.5.3 Pressurizer Lower Lateral Supports

The DCD figure, 3.8.3-6 (Sheet 2 of 4) was altered to show the pin dimensions in an alternate format. On the existing drawings, the pin to pin dimensions are shown using a double arrow. On the revised figure, these dimensions are shown from point to point.

2.6 ADS 1, 2, & 3 Piping and Piping Supports

The elevations of the 4-inch and 8-inch ADS Stage 1, 2, & 3 valves are 14 inches above the lower and upper tier platforms. These new elevations are as follows:

- The Module Q6-01 lower tier ADS stage 1, 2, & 3 valves are at El. 167'-3 ½".
- The Module Q6-01 upper tier ADS stage 1, 2, & 3 valves are at El. 178'-0 ½".

2.7 Module Q6-01 Structural Steel Framing

The elevation of the lower tier platform of Module Q6-01 will change from El. 174'-3 13/16" to El. 166'-1 ½". These elevations are at the top of the 1.00 inch platform grating, therefore the top of platform steel is at El. 166'-0 ½".

The elevation of the upper tier platform of Module Q6-01 will change from El. 185'-0 13/16" to El. 176'-10 ½". These elevations are at the top of the 1.00 inch platform grating, therefore the top of platform steel is at El. 176'-9 ½".

2.8 Pressurizer Compartment Concrete Walls

The elevation at the top of the pressurizer compartment wall will change from El. 169'-0" to El. 160'-0" due to the changes in pressurizer vessel height. The south wall shared with the steam generator compartment will change from El. 153'-0" to El. 153'-6". Also, a new platform is required in the upper southwest corner of the pressurizer compartment at El. 152'-0" and at the

225 degree position for access to the relocated pressurizer manway. These changes also impact the feedwater nozzle area due to the change in wall heights.

2.9 Pressurizer Heaters

The pressurizer heater length was reduced due to the changes in the pressurizer vessel design. The reduction in heater length does not have any impacts on the AP1000 Design Control Document, Revision 15 and does not have a negative impact on operations.

2.10 Pressurizer Safety Setpoints

In order to maintain the safety analysis for the AP1000 Rev 1 pressurizer consistent with the AP1000 Rev 0 pressurizer, the volumes for each of the Protection and Safety Monitoring System setpoints were held constant. However, due to the changes in the dimensions of the pressurizer and placement of the upper level tap on the upper head, the setpoints as a percent of span, were changed as outlined in Table 15.0-4a of the DCD included in this report.

The changes to Table 15.0-4a also affect the Technical Specifications detailed in Chapter 16 of the DCD (Reference 1). These changes are not outlined in this report but will be provided in the topical report for chapter 16 at a later date.

2.11 Hydrogen Igniters

Due to the changes to the platforms surrounding the pressurizer, the hydrogen igniters will also be moved.

- IGNITER # 43 Changes from El. 174'-9" to 166'-4"

The following changes to the elevation of the hydrogen igniters located above the IRWST are also shown on the figures:

- IGNITER # 35 Changes from El. 135'-0" to 137'-0"
- IGNITER # 36 Changes from El. 135'-0" to 137'-0"
- IGNITER # 37 Changes from El. 135'-0" to 137'-0"
- IGNITER # 38 Changes from El. 135'-0" to 137'-0"

These changes are shown in the attached DCD figure changes.

The location of Igniter # 40 in DCD figure 6.2.4-5 was incorrectly shown as El. 175'-8". This location was corrected to show the current location at El. 166'-9" in this figure.

3.0 REGULATORY IMPACT

The design of the pressurizer is addressed in subsection 5.1.3.5 and 5.4.5 of the NRC Final Safety Evaluation Report (FSER, Reference 2) write-ups. The change in the pressurizer configuration will impact Figure 1.2-1 AP1000 Reactor Coolant System of the FSER by changing the aspect ratio of the pressurizer in the figure. This change does not, however, change the design functions of the pressurizer.

The design description for the containment internal structure is outlined in Tier 1, Section 3.3 of the DCD (Reference 1). The change in the pressurizer configuration will impact the design of

the compartment walls surrounding the pressurizer as outlined in Table 3.3-1, "Definition of Wall Thickness for Nuclear Island Buildings and Annex Building". Due to the Tier 1 change, NRC review and approval is required.

The changes to the DCD presented in this report do not represent an adverse change to the design function or to how design functions are performed or controlled. The changes to the DCD do not involve revising or replacing a DCD-described evaluation methodology nor involve a test or experiment not described in the DCD. The DCD change does not require a license amendment per the criteria of VIII.B.5.b of Appendix D to 10 CFR Part 52.

Other than the hydrogen igniters, the changes do not alter a design feature used to mitigate a severe accident. The small change in elevation of the igniters does not alter the numbers, design functions, or design parameters of the igniters. The small change in location will not alter the effectiveness of the igniters for the portions of the containment volume to which they are assigned. Therefore, the changes do not affect resolution of a severe accident issue and do not require a license amendment based on criteria of VIII.B.5.c of Appendix D to 10 CFR Part 52.

The subject changes will not alter barriers or alarms that control access to protected areas of the plant. The subject changes will not alter requirements for security personnel. Therefore, the proposed change does not have an adverse impact on the security assessment of the AP1000.

The changes to the DCD in this report do not represent a change to the PRA or to security of the site.

4.0 REFERENCES

1. APP-GW-GL-700, AP1000 Design Control Document, Revision 15.
2. NUREG 1793, NRC "Final Safety Evaluation Report for AP1000 Design", September 2004.
3. Design Change Proposal (DCP) APP-GW-GEE-040, AP1000 Pressurizer Design, Revision 1

5.0 DCD MARK UP

The following DCD mark ups identify how COL application FSARs should be prepare to incorporate the subject change.

Revise Tier 1, Subsection 3, Table 3.3-1, Definition of Wall Thickness for Nuclear Island Buildings and Annex Building as shown.

Table 3.3-1
Definition of Wall Thicknesses for Nuclear Island Buildings and Annex Building⁽¹⁾

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness ⁽²⁾⁽³⁾⁽⁴⁾⁽⁵⁾	Applicable Radiation Shielding Wall (Yes/No)
Containment Building Internal Structure				
Shield Wall between Reactor Vessel Cavity and RCDT Room	E-W wall parallel with column line 7	From 71'-6" to 83'-0"	3'-0"	Yes
West Reactor Vessel Cavity Wall	N-S wall parallel with column line N	From 83'-0" to 98'-0"	7'-6"	Yes
North Reactor Vessel Cavity Wall	E-W wall parallel with column line 7	From 83'-0" to 98'-0"	9'-0"	Yes
East Reactor Vessel Cavity Wall	N-S wall parallel with column line N	From 83'-0" to 98'-0"	7'-6"	Yes
West Refueling Cavity Wall	N-S wall parallel with column line N	From 98'-0" to 135'-3"	4'-0"	Yes
North Refueling Cavity Wall	E-W wall parallel with column line 7	From 98'-0" to 135'-3"	4'-0"	Yes
East Refueling Cavity Wall	N-S wall parallel with column line N	From 98'-0" to 135'-3"	4'-0"	Yes
South Refueling Cavity Wall	E-W wall parallel with column line 7	From 98'-0" to 135'-3"	4'-0"	Yes
South wall of west steam generator compartment	Not Applicable	From 103'-0" to 153'-0"	2'-6"	Yes
West wall of west steam generator compartment	Not Applicable	From 103'-0" to 153'-0"	2'-6"	Yes
North wall of west steam generator compartment/south wall of pressurizer compartment	Not Applicable	From 103'-0" to 153'-0" <u>153'-6"</u>	2'-6"	Yes
West wall of pressurizer compartment	Not Applicable	From 107'-2" to 169'-0" <u>160'-0"</u>	2'-6"	Yes
North wall of pressurizer compartment	Not Applicable	From 107'-2" to 169'-0" <u>160'-0"</u>	2'-6"	Yes
East wall of pressurizer compartment	Not Applicable	From 118'-6" to 169'-0" <u>160'-0"</u>	2'-6"	Yes
North-east wall of in-containment refueling water storage tank	Parallel to column line N	From 103'-0" to 135'-3"	2'-6"	No
West wall of in-containment refueling water storage tank	Not applicable	From 103'-0" to 135'-3"	5/8" steel plate with stiffeners	No
South wall of east steam generator compartment	Not Applicable	From 87'-6" to 153'-0"	2'-6"	Yes

Revise Tier 2, Chapter 5, Table 5.1-2, Nominal System Design and Operating Parameters as shown.

Table 5.1-2	
NOMINAL SYSTEM DESIGN AND OPERATING PARAMETERS	
General	
Plant design objective, years	60
NSSS power, MWt	3415
Reactor coolant pressure, psia	2250
Reactor coolant liquid volume at power conditions (including 1000 ft ³ pressurizer liquid), ft ³	9600
Loops	
Number of cold legs	4
Number of hot legs	2
Hot leg ID, in.	31
Cold leg ID, in.	22
Reactor Coolant Pumps	
Type of reactor coolant pumps	Canned-motor
Number of reactor coolant pumps	4
Nameplate motor rating, hp	7000
Effective pump power to coolant, MWt	15
Pressurizer	
Number of units	1
Total volume, ft ³	2100
Water volume, ft ³	1000
Spray capacity, gpm	500 700
Inside diameter, in.	90 100
Height, in.	607 503
Steam Generator	
Steam generator power, MWt/unit	1707.5
Type	Vertical U-tube Feeding-type
Number of units	2
Surface area, ft ² /unit	123,540
Shell design pressure, psia	1200
Zero load temperature, °F	557
Feedwater temperature, °F	440
Exit steam pressure, psia	836
Steam flow, lb/hr per steam generator	7.49x10 ⁶
Total steam flow, lb/hr	14.97x10 ⁶

Revise Tier 2, Chapter 15, Table 15.0-4a (Sheet 1 of 2) as shown.

Table 15.0-4a (Sheet 1 of 2)		
PROTECTION AND SAFETY MONITORING SYSTEM SETPOINTS AND TIME DELAY ASSUMED IN ACCIDENT ANALYSES		
Function	Limiting Setpoint Assumed in Analyses	Time Delays (seconds)
Reactor trip on power range high neutron flux, high setting	118%	0.9
Reactor trip on power range high neutron flux, low setting	35%	0.9
High neutron flux, P-8	84%	0.9
Reactor trip on source range neutron flux reactor trip	Not applicable	0.9
Overtemperature ΔT	Variable (see Figure 15.0.3-1)	2.0
Overpower ΔT	Variable (see Figure 15.0.3-1)	2.0
Reactor trip on high pressurizer pressure	2460 psia	2.0
Reactor trip on low pressurizer pressure	1800 psia	2.0
Reactor trip on low reactor coolant flow in either hot leg	87% loop flow	1.45
Reactor trip on reactor coolant pump under speed	90%	0.767
Reactor trip on low steam generator narrow range level	95,000 lbm	2.0
High-2 steam generator level	100% of narrow range level span	2.0 (reactor trip) 0.0 (turbine trip) 2.0 (feedwater isolation)
Reactor trip on high-3 pressurizer water level	8076% of span	2.0
PRHR actuation on low steam generator wide range level	55,000 lbm	2.0
“S” signal and steamline isolation on low T_{cold}	500°F	2.0
“S” signal and steamline isolation on low steamline pressure	405 psia (with an adverse environment assumed) 535 psia (without an adverse environment assumed)	2.0
“S” signal on low pressurizer pressure	1700 psia	2.0

Revise Tier 2, Chapter 15, Table 15.04a (Sheet 2 of 2) as shown.

Table 15.0-4a (Sheet 2 of 2)		
PROTECTION AND SAFETY MONITORING SYSTEM SETPOINTS AND TIME DELAY ASSUMED IN ACCIDENT ANALYSES		
Function	Limiting Setpoint Assumed in Analyses	Time Delays (seconds)
“S” signal on high-1 containment pressure	8 psig	2.0
Reactor coolant pump trip following “S”	—	15.0
PRHR actuation of high-3 pressurizer water level	80 <u>76</u> % of span	2.0 (plus 15.0-second timer delay)
Chemical and volume control system isolation on high-2 pressurizer water level	67 <u>63</u> % of span	2.0
Chemical and volume control system isolation on high-1 pressurizer water level coincident with “S” signal	30 <u>28</u> % of span	2.0
Boron dilution block on source range flux multiplication	1.6 over 50 minutes	10.0
ADS Stage 1 actuation on core makeup tank low level signal	67.5% of tank volume	20.0 seconds for control valve to begin to open)
ADS Stage 4 actuation on core makeup tank low-low level signal	20% of tank volume	30.0 seconds for squib valve to begin to open)

Replace the following Tier 1 and Tier 2 DCD figures as shown on attached pages:

DCD Figures:

APP-RCS-M3K-001	DCD FIGURES 1.2-1 & 5.1-2 - REACTOR COOLANT LOOPS - ISOMETRIC VIEW	0
APP-1040-P2K-001	DCD FIGURE 1.2-9 - N.I. GENERAL ARRANGEMENT - PLAN AT EL. 117'-6"	1
APP-1000-ARK-921	DCD FIGURE 1.2-13 - NUCLEAR ISLAND SECTION A-A	0
APP-1000-P2K-901	DCD FIGURE 1.2-14 - NUCLEAR ISLAND SECTION A-A WITH EQUIPMENT	1
APP-1000-ARK-922	DCD FIGURE 1.2-15 - NUCLEAR ISLAND SECTION B-B	0
APP-1000-P2K-902	DCD FIGURE 1.2-16 - NUCLEAR ISLAND SECTION B-B WITH EQUIPMENT	2
APP-1000-ARK-901	DCD FIGURE 3.3-1 - NUCLEAR ISLAND SECTION A-A	1
APP-1000-ARK-902	DCD FIGURE 3.3-2 - NUCLEAR ISLAND SECTION B-B	2
APP-PH01-V1K-021	DCD FIGURE 3.8.3-6 (SHEET 1 OF 4) - PRESSURIZER SUPPORTS	N/A
APP-PH01-V1K-023	DCD FIGURE 3.8.3-6 (SHEET 2 OF 4) - PRESSURIZER SUPPORTS	N/A
APP-PH01-V1K-123	DCD FIGURE 3.8.3-6 (SHEET 3 OF 4) - PRESSURIZER SUPPORTS	N/A
APP-PH01-V1K-121	DCD FIGURE 3.8.3-6 (SHEET 4 OF 4) - PRESSURIZER SUPPORTS - OUTLINE	N/A
APP-1200-S3RK-001	DCD FIGURE 3H.5-1 SHEET 3 - NUCLEAR ISLAND CRITICAL - SECTION A-A	N/A
APP-PL01-V2K-001	DCD FIGURE 5.1-3 - REACTOR COOLANT SYSTEM - LOOP LAYOUT	N/A
APP-PL01-V2K-003	DCD FIGURE 5.1-4 - REACTOR COOLANT SYSTEM - ELEVATION	N/A
APP-MV20-V1K-101	DCD FIGURE 5.4-5 PRESSURIZER	N/A
APP-1030-P2K-011	DCD FIGURE 6.3-6 - IRWST SCREEN - PLAN LOCATION	N/A
APP-1000-AFK-921	DCD FIGURE 9A-1 (SHEET 10 OF 16) - NUCLEAR ISLAND FIRE AREA - SECTION A-A	0
APP-1000-AFK-922	DCD FIGURE 9A-1 (SHEET 11 OF 16) - NUCLEAR ISLAND FIRE AREA - SECTION B-B	0
APP-1060-C2K-001	DCD FIG. 3.7.2-12 (SHEET 6 OF 12) - NI KEY STRUCTURAL DIMENSIONS - PLAN AT EL. 153'-0" 7 & EL. 160'-6"	N/A
APP-1000-C2K-901	DCD FIG. 3.7.2-12 (SHEET 8 OF 12) - NI KEY STRUCTURAL DIMENSIONS - SECTION A-A	N/A
APP-1000-C2K-902	DCD FIG. 3.7.2-12 (SHEET 9 OF 12) - NI KEY STRUCTURAL DIMENSIONS - SECTION B-B	N/A
APP-1000-C2K-901	DCD FIG. 3.8.3-1 (SHEET 6 OF 7) - STRUCTURAL MODULE LOCATION - CONTAINMENT SECTION A-A	N/A
APP-1000-CAK-902	DCD FIG. 3.8.3-1 (SHEET 7 OF 7) - STRUCTURAL MODULE LOCATION - CONTAINMENT SECTION B-B	N/A
APP-PH01-V1K-006	DCD FIG. 3.8.3-5 (SHEET 5 OF 5) - STEAM GENERATOR SUPPORTS - UPPER LATERAL SUPPORT	0
APP-CA01-V1-001	STRUCTURAL - GENERAL ISOMETRIC DRAWING - CONTAINMENT - CA01 MODULE - ISO VIEW LOOKING FROM SOUTH-EAST AND UP (USED FOR DCD FIG. 3.8.3-14)	A
APP-1000-P3K-953	DCD FIG. 6.2.4-5 - HYDROGEN IGNITERS LOCATION - SECTION C-C	0
APP-1040-P3K-051	DCD FIG. 6.2.4-9 - HYDROGEN IGNITERS LOCATION - PLAN AT EL. 118'-6"	1
APP-1050-P3K-051	DCD FIG. 6.2.4-10 - HYDROGEN IGNITERS LOCATION - PLAN AT EL. 135'-3"	1
APP-1060-P3K-051	DCD FIG. 6.2.4-11 - HYDROGEN IGNITERS LOCATION - PLAN AT EL. 162'-0"	1
APP-1000-P3K-951	DCD FIG. 6.2.4-13 - HYDROGEN IGNITERS LOCATION - SECTION A-A	1

CURRENT FIGURE

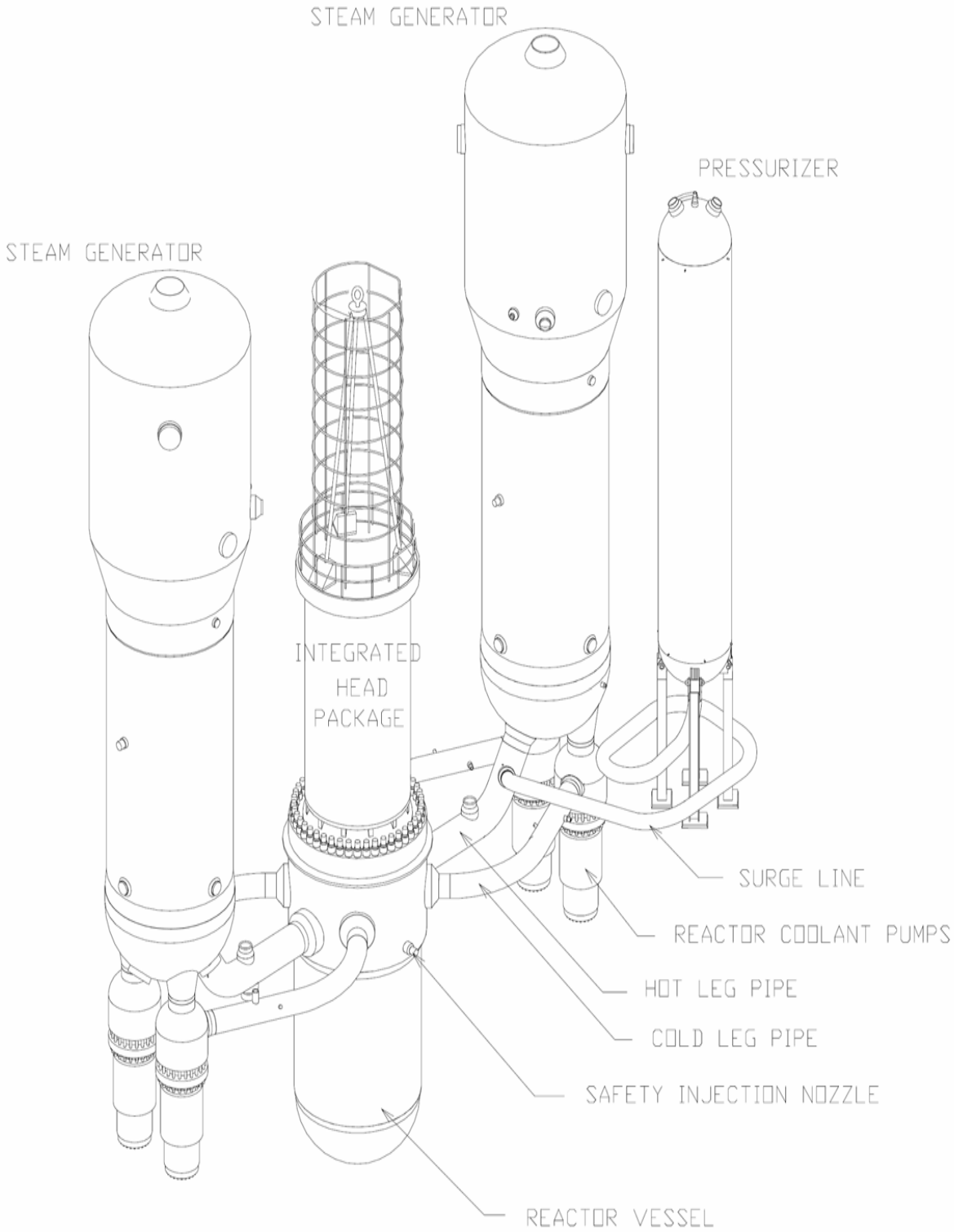


Figure 1.2-1
Reactor Coolant System

REVISÉD FIGURE

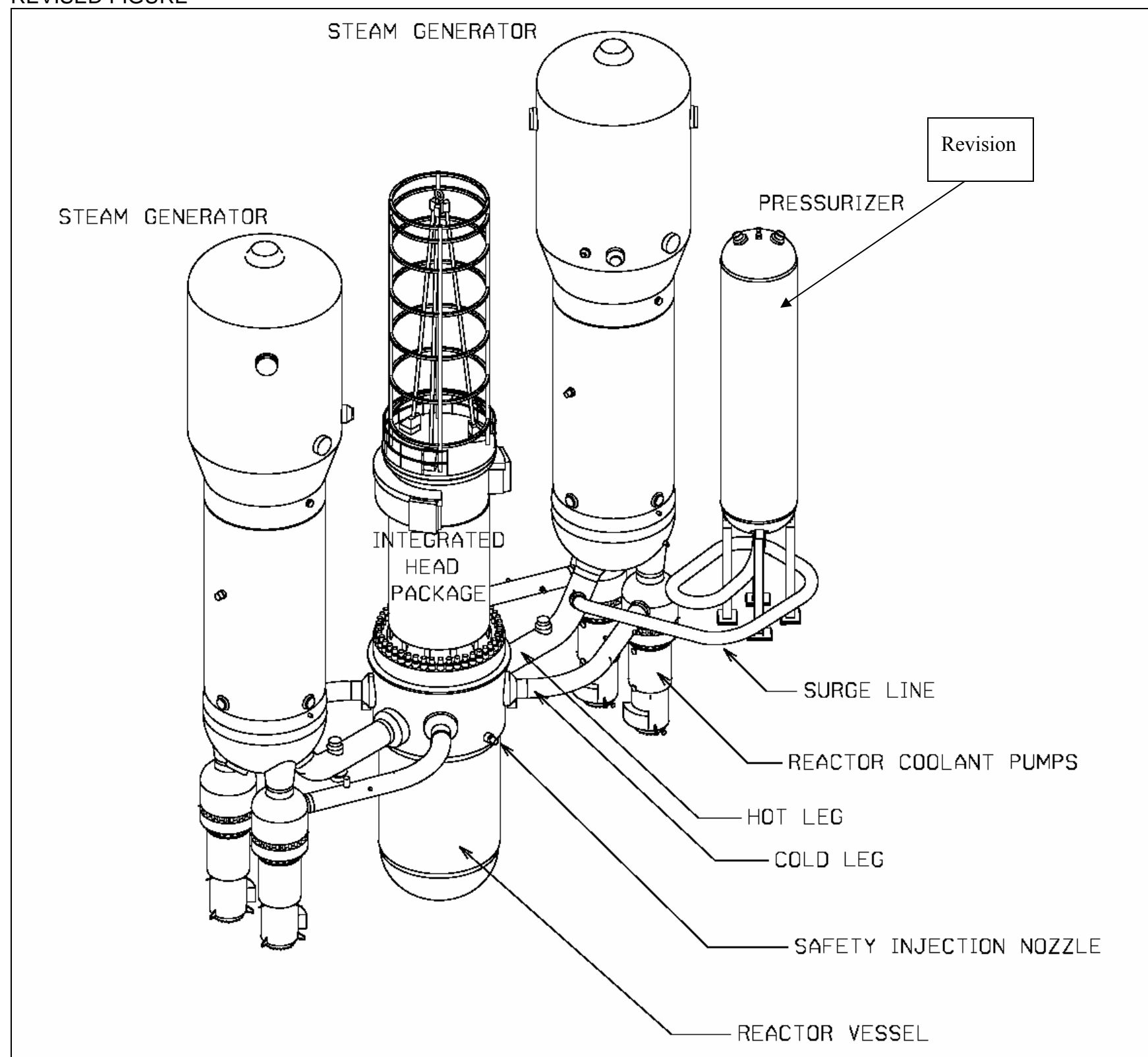


Figure 1.2-1 Reactor Coolant System

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 1.2-9

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 1.2-9

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 1.2-13

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 1.2-13

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 1.2-14

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 1.2-14

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 1.2-15

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 1.2-15

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 1.2-16

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 1.2-16

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 3.3-1

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 3.3-1

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 3.3-2

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 3.3-2

CURRENT FIGURE

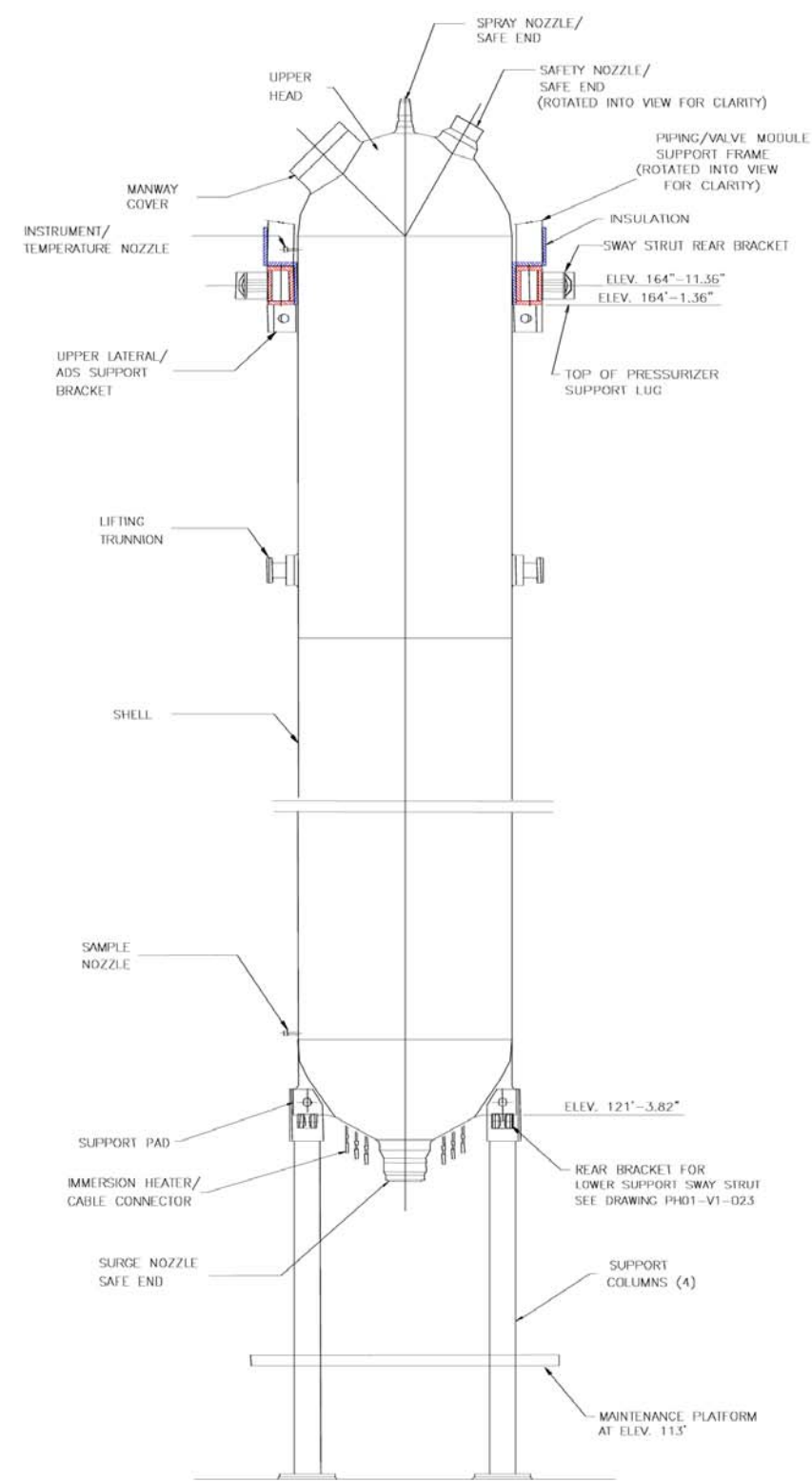


Figure 3.8.3-6 (Sheet 1 of 4)

Pressurizer Support Columns

REVISED FIGURE

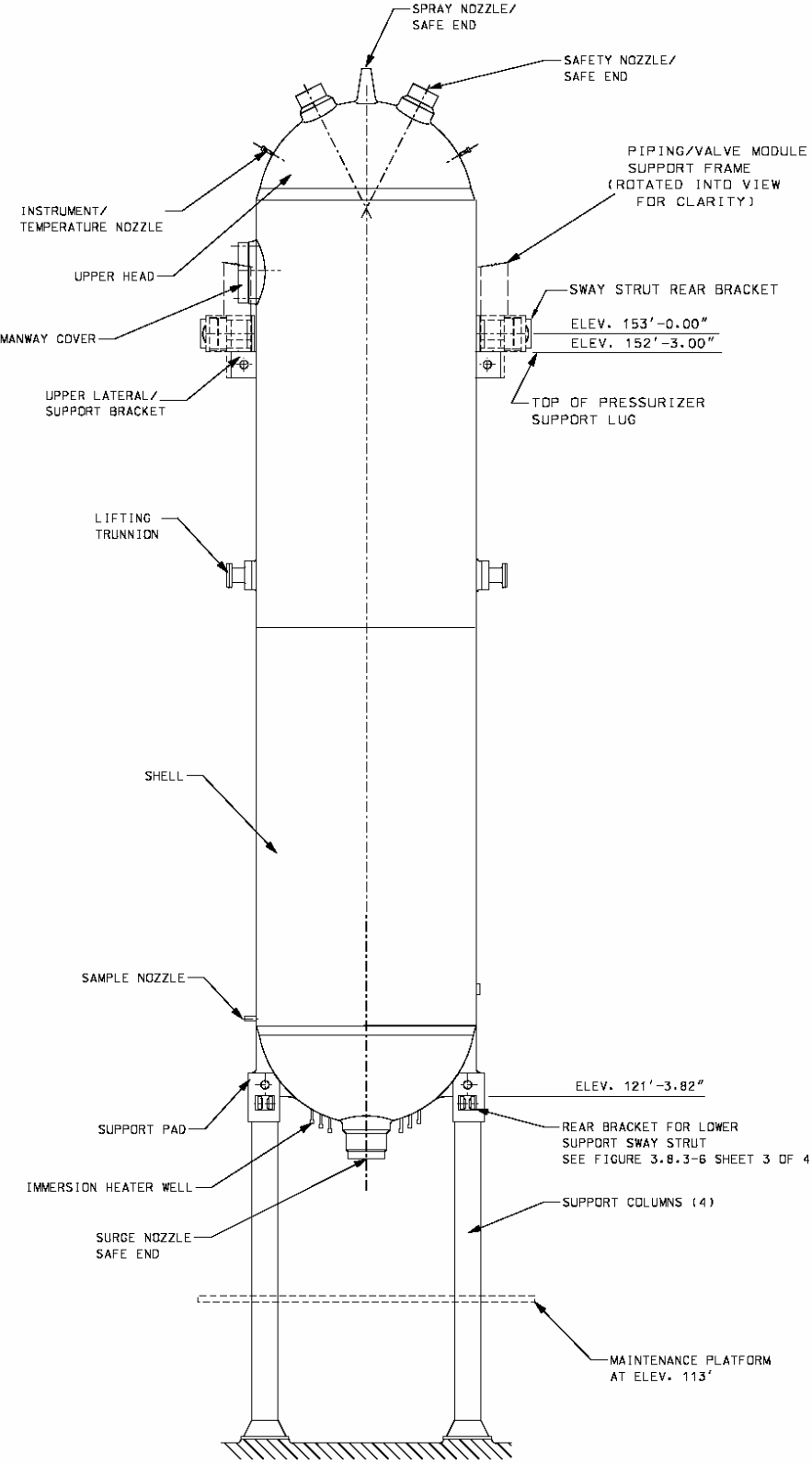


Figure 3.8.3-6 (Sheet 1 of 4)

Pressurizer Support Columns

CURRENT FIGURE

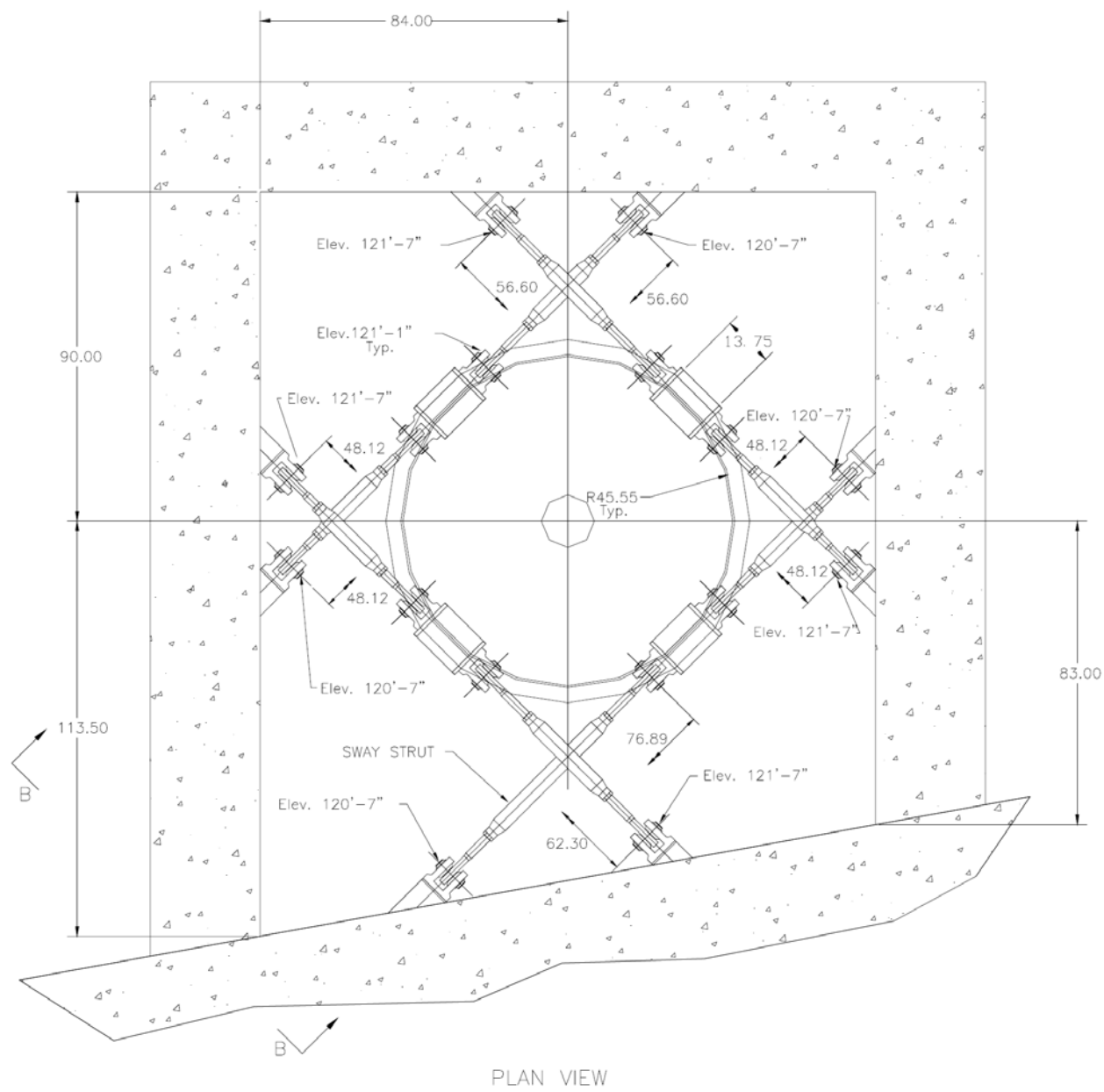


Figure 3.8.3-6 (Sheet 2 of 4)
Pressurizer Lower Lateral Supports

REVISED FIGURE

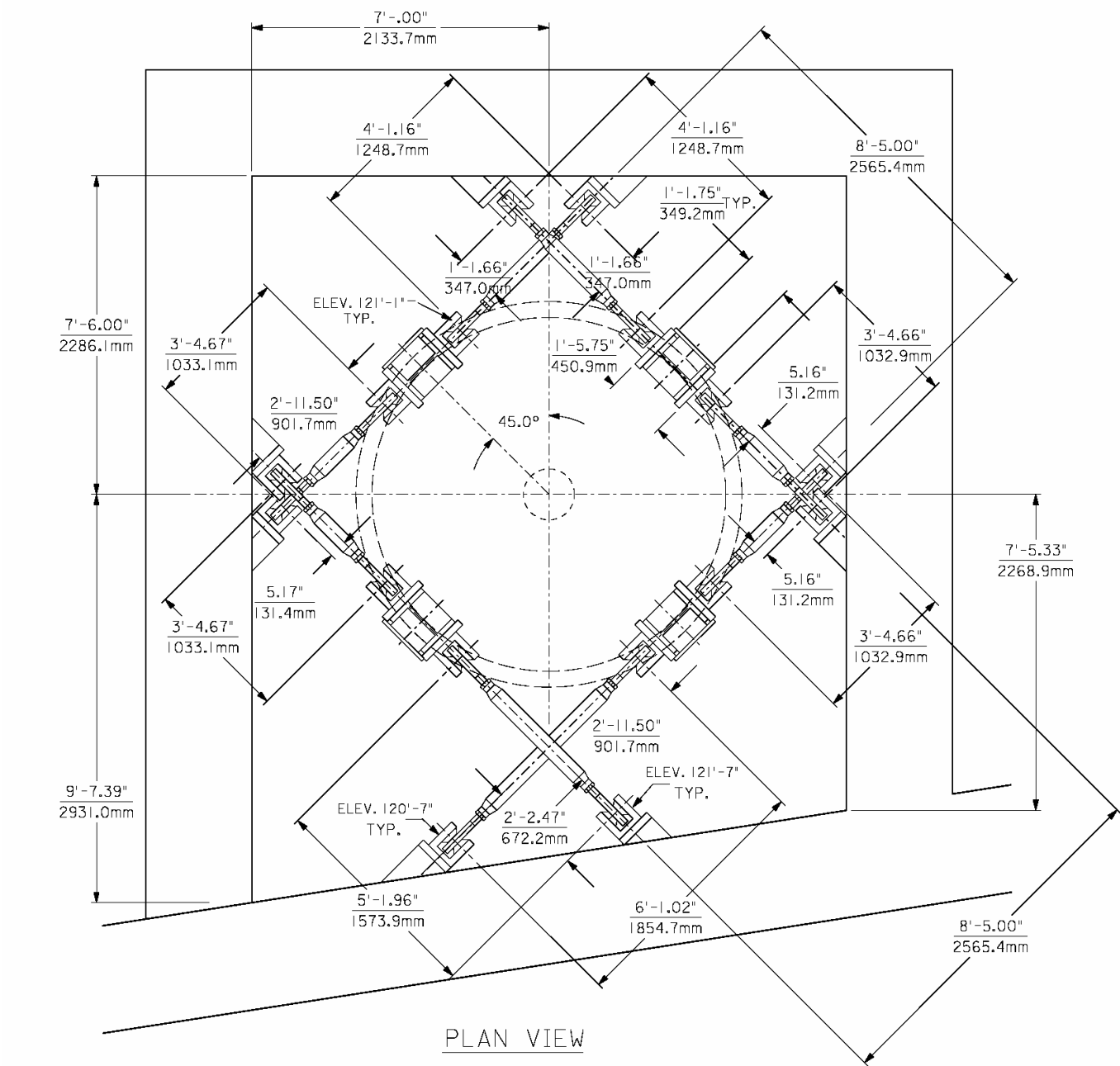


Figure 3.8.3-6 (Sheet 2 of 4)
Pressurizer Lower Lateral Supports

CURRENT FIGURE

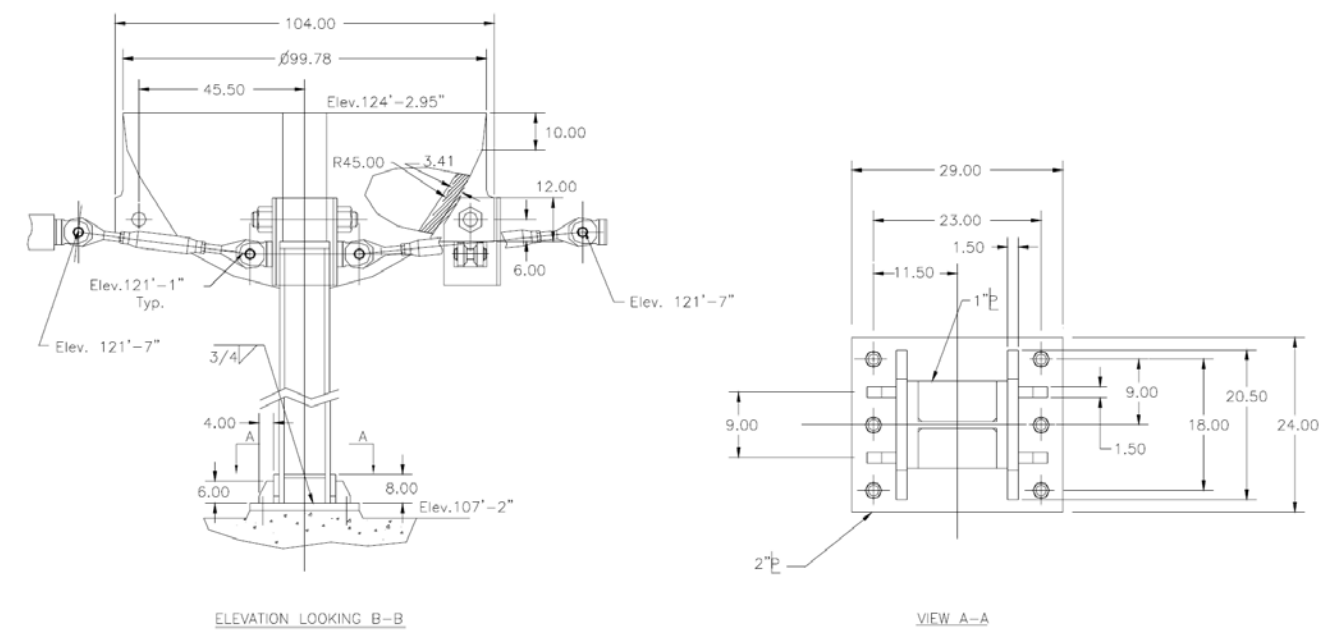
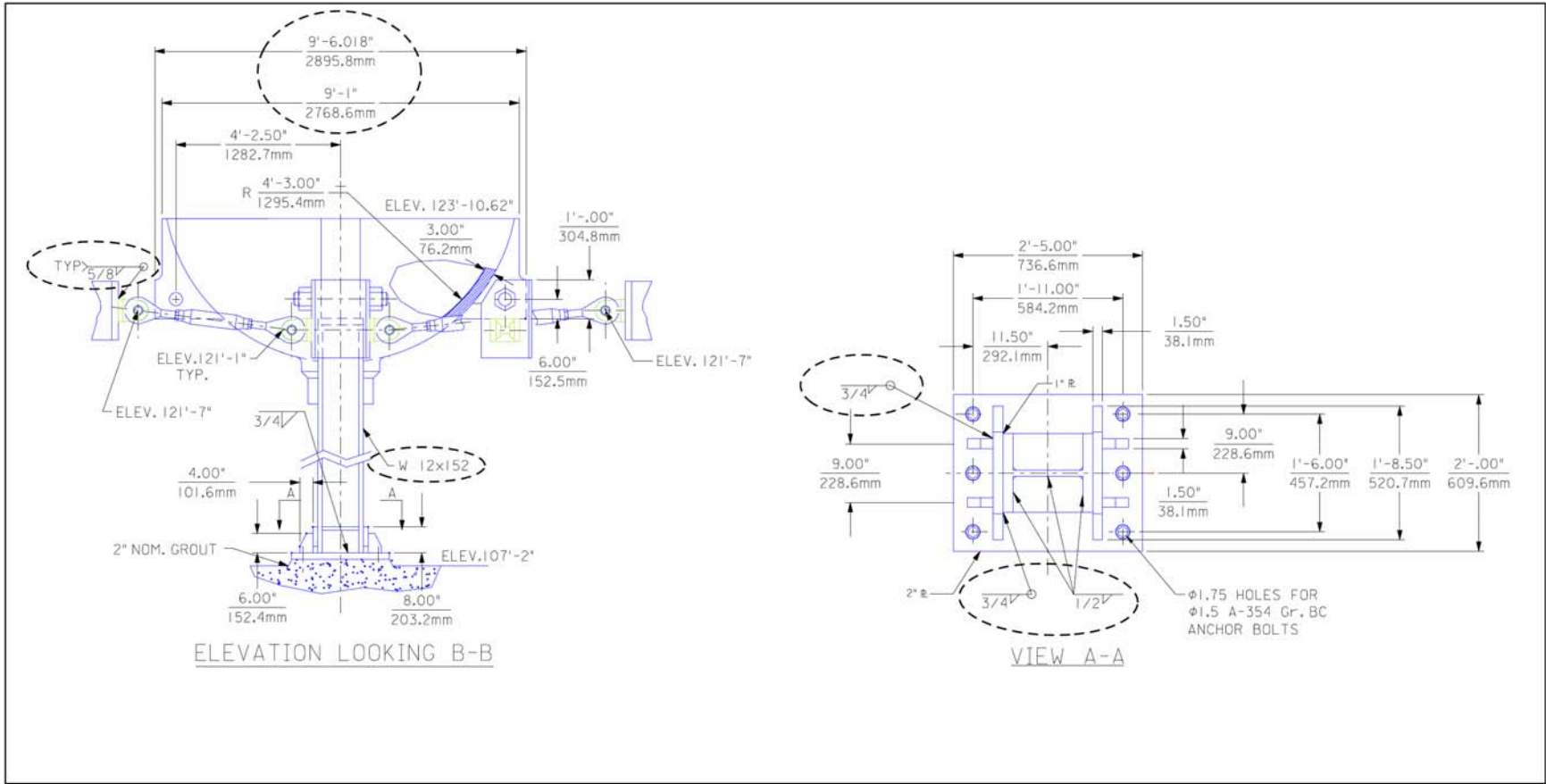


Figure 3.8.3-6 (Sheet 3 of 4)
Pressurizer Lower Supports

REVISED FIGURE

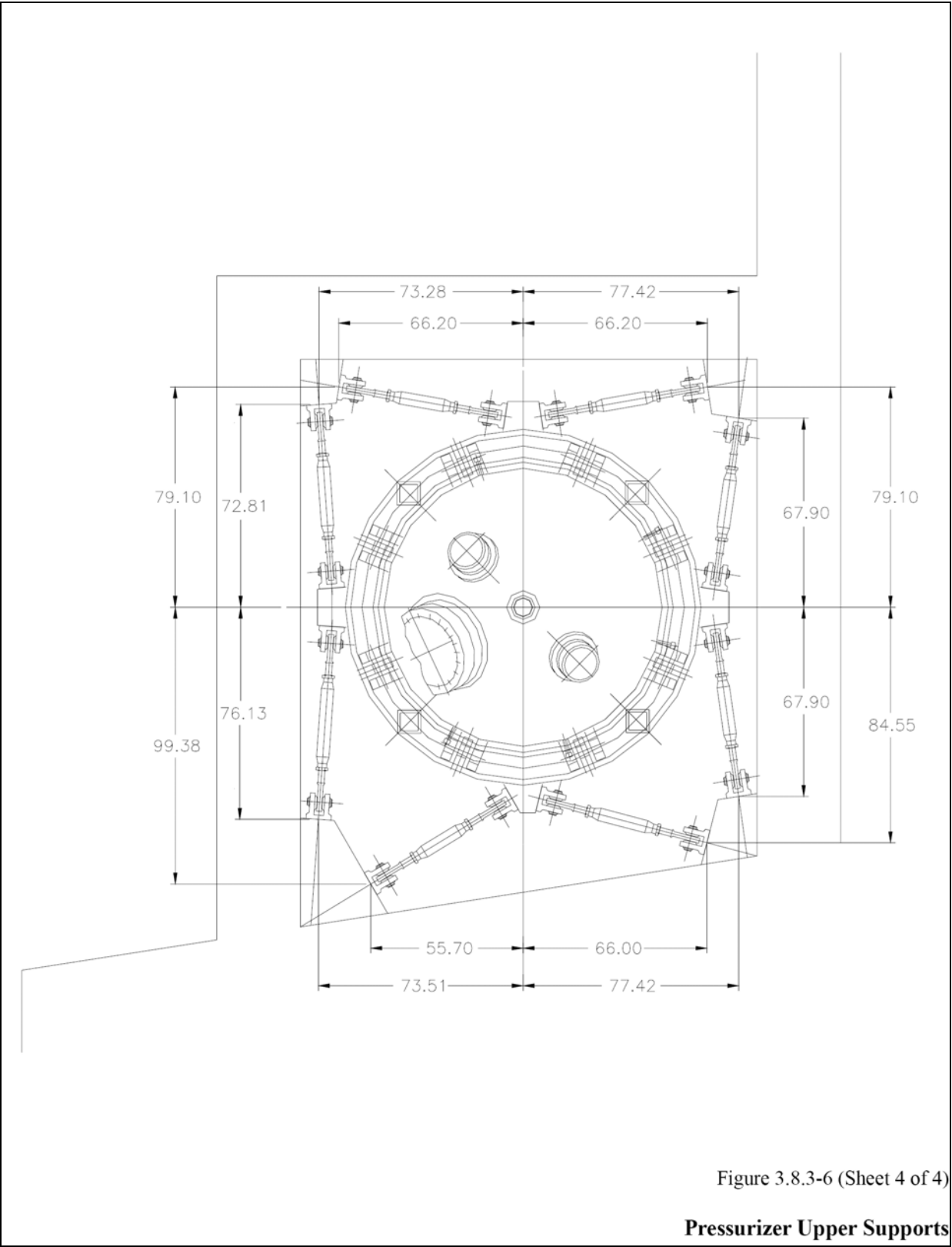


DCP 040

Figure 3.8.3-6 (Sheet 3 of 4)

Pressurizer Lower Supports

CURRENT FIGURE



REVISED FIGURE

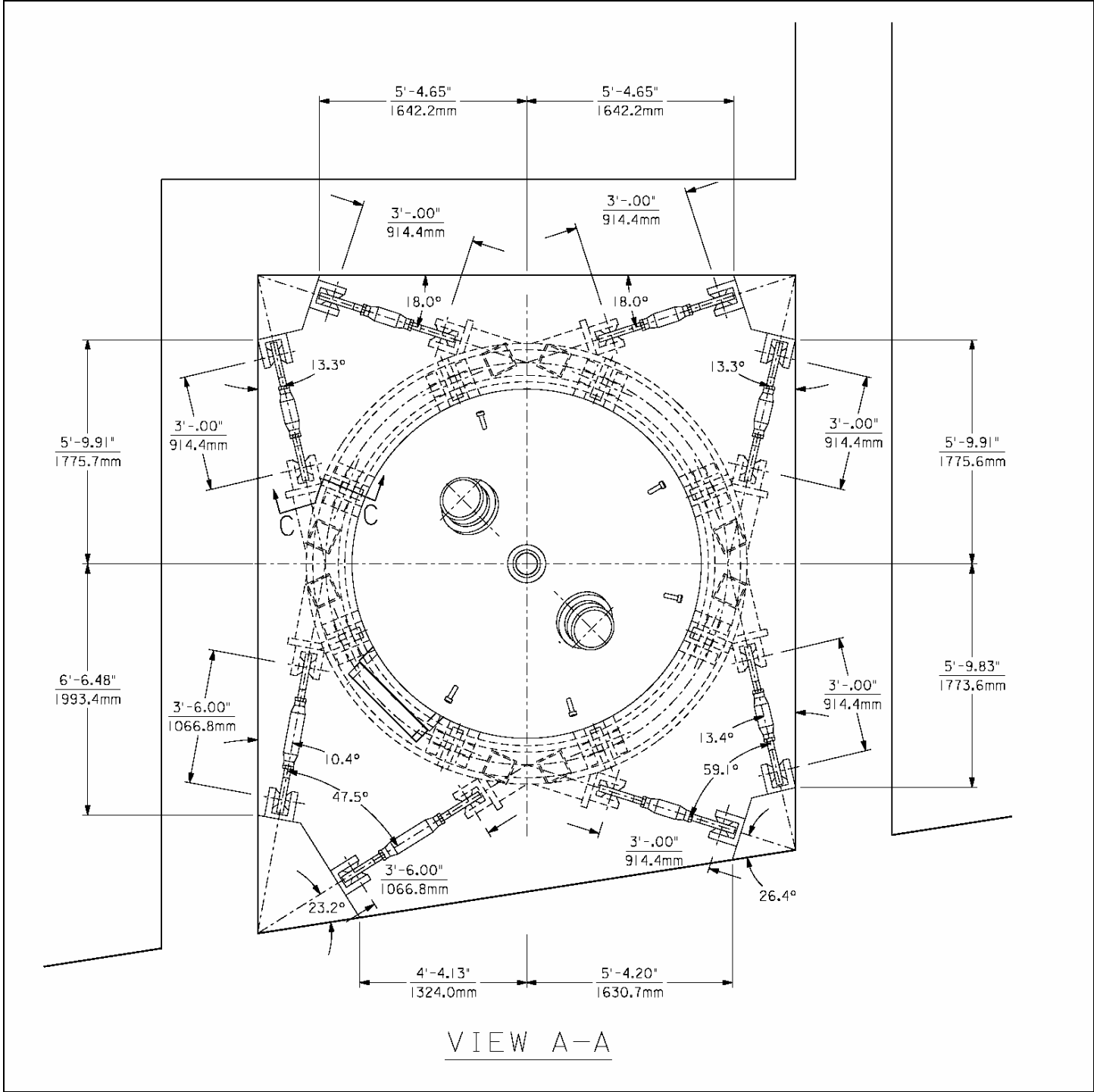
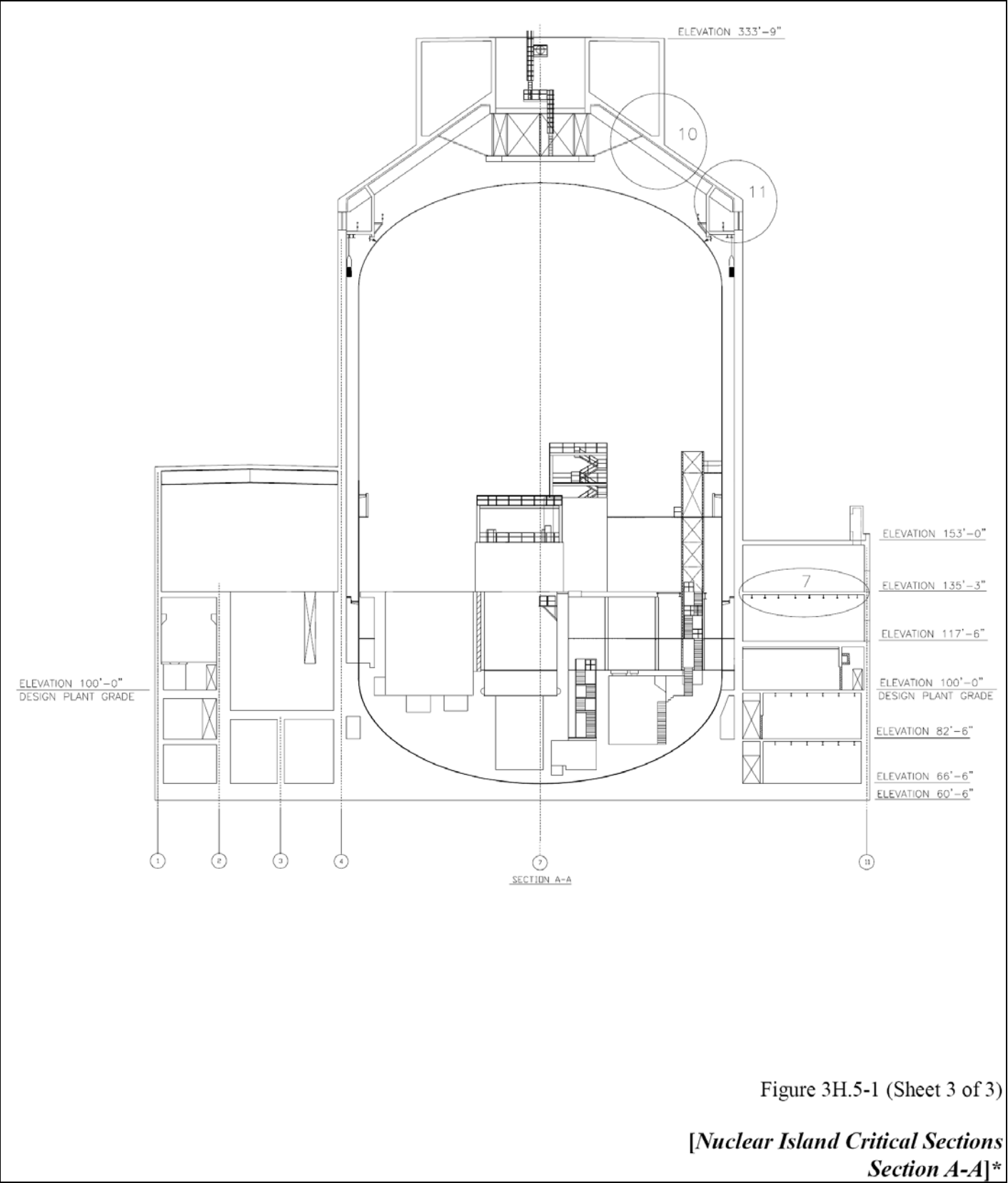


Figure 3.8.3-6 (Sheet 4 of 4)

Pressurizer Upper Supports

CURRENT FIGURE



REVISED FIGURE

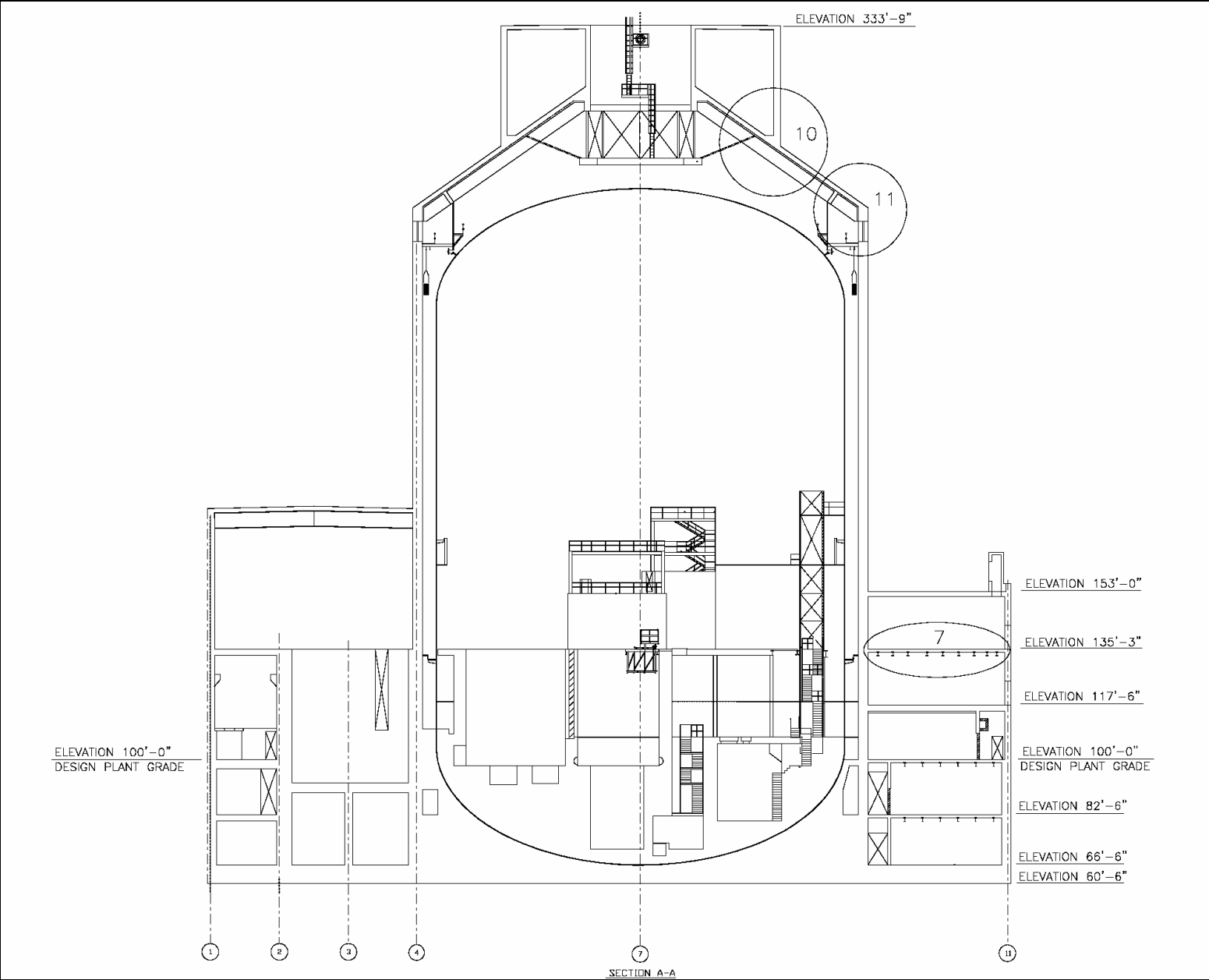


Figure 3H.5-1 (Sheet 3 of 3)
Nuclear Island Critical Sections
Section A-A

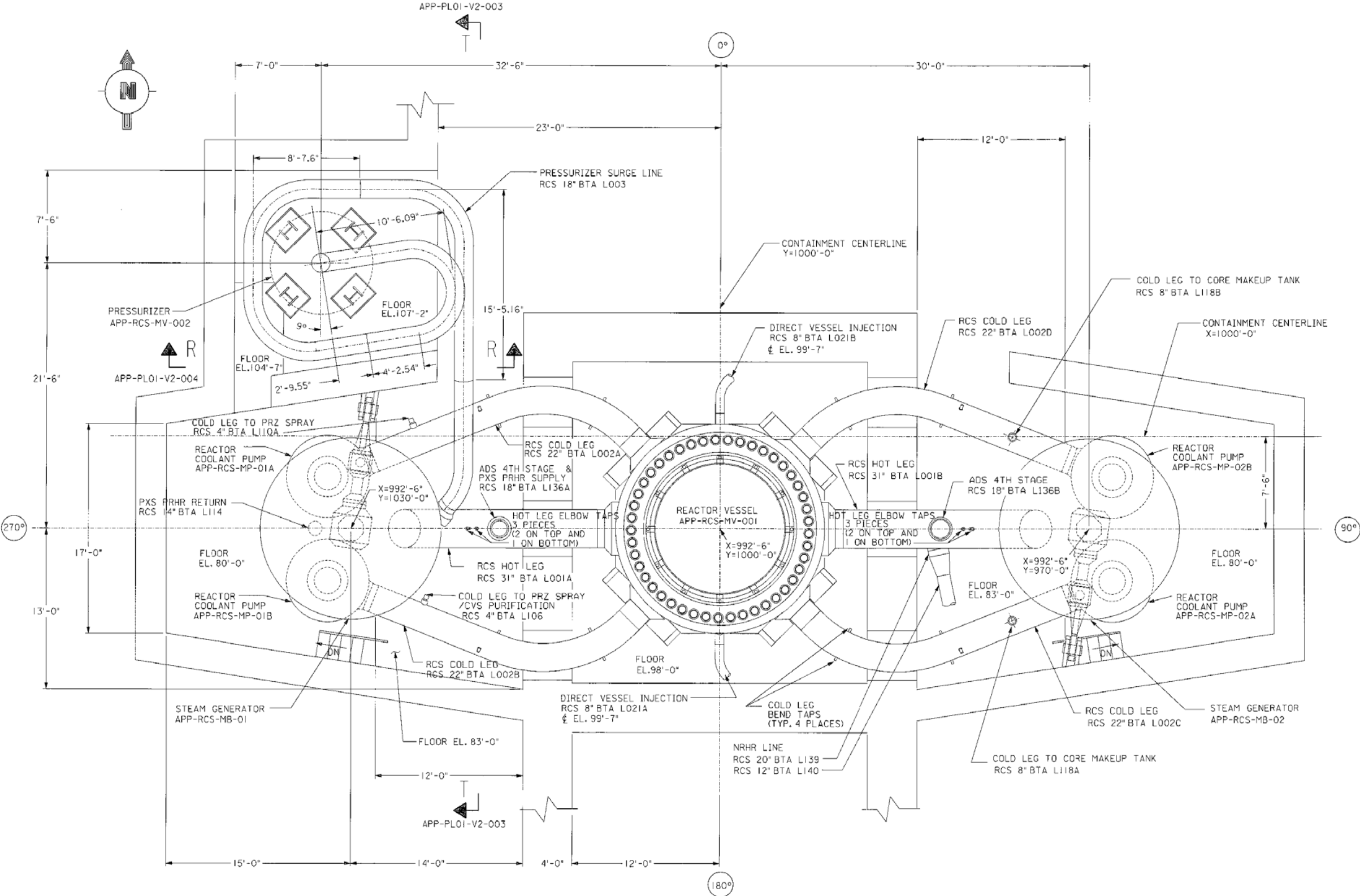


Figure 5.1-3

Reactor Coolant System – Loop Layout

Revised

Diagram illustrating the layout of a nuclear reactor system, showing the reactor vessel, primary loop, secondary loop, steam generators, pumps, and various piping and valves. The diagram includes dimensions, elevations, and component labels.

Key Components and Labels:

- Reactor Vessel:** APP-RCS-MV-001, X=992'-6", Y=1000'-0", FLOOR EL. 98'-0"
- Primary Loop (RCS):**
 - Hot Leg:** RCS 31" BTA L001B, RCS HOT LEG, RCS 31" BTA L001A
 - Cold Leg:** RCS 22" BTA L002A, RCS COLD LEG, RCS 22" BTA L002B
 - Pressurizer:** APP-RCS-MV-002, X=992'-6", Y=1030'-0", FLOOR EL. 107'-2"
 - ADS 4TH STAGE & PXS PRHR SUPPLY:** RCS 18" BTA L136A
 - Reactor Coolant Pumps:** APP-RCS-MP-01A, APP-RCS-MP-01B, APP-RCS-MP-02A, APP-RCS-MP-02B
 - Reactor Coolant Pumps:** APP-RCS-MP-01A, APP-RCS-MP-01B, APP-RCS-MP-02A, APP-RCS-MP-02B
 - Reactor Coolant Pumps:** APP-RCS-MP-01A, APP-RCS-MP-01B, APP-RCS-MP-02A, APP-RCS-MP-02B
 - Reactor Coolant Pumps:** APP-RCS-MP-01A, APP-RCS-MP-01B, APP-RCS-MP-02A, APP-RCS-MP-02B
- Secondary Loop (RCS):**
 - Hot Leg:** RCS 31" BTA L001B, RCS HOT LEG, RCS 31" BTA L001A
 - Cold Leg:** RCS 22" BTA L002A, RCS COLD LEG, RCS 22" BTA L002B
 - Pressurizer:** APP-RCS-MV-002, X=992'-6", Y=1030'-0", FLOOR EL. 107'-2"
 - ADS 4TH STAGE & PXS PRHR SUPPLY:** RCS 18" BTA L136A
 - Reactor Coolant Pumps:** APP-RCS-MP-01A, APP-RCS-MP-01B, APP-RCS-MP-02A, APP-RCS-MP-02B
 - Reactor Coolant Pumps:** APP-RCS-MP-01A, APP-RCS-MP-01B, APP-RCS-MP-02A, APP-RCS-MP-02B
 - Reactor Coolant Pumps:** APP-RCS-MP-01A, APP-RCS-MP-01B, APP-RCS-MP-02A, APP-RCS-MP-02B
 - Reactor Coolant Pumps:** APP-RCS-MP-01A, APP-RCS-MP-01B, APP-RCS-MP-02A, APP-RCS-MP-02B
- Steam Generators:** APP-RCS-MB-01, APP-RCS-MB-02
- Containment Centerline:** Y=1000'-0", X=1000'-0"
- Dimensions:** 7'-0", 32'-6", 30'-0", 23'-0", 12'-0", 8'-7.6", 10'-6.09", 15'-5.16", 21'-6", 17'-0", 13'-0", 15'-0", 14'-0", 4'-0", 12'-0"
- Elevations:** FLOOR EL. 104'-7", FLOOR EL. 107'-2", FLOOR EL. 80'-0", FLOOR EL. 83'-0", FLOOR EL. 98'-0", FLOOR EL. 80'-0"
- Angles:** 0°, 90°, 180°, 270°, 9°, 2'-9.55", 4'-2.54"
- Other Labels:** PRESSURIZER SURGE LINE RCS 18" BTA L003, DIRECT VESSEL INJECTION RCS 8" BTA L021B, COLD LEG TO PRZ SPRAY RCS 4" BTA L110A, COLD LEG TO CORE MAKEUP TANK RCS 8" BTA L118B, COLD LEG TO CORE MAKEUP TANK RCS 8" BTA L118A, NRHR LINE RCS 20" BTA L139, RCS 12" BTA L140, COLD LEG BEND TAPS (TYP. 4 PLACES), HOT LEG ELBOW TAPS 2 PIECES (TOP AND BOTTOM), COLD LEG ELBOW TAPS 2 PIECES (TOP AND BOTTOM), PXS PRHR RETURN RCS 14" BTA L114, COLD LEG TO PRZ SPRAY /CVS PURIFICATION RCS 4" BTA L106, APP-PL01-V2-003

Reactor Coolant System – Loop Layout

[illegible]

Reactor Coolant System – Elevation

REVISED FIGURE

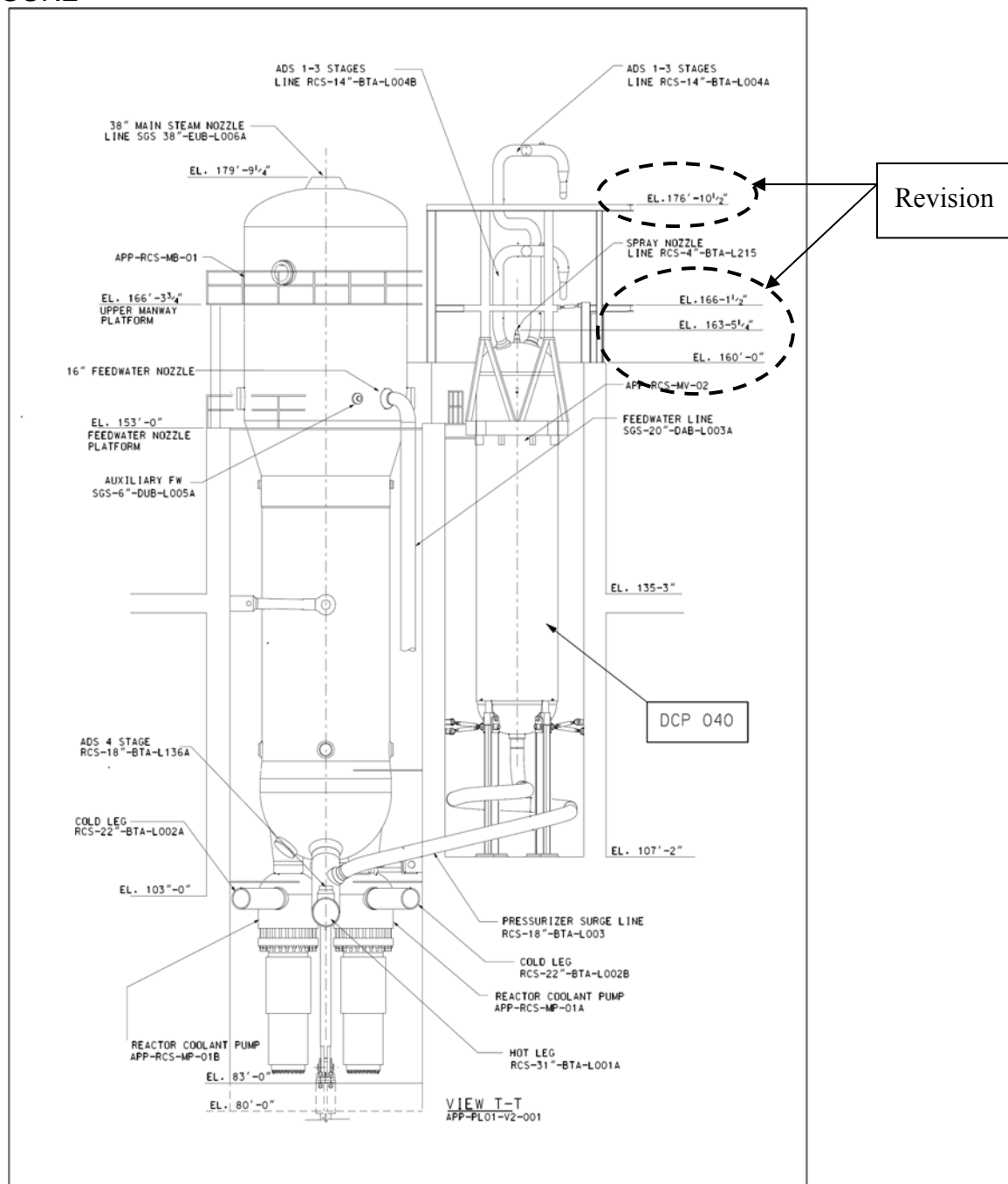


Figure 5.1-4

Reactor Coolant System – Elevation

CURRENT FIGURE

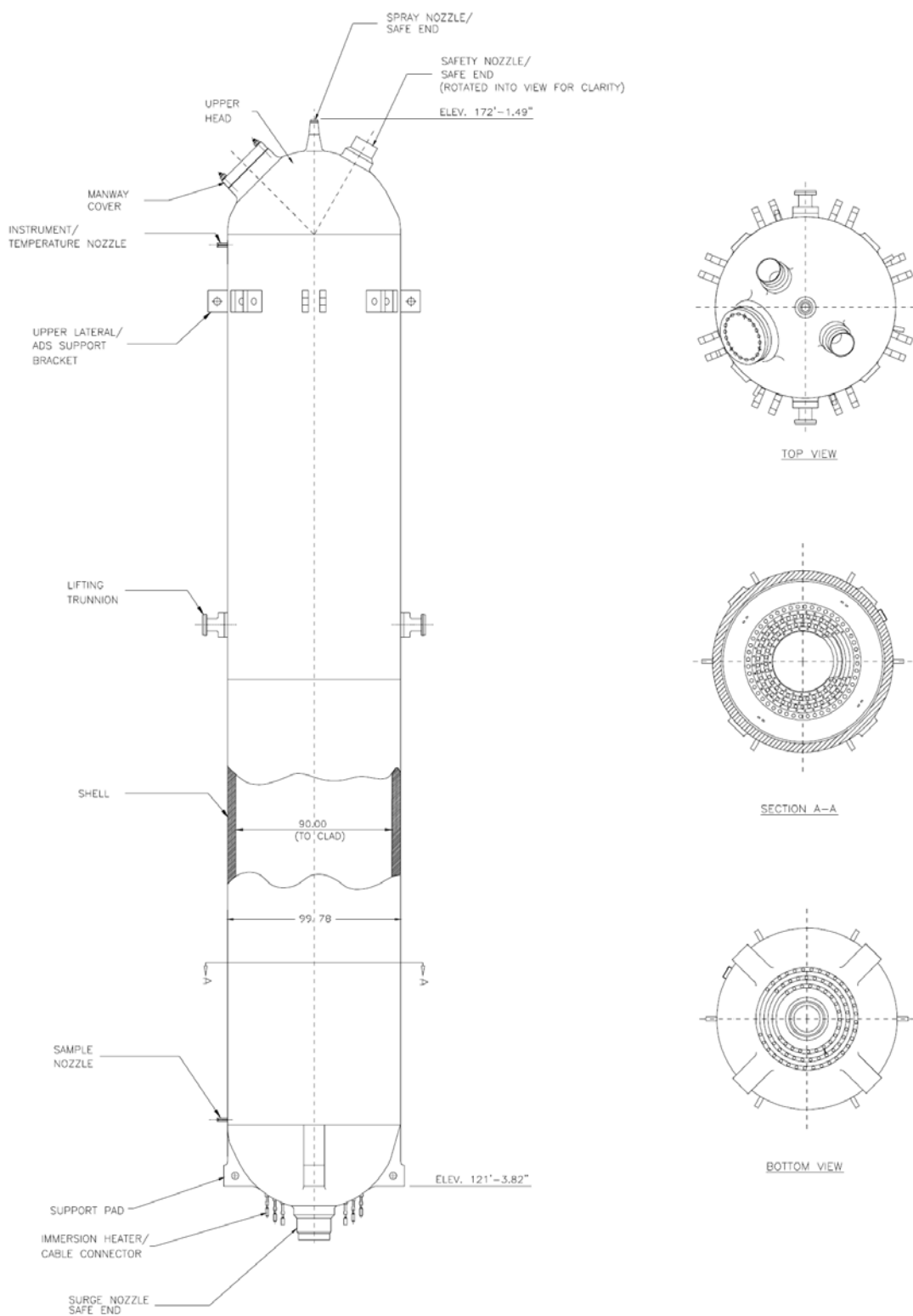


Figure 5.4-5

Pressurizer

REVISED FIGURE

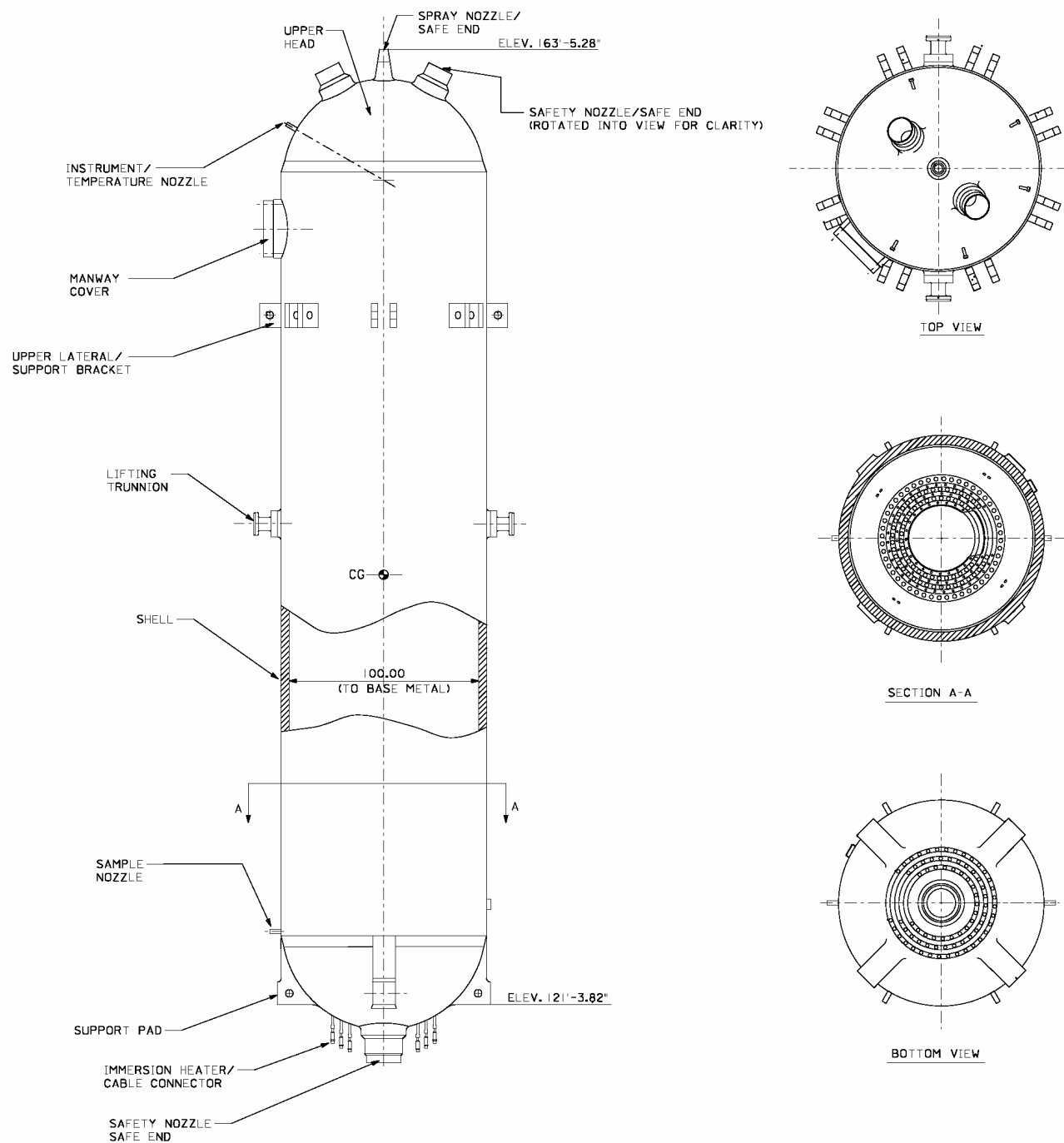


Figure 5.4-5

Pressurizer

CURRENT FIGURE

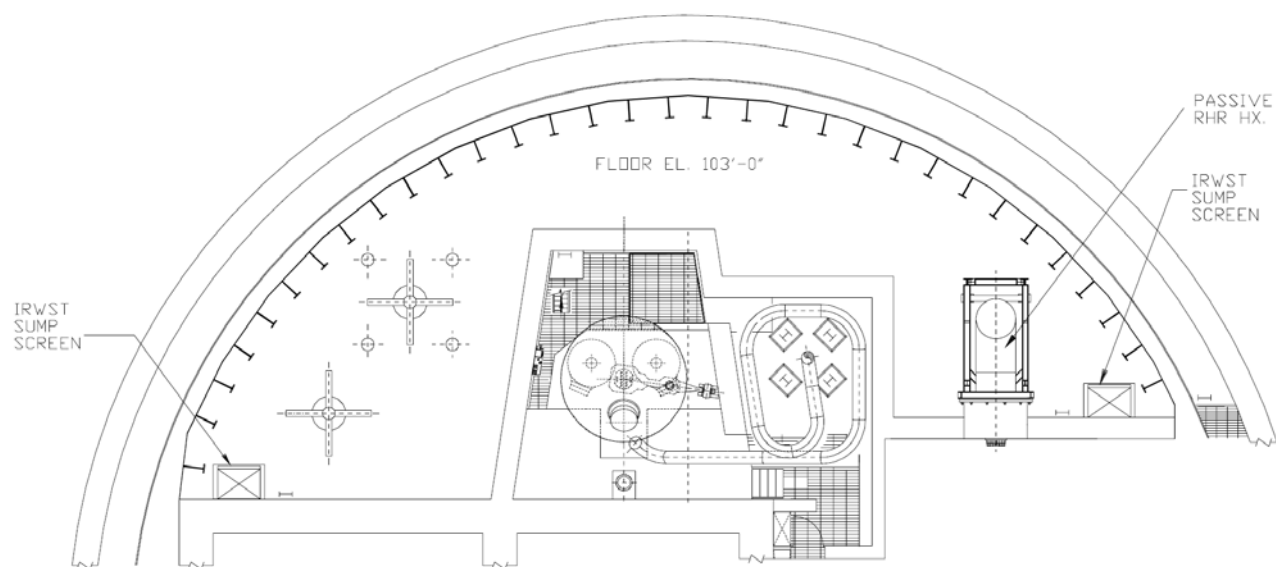


Figure 6.3-6

IRWST Screen Plan Location

REVISED FIGURE

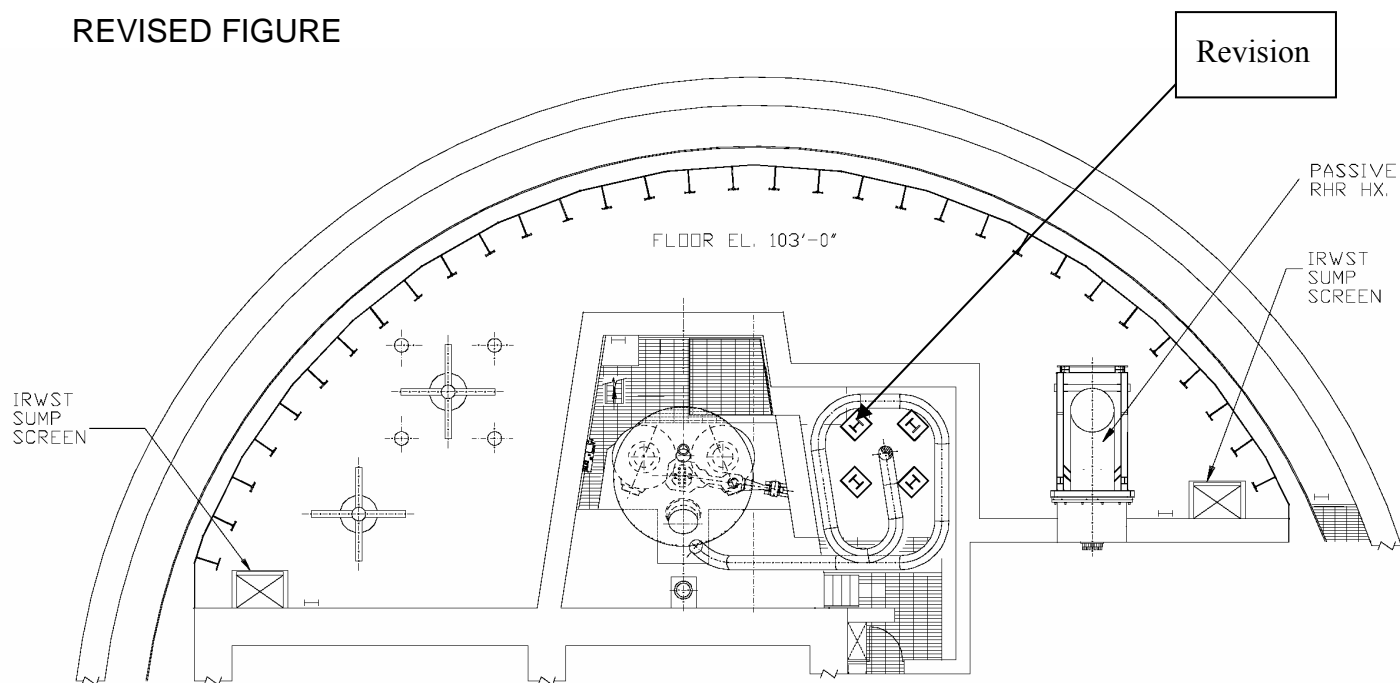


Figure 6.3-6

IRWST Screen Plan Location

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 9A-1 (Sheet 10 of 16)

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 9A-1 (Sheet 10 of 16)

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 9A-1 (Sheet 11 of 16)

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 9A-1 (Sheet 11 of 16)

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 3.7.2-12 (Sheet 6 of 12)

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 3.7.2-12 (Sheet 6 of 12)

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 3.7.2-12 (Sheet 8 of 12)

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 3.7.2-12 (Sheet 8 of 12)

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 3.7.2-12 (Sheet 9 of 12)

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 3.7.2-12 (Sheet 9 of 12)

CURRENT FIGURE

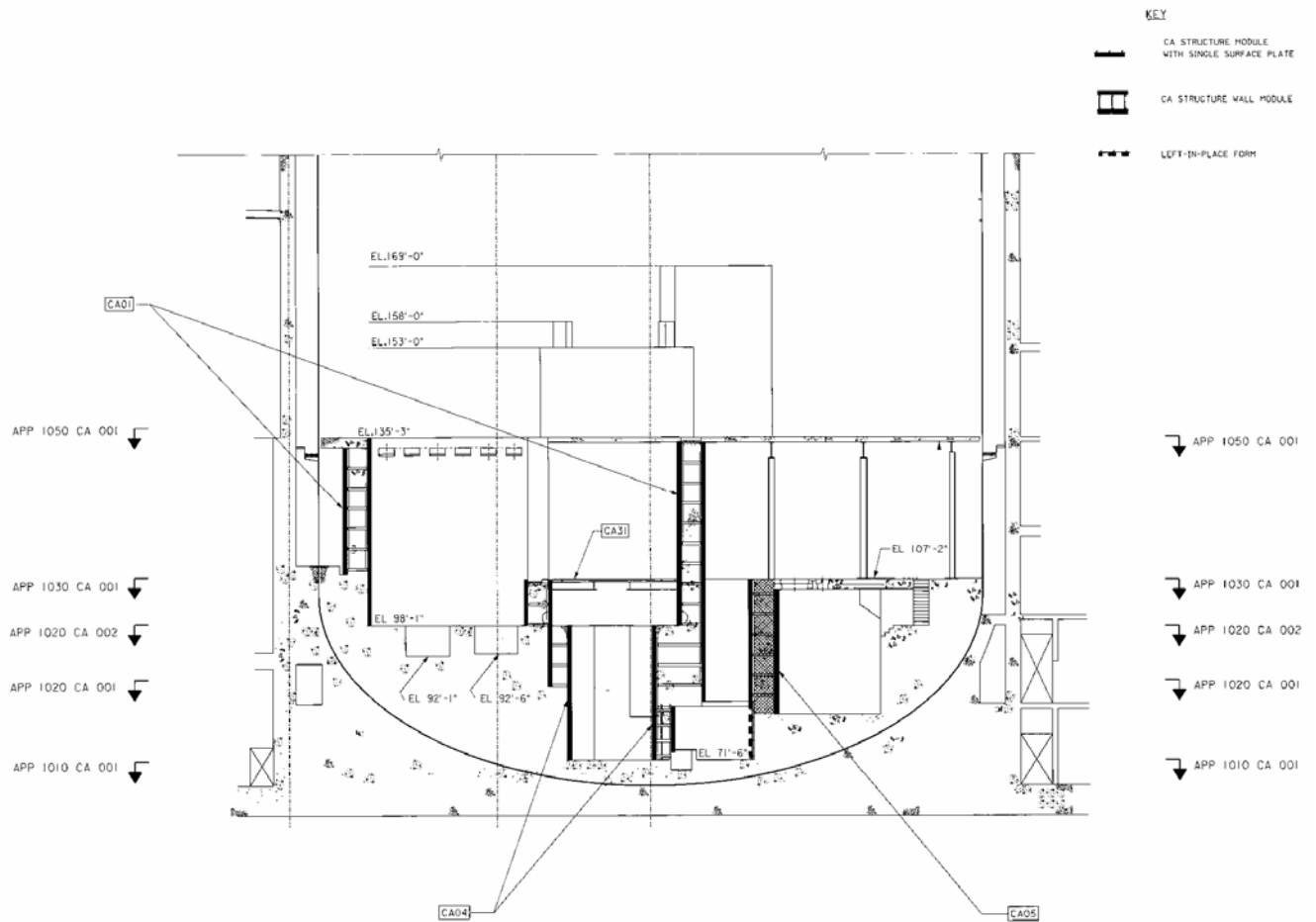


Figure 3.8.3-1 (Sheet 6 of 7)

*[Structural Modules in Containment Internal Structures]**

REVISED FIGURE

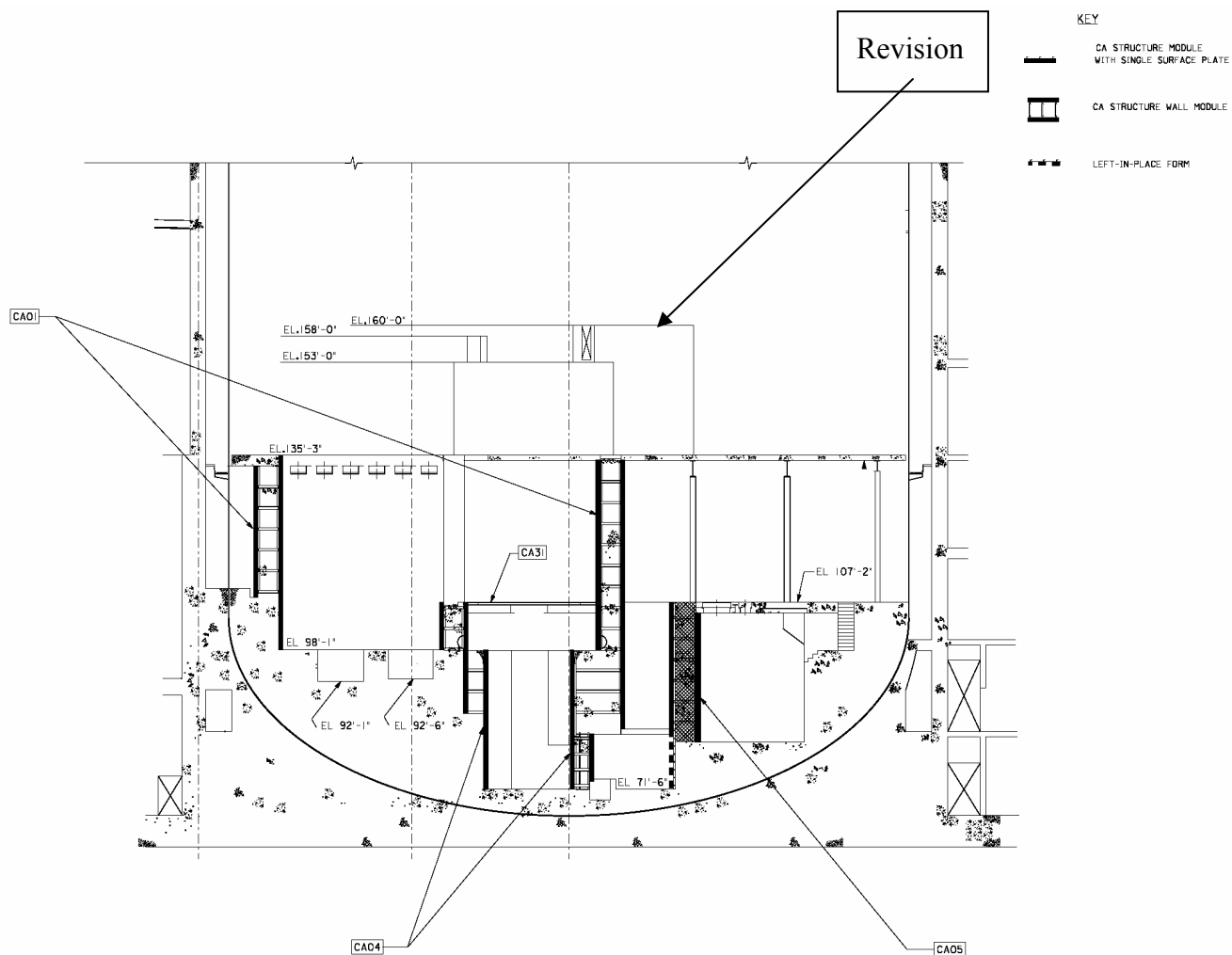


Figure 3.8.3-1 (Sheet 6 of 7)

Structural Modules in Containment Internal Structures

KEY

CA STRUCTURE MODULE WITH SINGLE SURFACE PLATE

CA STRUCTURE WALL MODULE

EL. 169'-0"

EL. 158'-0"

EL. 153'-0"

OPERATING DECK
EL. 135'-3"

CA03

GRADE
EL. 100'-0"

EL. 82'-6"

EL. 60'-6"

EL. 103'-0"

EL. 83'-0"

EL. 80'-0"

EL. 71'-6"

EL. 66'-6"

EL. 101'-2"

EL. 92'-6"

EL. 83'-0"

EL. 80'-0"

CA01

CA04

[Structural Modules in Containment Internal Structures]*

Revision

KEY

CA STRUCTURE MODULE WITH SINGLE SURFACE PLATE

CA STRUCTURE WALL MODULE

EL. 160'-0"

EL. 153'-0"

EL. 158'-0"

EL. 103'-0"

EL. 107'-2"

EL. 92'-6"

EL. 83'-0"

EL. 80'-0"

EL. 71'-6"

EL. 66'-6"

EL. 82'-6"

EL. 100'-0"

EL. 135'-3"

OPERATING DECK

GRADE

CA01

CA03

CA04

CA31

Structural Modules in Containment Internal Structures

CURRENT FIGURE

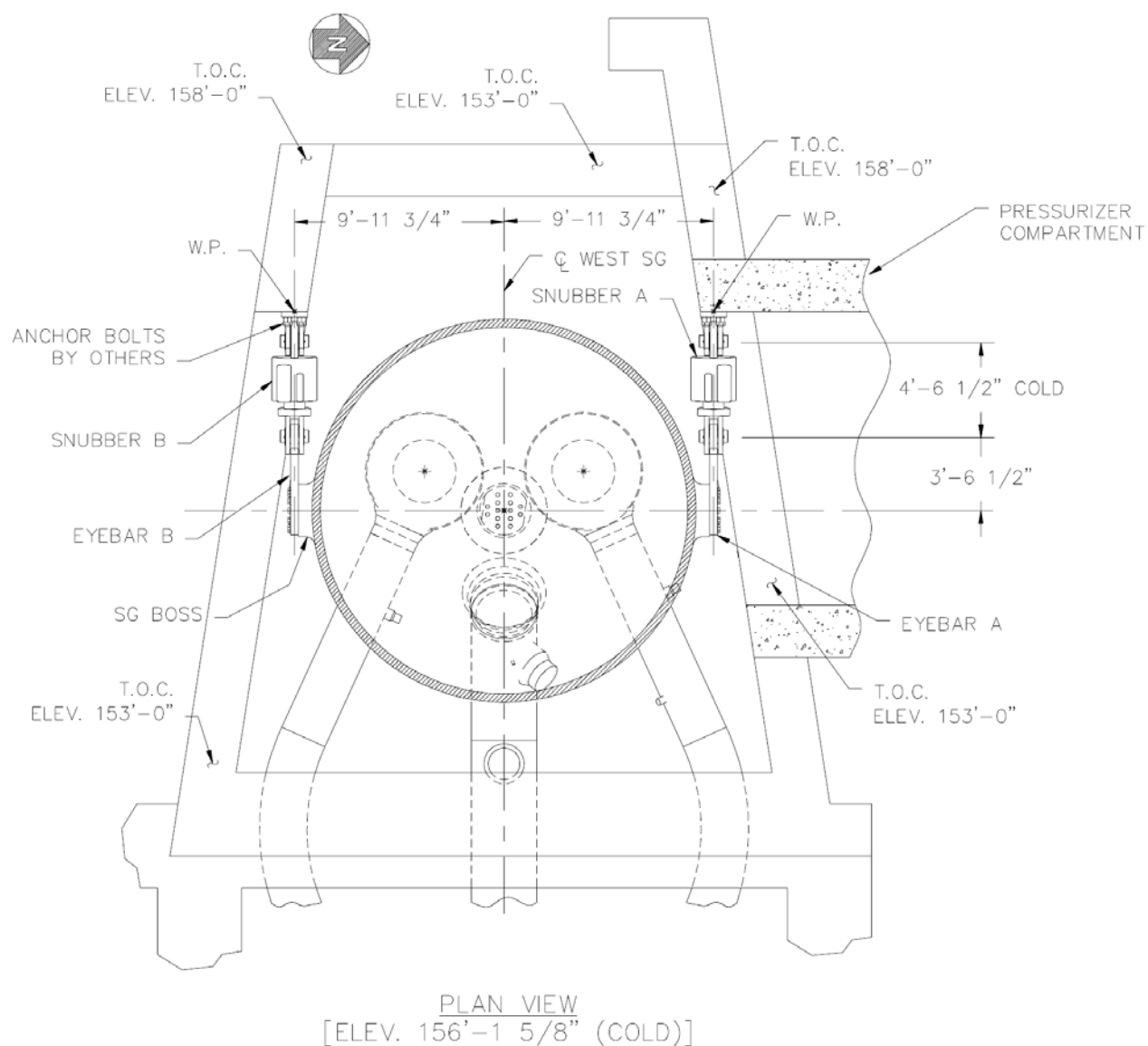
**Upper Lateral Support**

Figure 3.8.3-5 (Sheet 5 of 5)

Steam Generator Supports

REVISED FIGURE

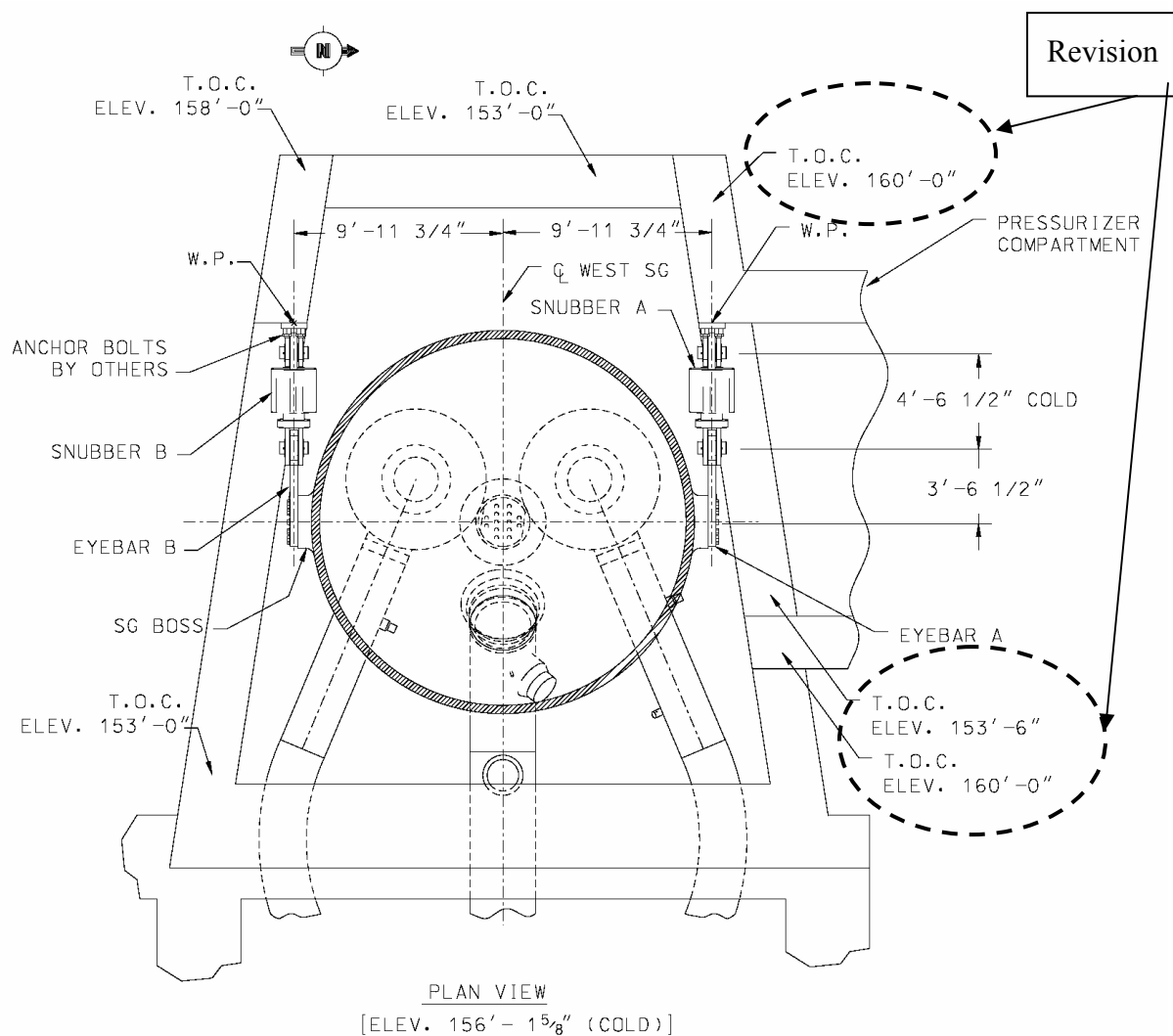


Figure 3.8.3-5 (Sheet 5 of 5)

Steam Generator Supports

CURRENT FIGURE

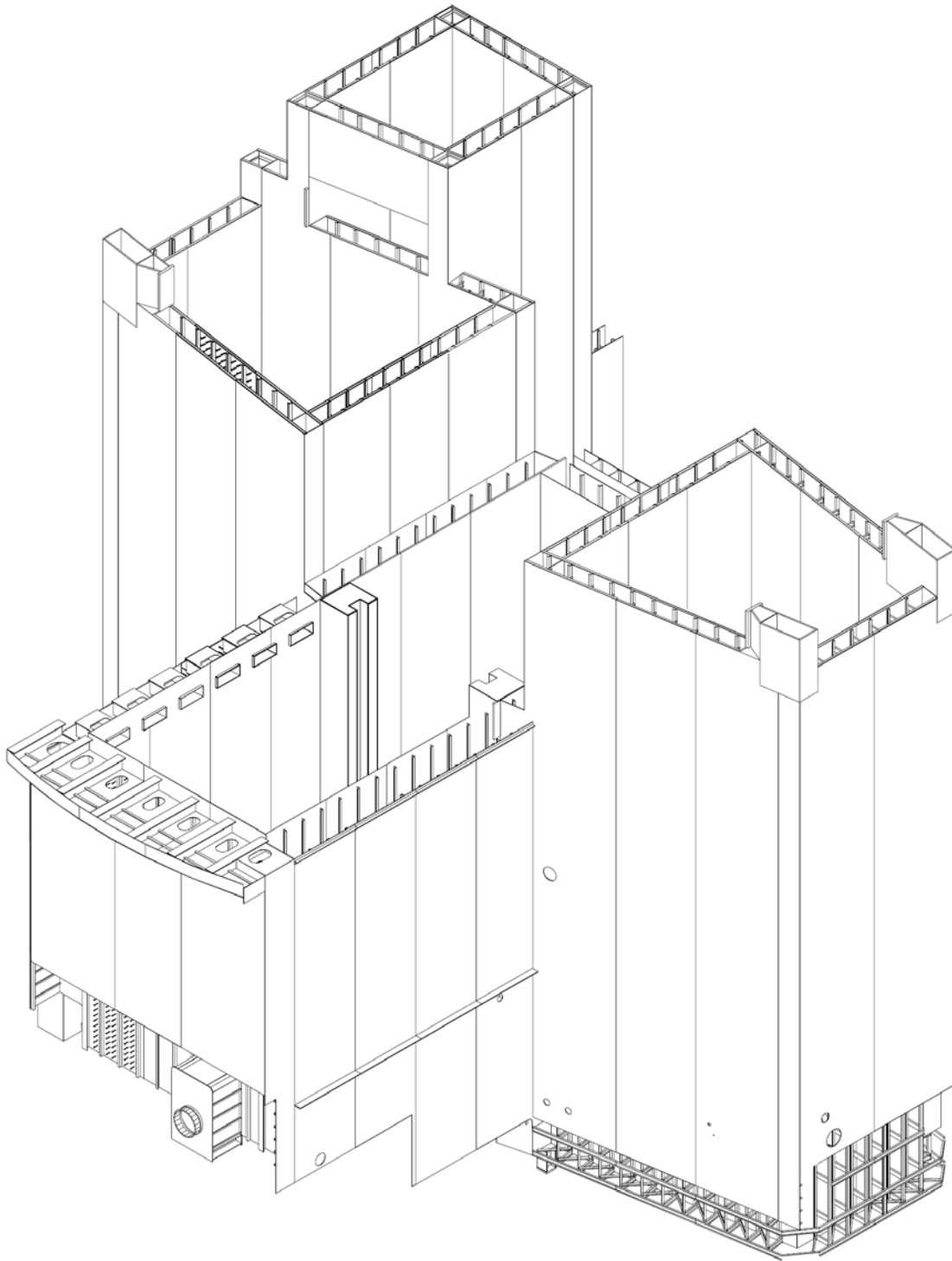


Figure 3.8.3-14 (Sheet 1 of 5)

[CA-01 Module]*

REVISED FIGURE

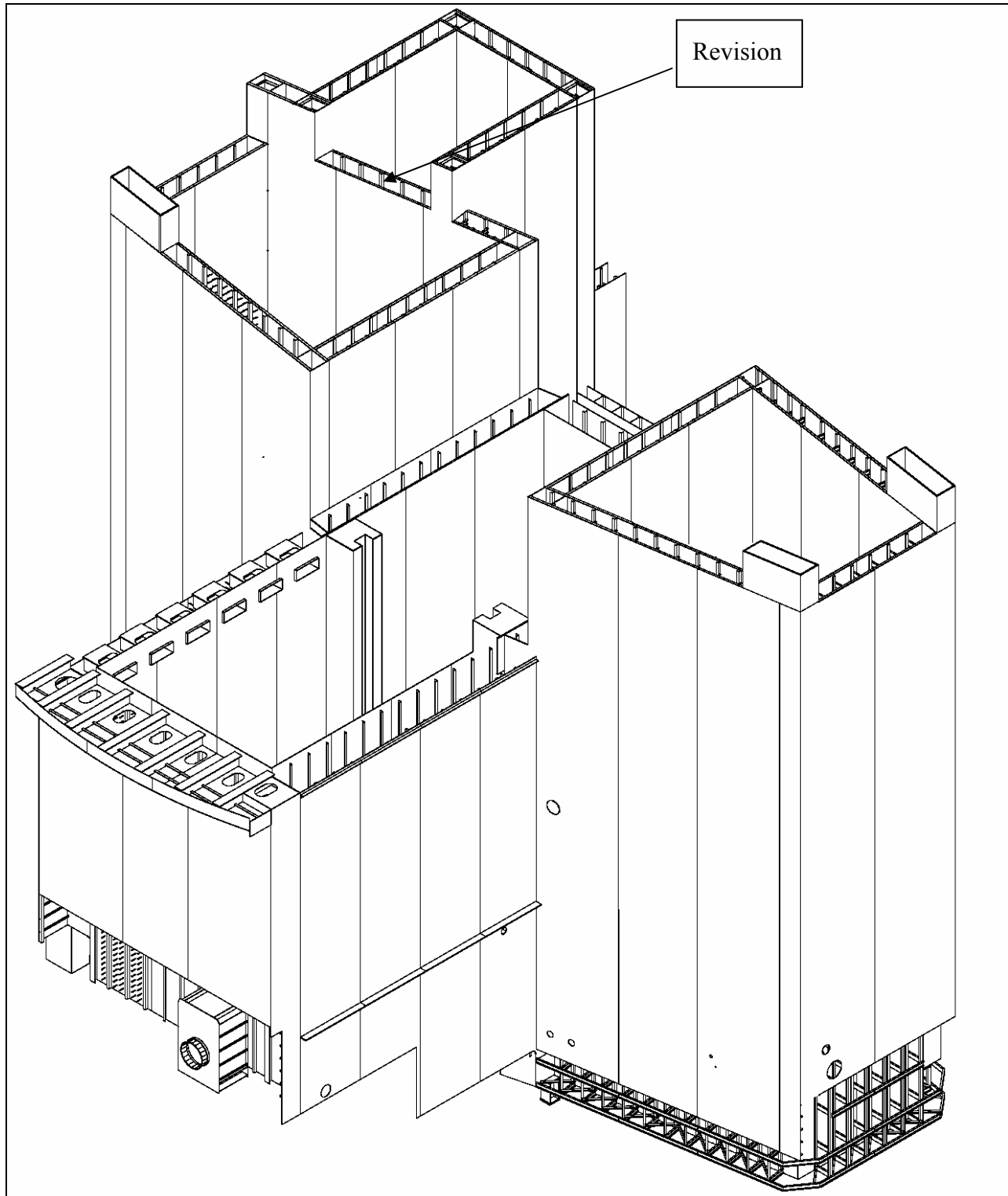


Figure 3.8.3-14 (Sheet 1 of 5)

CA-01 Module

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 6.2.4-5

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 6.2.4-5

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 6.2.4-9

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 6.2.4-9

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 6.2.4-10

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 6.2.4-10

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 6.2.4-11

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 6.2.4-11

CURRENT FIGURE

Withheld under 10 CFR 2.390

Figure 6.2.4-13

REVISED FIGURE

Withheld under 10 CFR 2.390

Figure 6.2.4-13