Progress Energy

10 CFR 50.55a(a)(3)(ii)

JUL 1 8 2006

SERIAL: BSEP 06-0074

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

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Docket Nos. 50-325 and 50-324/License Nos. DPR-71 and DPR-62
Relief Request RR-38, Pressure Testing of Drain, Vent, Test, and Fill Lines within the Reactor Coolant Pressure Boundary

Ladies and Gentlemen:

In accordance with 10 CFR 50.55a(a)(3)(ii), Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc., requests NRC approval of a relief request for the third 10-year interval Inservice Inspection Program for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2. The relief request proposes an alternative examination to perform the Class 1 system leakage test with the first reactor coolant pressure boundary drain, vent, test, and fill line isolation valves in the closed position.

The details of Relief Request RR-38 are enclosed. Approval of Relief Request RR-38 is requested by February 1, 2007, to support preparation activities for the Unit 2 refueling outage currently scheduled to begin March 10, 2007.

No regulatory commitments are contained in this letter. Please refer any questions regarding this submittal to Mr. Leonard R. Beller, Supervisor - Licensing/Regulatory Programs, at (910) 457-2073.

Sincerely,

Randy C. Ivey

Randy C. Ivey
Manager - Support Services
Brunswick Steam Electric Plant

Progress Energy Carolinas, Inc.
Brunswick Nuclear Plant
P.O. Box 10429
Southport, NC 28461

A047

WRM/wrm

Enclosure: 10 CFR 50.55a Relief Request Number RR-38

cc (with enclosure):

U. S. Nuclear Regulatory Commission, Region II
ATTN: Dr. William D. Travers, Regional Administrator
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW, Suite 23T85
Atlanta, GA 30303-8931

U. S. Nuclear Regulatory Commission
ATTN: Mr. Eugene M. DiPaolo, NRC Senior Resident Inspector
8470 River Road
Southport, NC 28461-8869

U. S. Nuclear Regulatory Commission **(Electronic Copy Only)**
ATTN: Ms. Brenda L. Mozafari (Mail Stop OWFN 8G9)
11555 Rockville Pike
Rockville, MD 20852-2738

Ms. Jo A. Sanford
Chair - North Carolina Utilities Commission
P.O. Box 29510
Raleigh, NC 27626-0510

Mr. Jack Given, Bureau Chief
North Carolina Department of Labor
Boiler Safety Bureau
1101 Mail Service Center
Raleigh, NC 27699-1101

10 CFR 50.55a Relief Request Number RR-38

Proposed Alternative In Accordance with 10 CFR 50.55a(a)(3)(ii)

- Hardship or Unusual Difficulty Without
Compensating Increase in Level of Quality and Safety -

1. **ASME Code Components Affected**

   Code Class: Class 1

   Category: B-P

   System: Reactor Coolant Pressure Boundary (RCPB)

   Affected Components: See Attachment 1 for a listing of the first isolation valves

2. **Applicable Code Edition and Addenda**

   The Code of Record for the third 10-year inservice inspection interval at the Brunswick Steam Electric Plant (BSEP), Units 1 and 2, is the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 1989 Edition, with no addenda.

   The third 10-year inservice inspection interval began May 11, 1998, and will conclude on May 10, 2008.

   During the third 10-year inservice inspection interval, the alternative requirements of ASME Code Case N-498-4 are being implemented.

3. **Applicable Code Requirement**

   The ASME Code, Section XI, Table IWB-2500-1, Examination Category B-P, Note 2, requires the pressure retaining boundary during the system hydrostatic test include all Class 1 components within the system boundary.

   The alternative requirements of ASME Code Case N-498-4 requires that the boundary subject to test pressurization during the system leakage test extend to all Class 1 pressure retaining components within the system boundary.

4. **Reason for Request**

   The drain, vent, test, and fill lines within the RCPB are typical one-inch nominal pipe size or less. These connections include two manual isolation valves whose purpose is to satisfy the design requirement for double isolation of the RCPB. During normal operation, these manual isolation valves are maintained in the closed or locked-closed position. Thus, components downstream of the first isolation valve are not subjected to reactor coolant system pressure unless leakage through the inboard valves occurs.

As stated above, Code requirements would require test pressurization to extend to all Class 1 pressure retaining components within the system boundary. To comply with this requirement, CP&L would be required to the open the first isolation valve. Having the first isolation valve open during the pressure test would defeat the design requirement for double isolation of the RCPB. As such, this non-standard configuration would increase the risk for inventory loss. Because of the potential for inventory loss, this configuration also creates safety concerns for the personnel performing the visual examination.

In addition, opening the first manual isolation valve will create a hardship in regards to personnel exposure and contamination. Opening these valves will require personnel to enter radiation fields to position the valves for the test, restore the valves following the test, and to perform the required independent valve position verification. Since these valves are typically located in close proximity to the main RCPB piping, CP&L estimates the dose associated with this effort, for each pressure test, as approximately 1.058 Rem for Unit 1 and 1.308 Rem for Unit 2. Because of the location of these valves, the risk for personnel contamination increases.

Based on CP&L's evaluation of this Code requirement, opening the first isolation valve to allow pressurization of the downstream components will not increase the level of quality or safety at the plant. As such, CP&L has concluded that placing the plant and personnel at risk is unwarranted. For this reason, CP&L is requesting relief from the requirement of the ASME Code, Section XI, Table IWB-2500-1, Examination Category B-P, Note 2, and ASME Code Case N-498-4(a)(5).

5. **Proposed Alternative and Basis for Use**

Proposed Alternative

The VT-2 visual examination of the components downstream of the isolation valves listed in Attachment 1 will extend to and include the second closed valve at the boundary extremity. This visual examination will be performed with the isolation valves in their normal, closed operating position.

Basis for Use

Because of the potential safety concerns and hardships, CP&L has concluded that the proposed alternative provides an acceptable level of safety and quality based on the following reasons:

1. The piping, fittings, and valves within these lines were designed and constructed to the highest standards. The components were designed for pressures and temperatures greater than they experience during normal operation. They were constructed to standards commensurate to the requirements of the ASME Code, Section III for Class 1 components. Because of these high standards, there is reasonable assurance that leakage integrity will be maintained during normal operation.

2. The proposed alternative is a proven method for assuring leakage integrity. This alternative is the same requirement that is used during the Code required system leakage test that is performed every refueling outage.

3. Only the isolable portion of these connections will not be pressurized during the test. Since these lines are in the same configuration during normal operation, approving this alternative poses no new safety concerns. As outlined in the alternative requirement, the VT-2 visual examination will extend to and include the second closed valve at the boundary extremity.

4. Not pressurizing component connections, piping, and valves that are one-inch nominal pipe size and smaller during a pressure test is an acceptable practice per the ASME Code, Section XI. After repairs by welding on the pressure-retaining boundary, a system hydrostatic test is exempt for these small diameter components per paragraph IWA-4700(a).

In summary, CP&L has concluded that extending the system pressure to the components downstream of the first normally closed isolation valve is a hardship and poses safety concerns for the plant and personnel. The components affected by this relief request were designed and constructed to the highest standards available. The test configuration of these components is the same as they experience during normal operations and Code required system leakage test. In addition, extending the test pressure to these components once per ten years is unjustifiable considering these same components would be exempt from pressure testing if repaired or replaced. For these reasons, approving the use of the proposed alternative will provide an acceptable level of safety and quality.

6. Duration of Proposed Alternative

Use of the alternative is proposed for the remainder of the current 10-year inservice inspection interval.

7. Precedents

This proposed alternative is similar, but not identical, to a relief request submitted by the Hatch Nuclear Plant in a letter dated March 30, 2005 (i.e., ADAMS Accession Number ML050940201), as approved by NRC letter dated November 9, 2005 (i.e., ADAMS Accession Number ML052970008).

8. References

1. Title 10 of the Code of Federal Regulations, Part 50, Section 55a, Codes and Standards (i.e., 10 CFR 50.55a).

2. ASME Code, Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components, 1989 Edition (no Addenda).

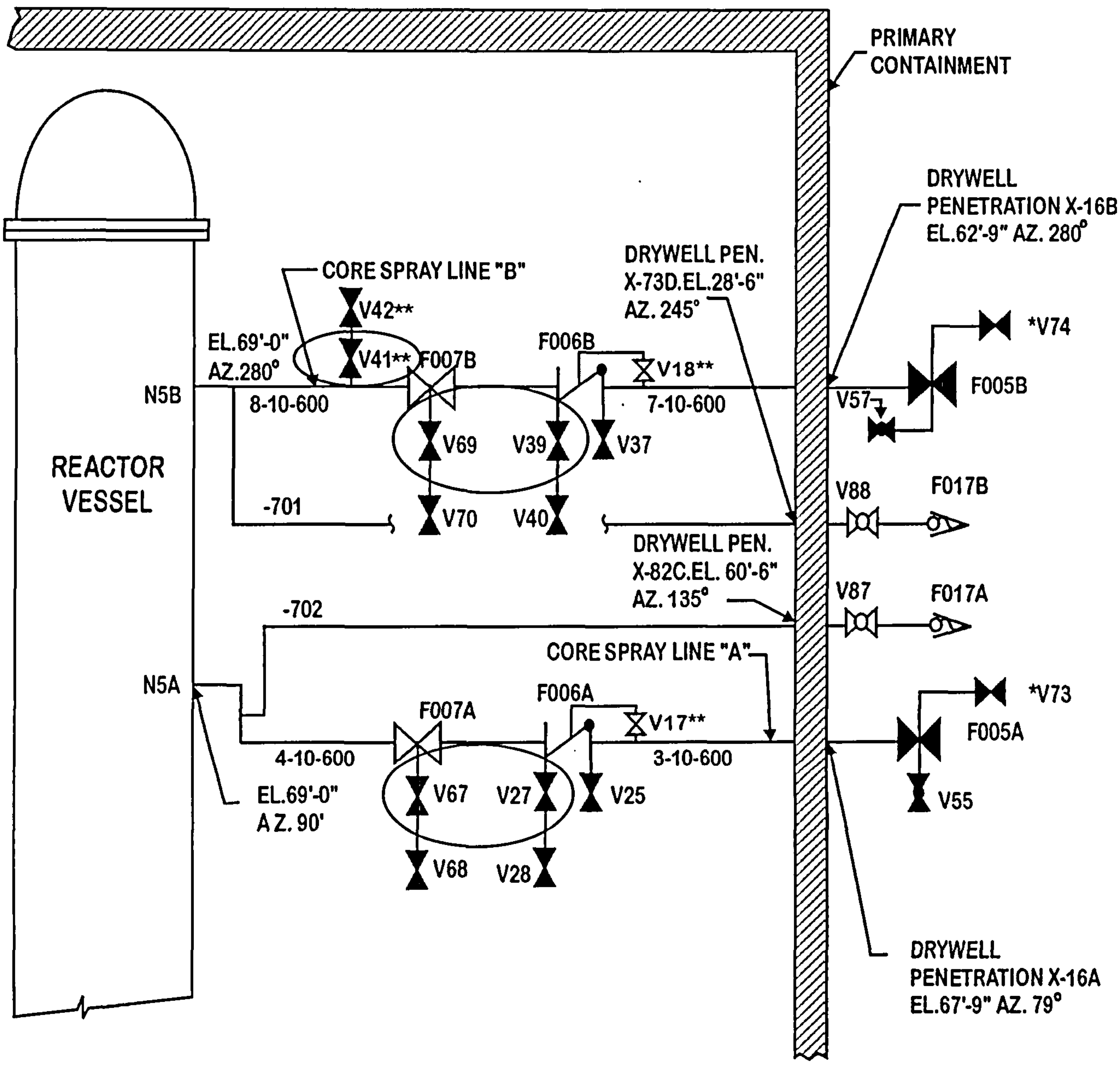
3. ASME Code Case N-498-4, Alternative Requirements for 10-Year System Hydrostatic Testing of Class 1, 2, and 3 System.

Attachment 1			
First Isolation Valve	Description	Normal Position	General Location Drawing
B21-F001	RX Inboard High Point Vent Valve	Locked Closed	Figure 14
B21-V18	B21-F011A Inboard Body Drain Valve	Closed	Figure 2
B21-V20	B21-F010A Inboard Body Drain Valve	Closed	Figure 2
B21-V23	B21-F011B Inboard Body Drain Valve	Closed	Figure 3
B21-V25	B21-F010B Inboard Body Drain Valve	Closed	Figure 3
B21-V160	Test valve for Excess Flow Check Valve B21-IV-2456(Pen. X-49A-A)	Closed	Figure 9
B21-V161	Test valve for Excess Flow Check Valve B21-IV-2455(Pen. X-49B-A)	Locked Closed	Figure 10
B21-V167	B21-F016 Test Inboard Isolation Valve	Locked Closed	Figure 5
B32-F025A	B32-F023A Vent Root Valve	Closed	Figure 7
B32-F025B	B32-F023B Vent Root Valve	Closed	Figure 8
B32-F027A	B32-F023A Inboard Drain Valve	Closed	Figure 7
B32-F027B	B32-F023B Inboard Drain Valve	Closed	Figure 8
B32-F029	Reactor Pressure Vessel Drain Inboard Valve	Closed	Figure 15
B32-F034A	B32-F031A Inboard Vent Valve	Closed	Figure 7
B32-F034B	B32-F031B Inboard Vent Valve	Closed	Figure 8
B32-F036A	B32-F031A Inboard Body Drain Valve	Closed	Figure 7
B32-F036B	B32-F031B Inboard Body Drain Valve	Closed	Figure 8
B32-F046A	B32-F043A Inboard Root Valve	Closed	Figure 7
B32-F046B	B32-F043B Inboard Root Valve	Closed	Figure 8
B32-F048A	B32-F043A Inboard Body Drain Valve	Closed	Figure 7

Attachment 1			
First Isolation Valve	**Description**	**Normal Position**	**General Location Drawing**
B32-F048B	B32-F043B Inboard Body Drain Valve	Closed	Figure 8
B32-V36	B32-F032A Vent Root Valve	Closed	Figure 7
B32-V38	B32-F032B Vent Root Valve	Closed	Figure 8
B32-F051A	Reactor Recirculation Loop A Inboard Drain (HW)	Closed	Figure 7
B32-F051B	Reactor Recirculation Loop B Inboard Drain (HW)	Closed	Figure 8
C41-V8	C41-F007 Inboard Test Isolation Valve	Locked Closed	Figure 16
1-E11-V112	E11-F060A Inboard Body Drain Valve	Closed	Figure 11
E11-V117	E11-F050A Inboard Body Drain Valve	Closed	Figure 11
E11-V130	E11-F050B Inboard Body Drain Valve	Closed	Figure 12
1-E11-V132	E11-F060B Inboard Body Drain Valve	Closed	Figure 12
E11-V82	E11-F015A Inboard Body Drain Valve	Locked Closed	Figure 11
E11-V169	E11-F015B Inboard Body Drain Valve	Locked Closed	Figure 12
E11-V5000	E11-F009 Inboard LLRT Test Connection	Locked Closed	Figure 13
E21-V27	E21-F006A Downstream Inboard Body Drain Valve	Closed	Figure 1
E21-V39	E21-F006B Downstream Inboard Body Drain Valve	Closed	Figure 1
2-E21-V41	Core Spray Div II Inboard Vent Valve	Closed	Figure 1
E21-V67	E21-F007A Inboard Body Drain Valve	Closed	Figure 1
E21-V69	E21-F007B Inboard Body Drain Valve	Closed	Figure 1

Attachment 1			
First Isolation Valve	**Description**	**Normal Position**	**General Location Drawing**
E41-V174	E41-F002 Inboard ISI Test Valve	Locked Closed	Figure 4
E51-V101	E51-F007 Inboard ISI Test Valve	Locked Closed	Figure 6
G31-F002	RWCU Inlet Line Test Valve	Locked Closed	Figure 15

Figure 1 - Core Spray (CS) A and B Loops



* Unit 1 only
** Unit 2 only

Figure 2 - Feedwater A Loop

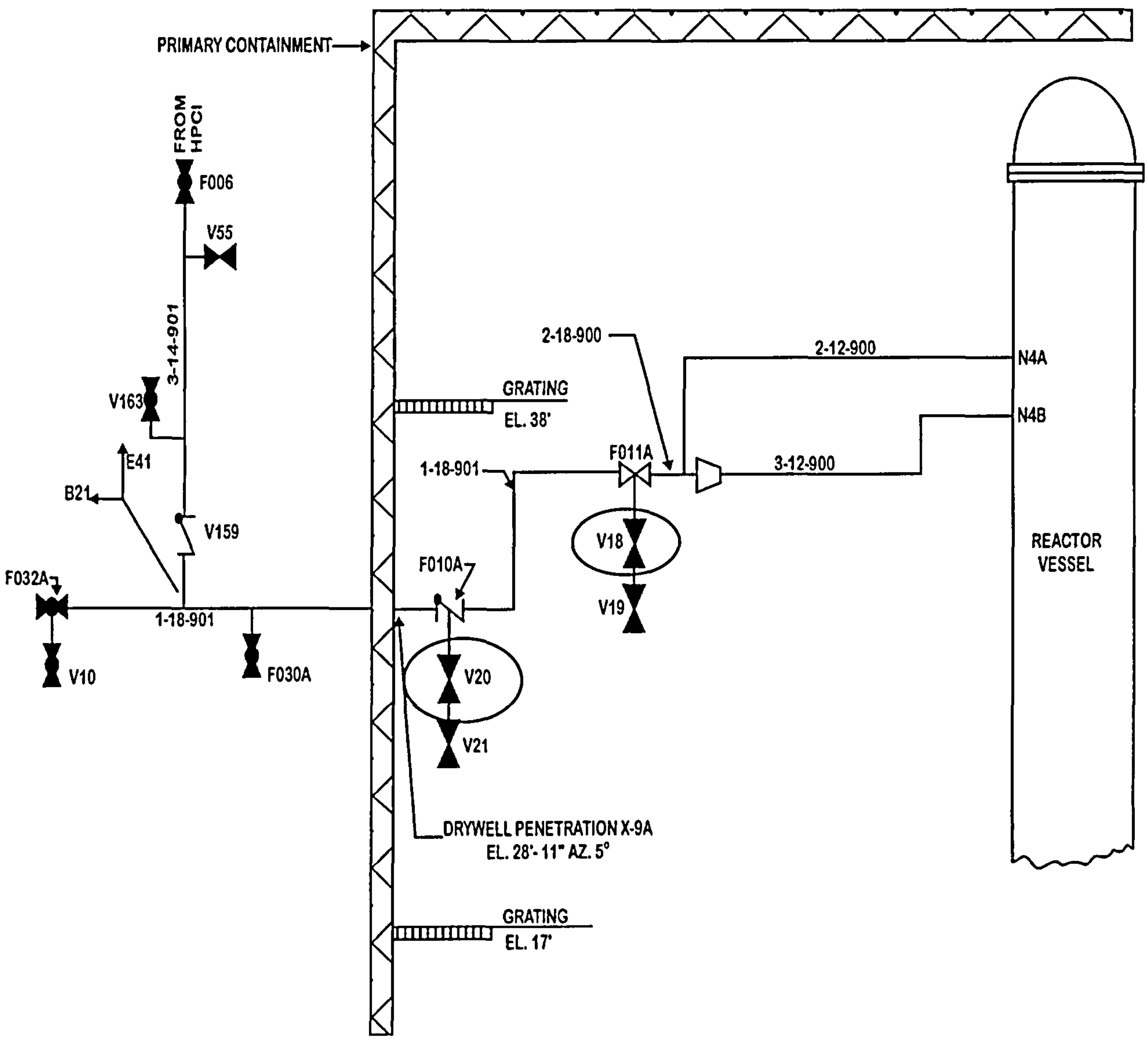


Figure 3 - Feedwater B Loop

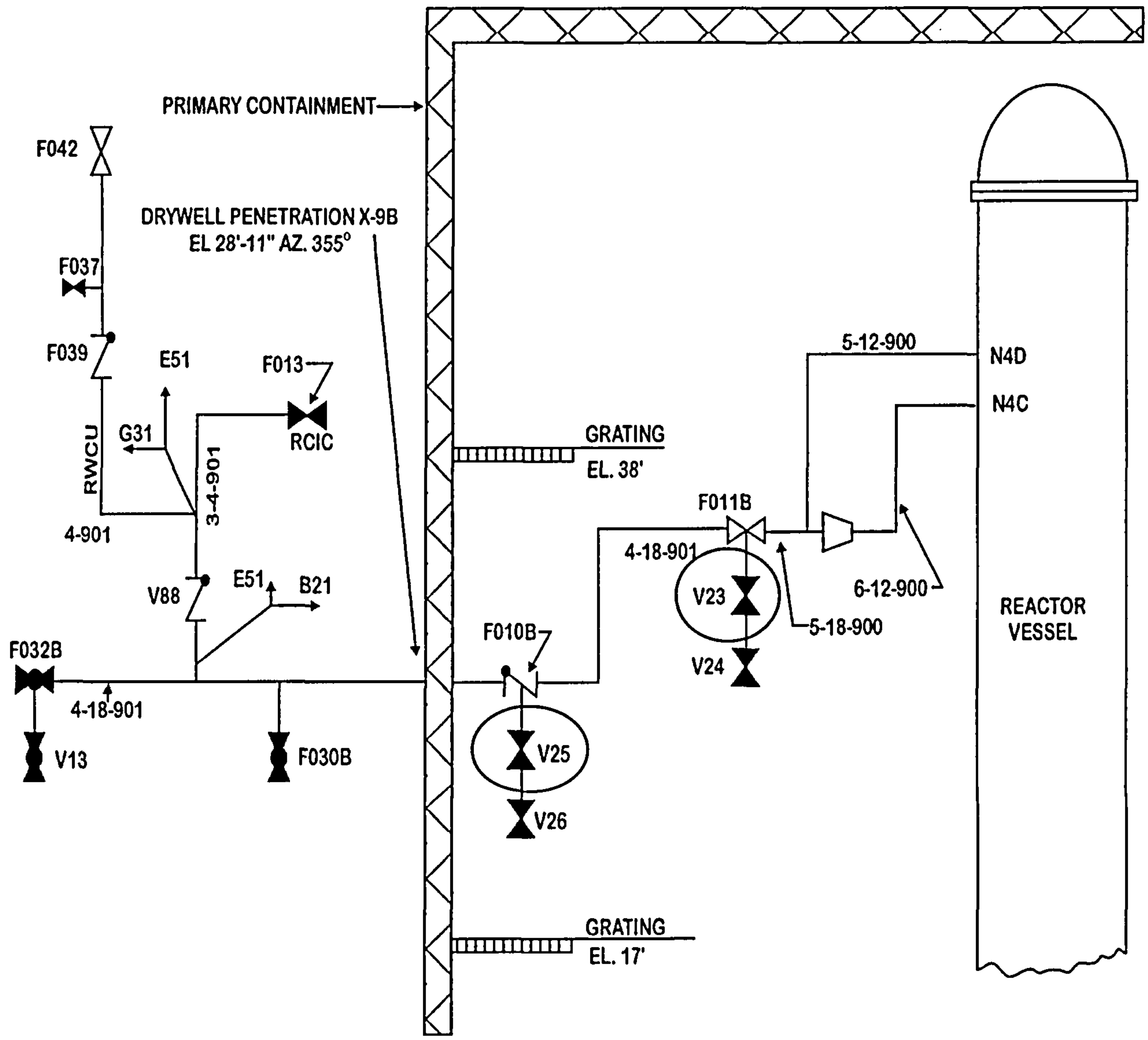


Figure 4 – High Pressure Coolant Injection (HPCI) Steam Line

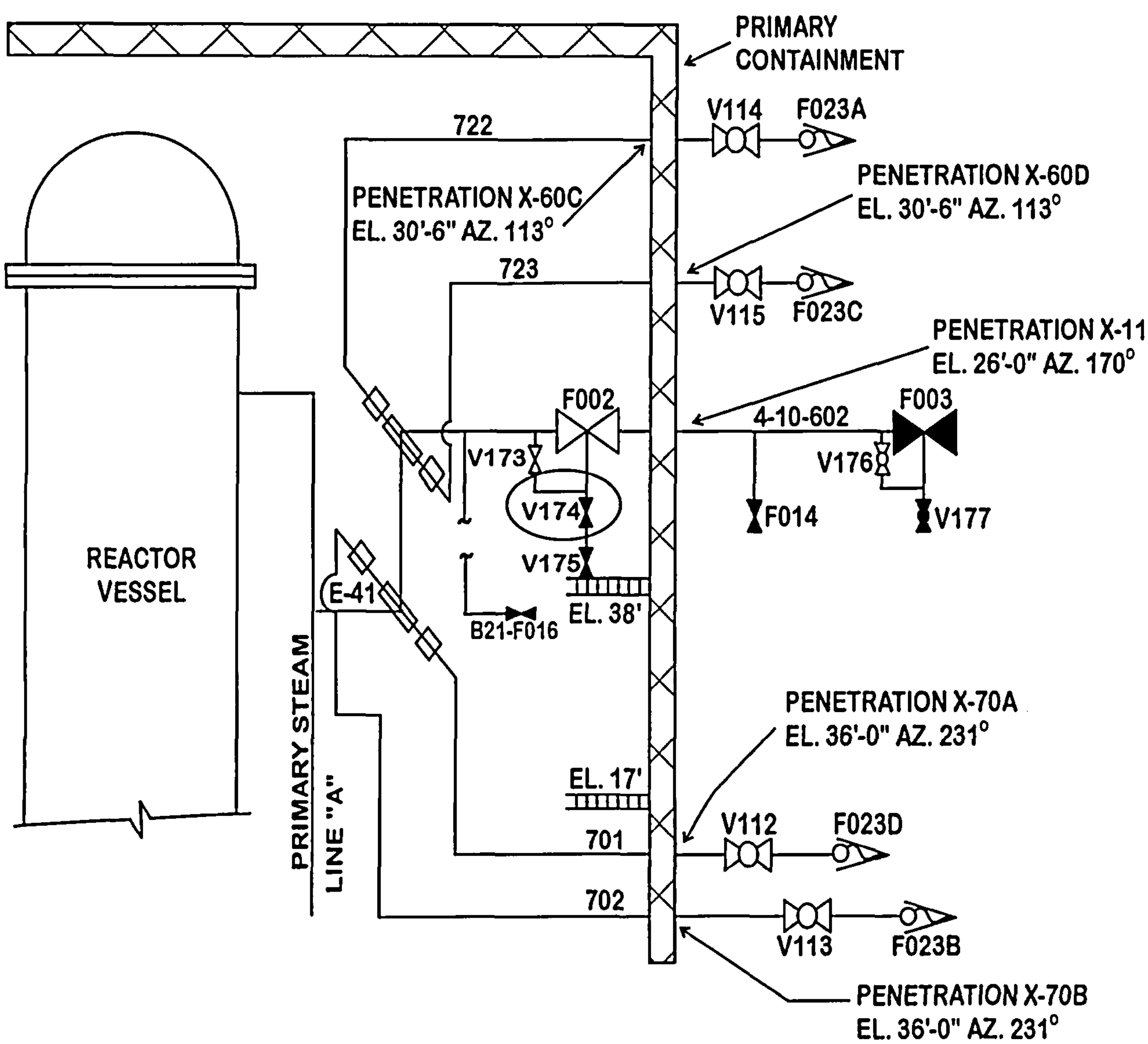


Figure 5 - Primary Steam A Line

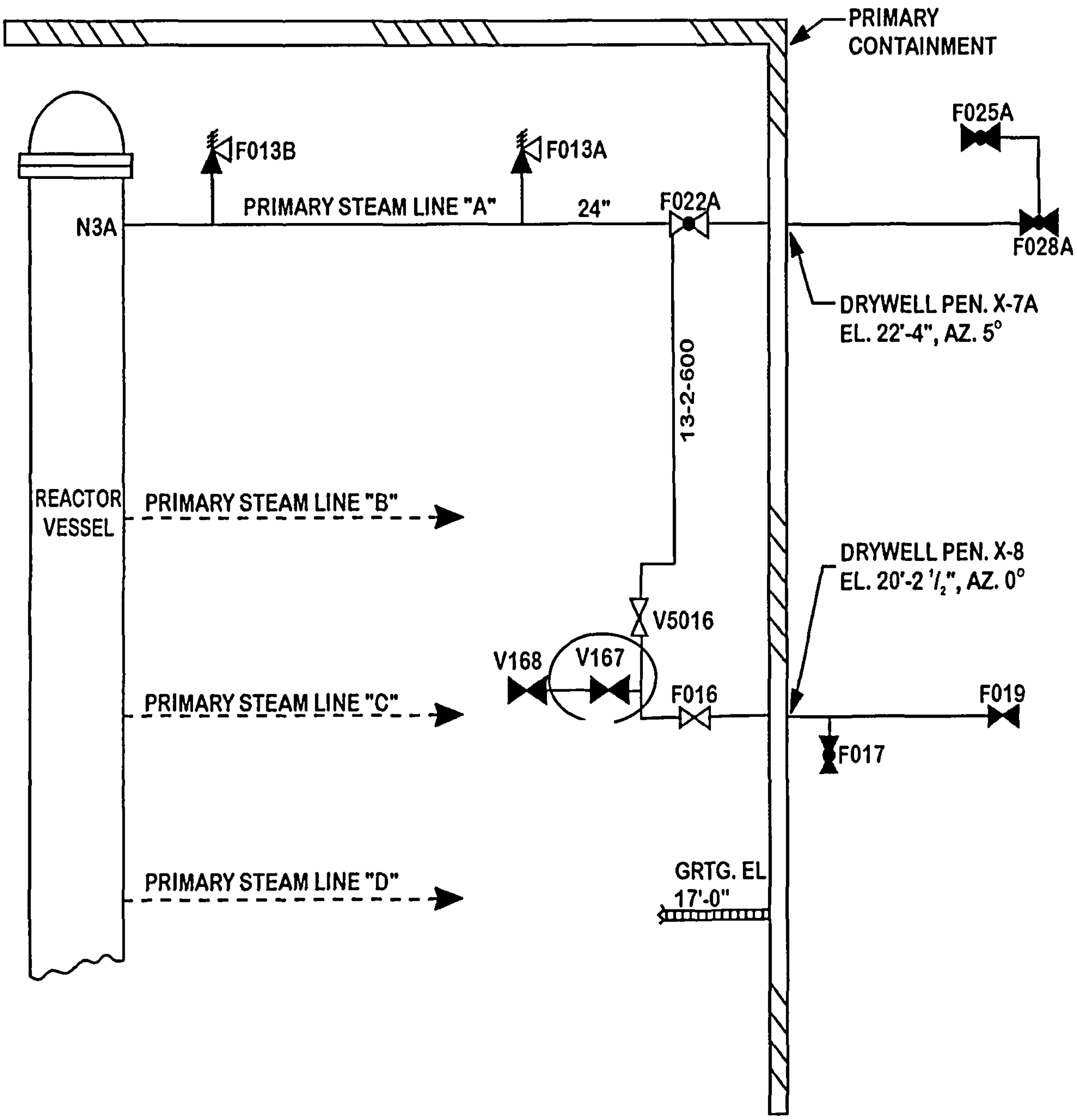


Figure 6 – Reactor Core Isolation Cooling (RCIC) Steam Line

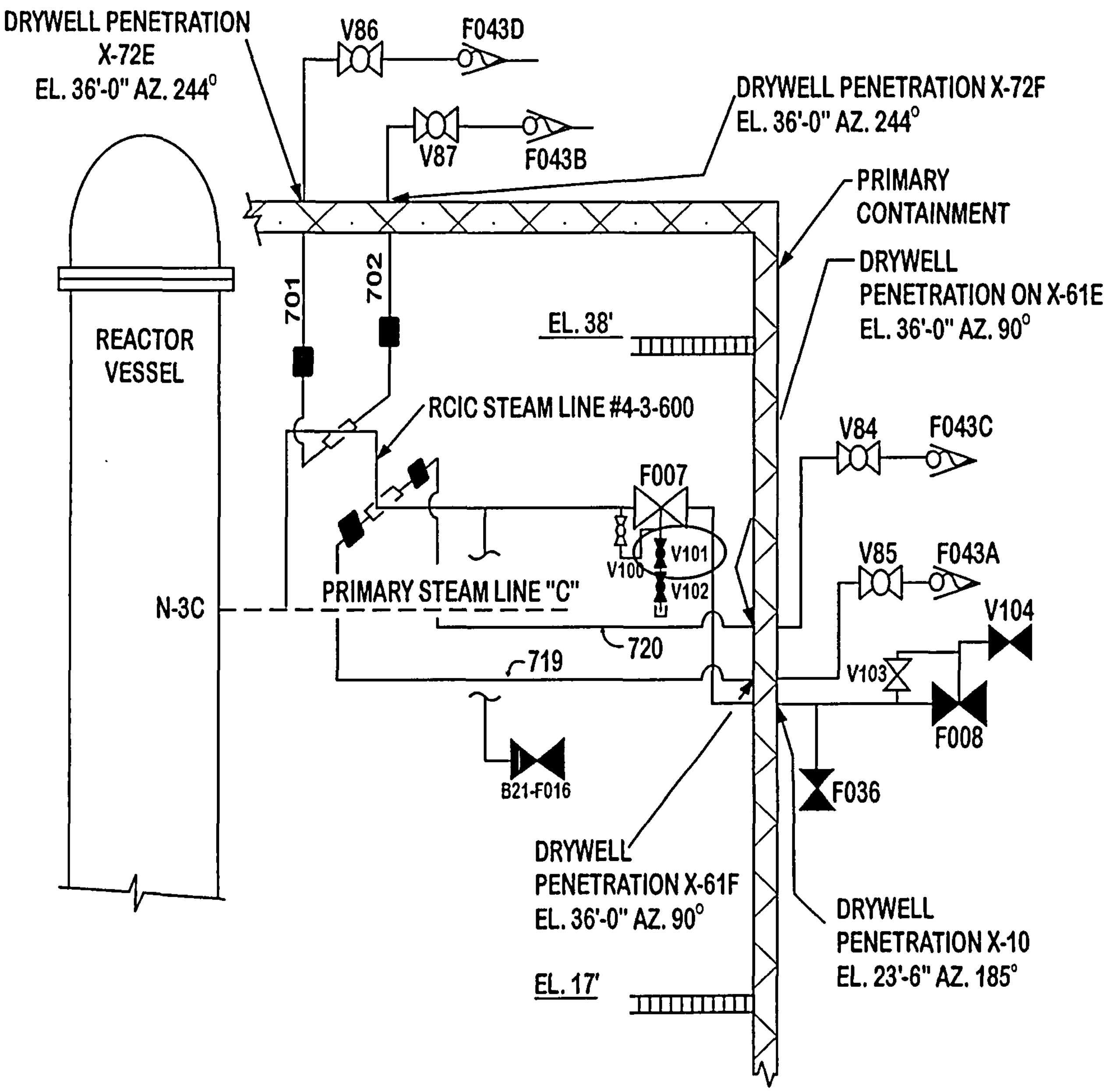


Figure 7 – Reactor Recirculation A Loop

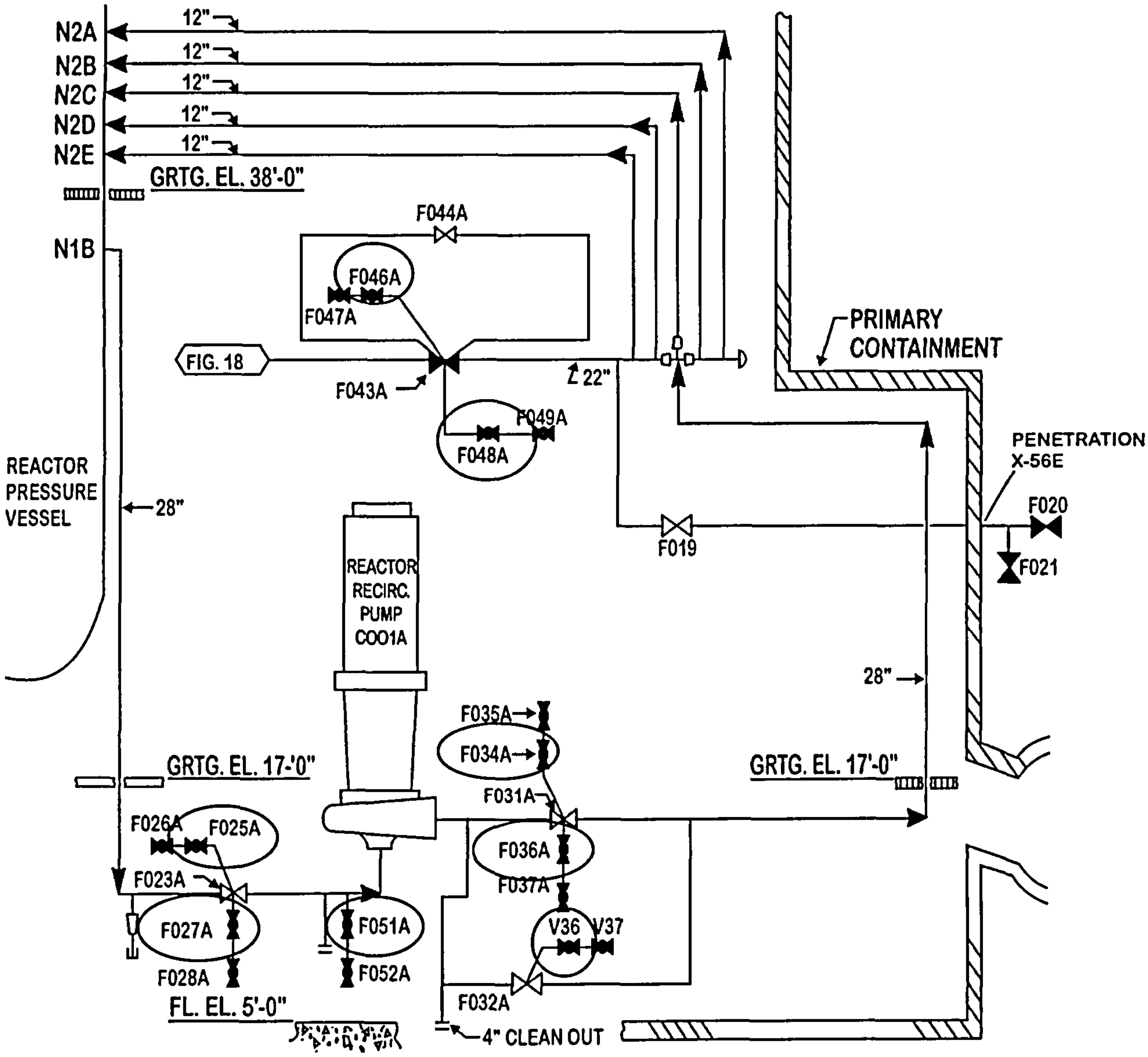
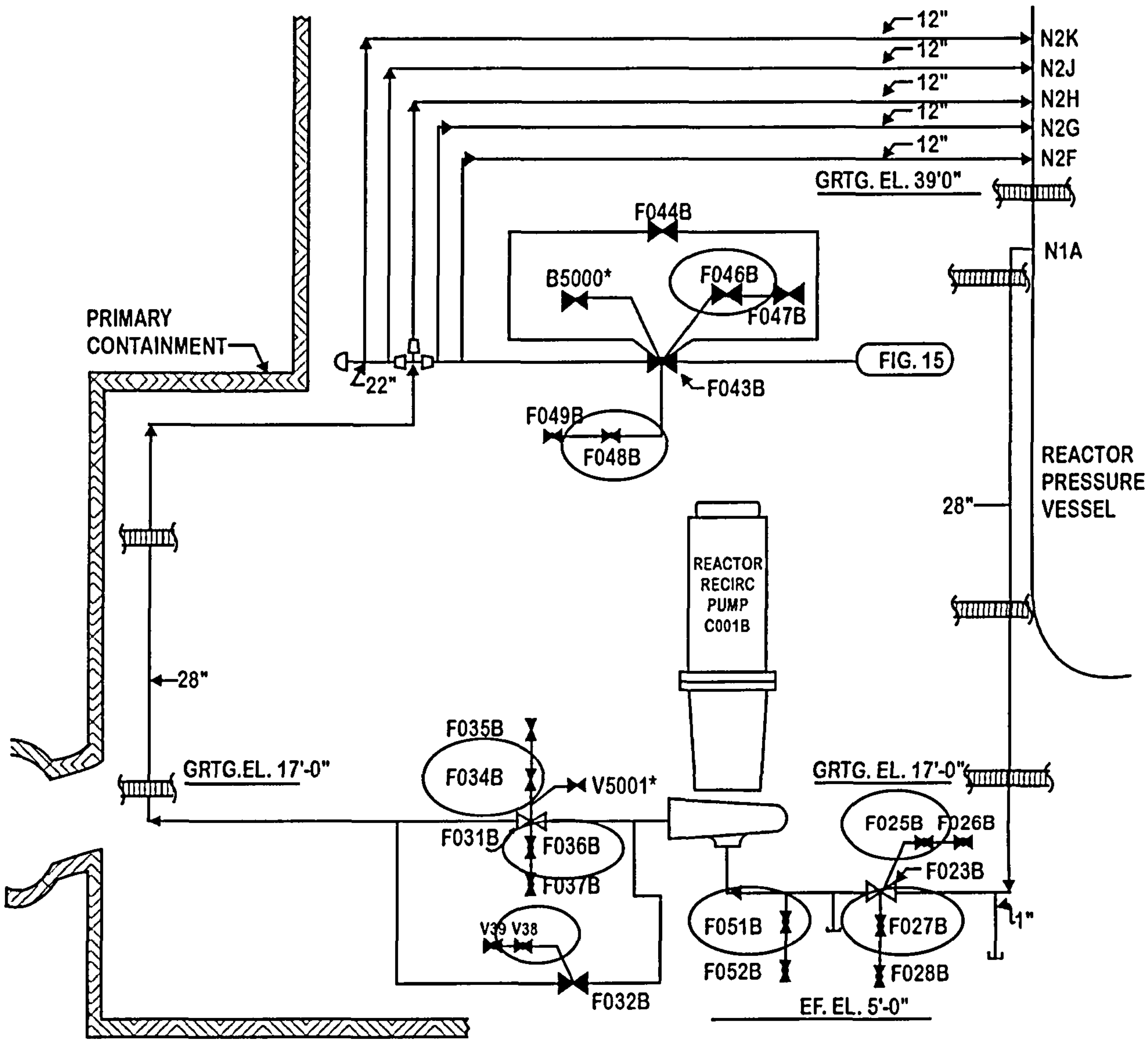


Figure 8 – Reactor Recirculation B Loop



*Unit Two Only

Figure 9 – Nuclear Steam Supply Instrumentation

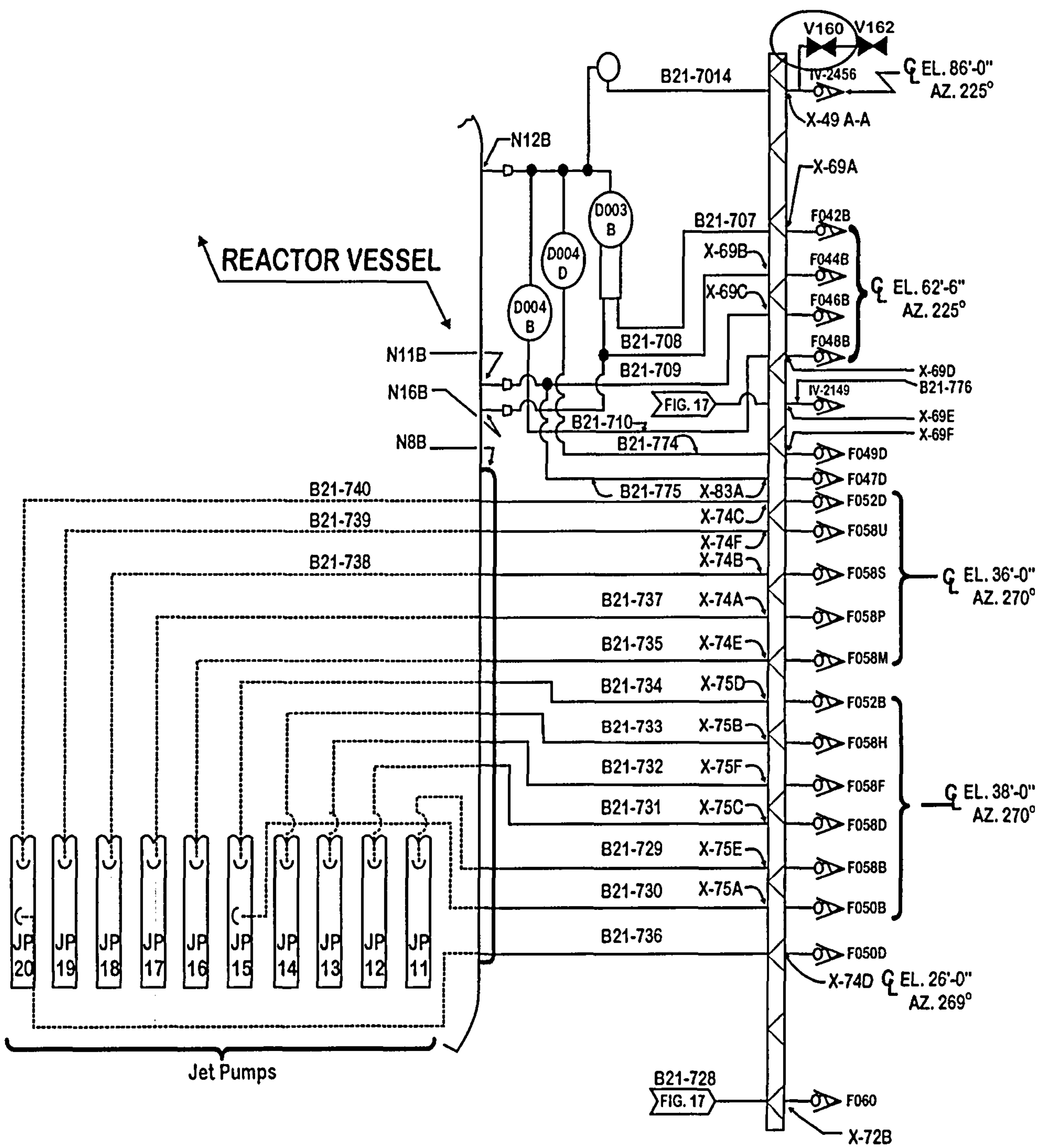


Figure 10 - Nuclear Steam Supply Instrumentation

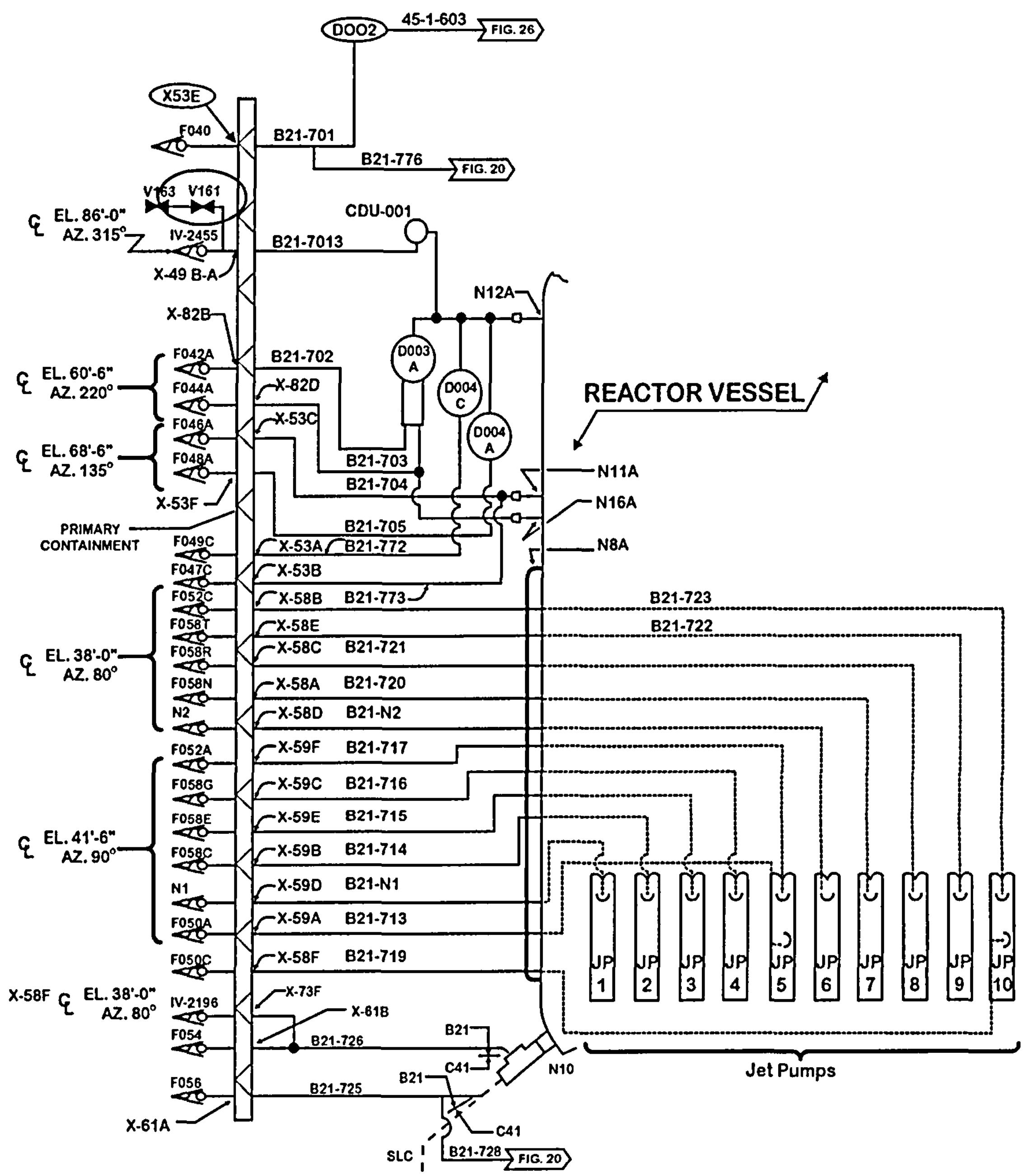


Figure 11 – Residual Heat Removal (RHR) A Loop

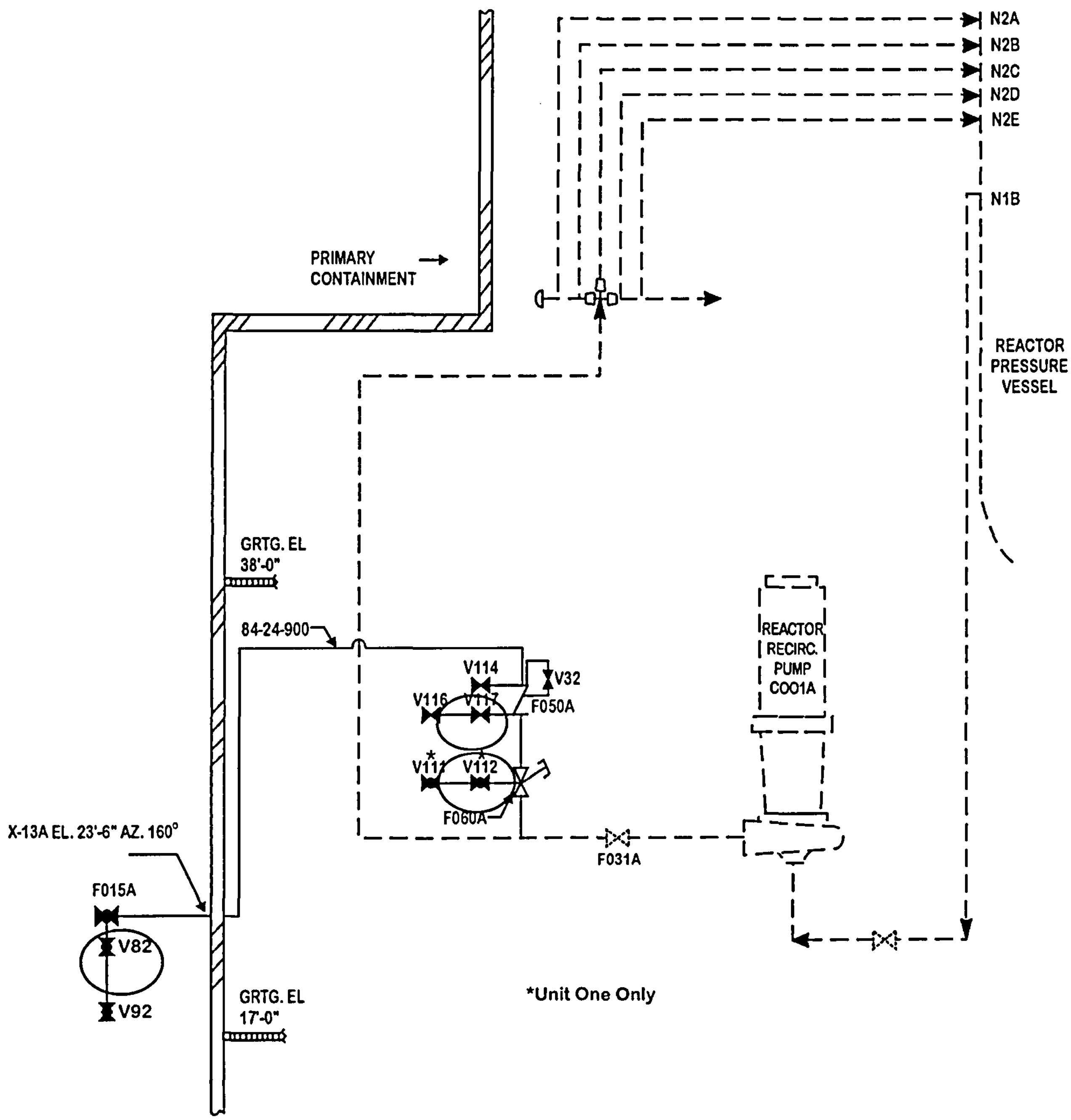


Figure 12 - Residual Heat Removal (RHR) B Loop

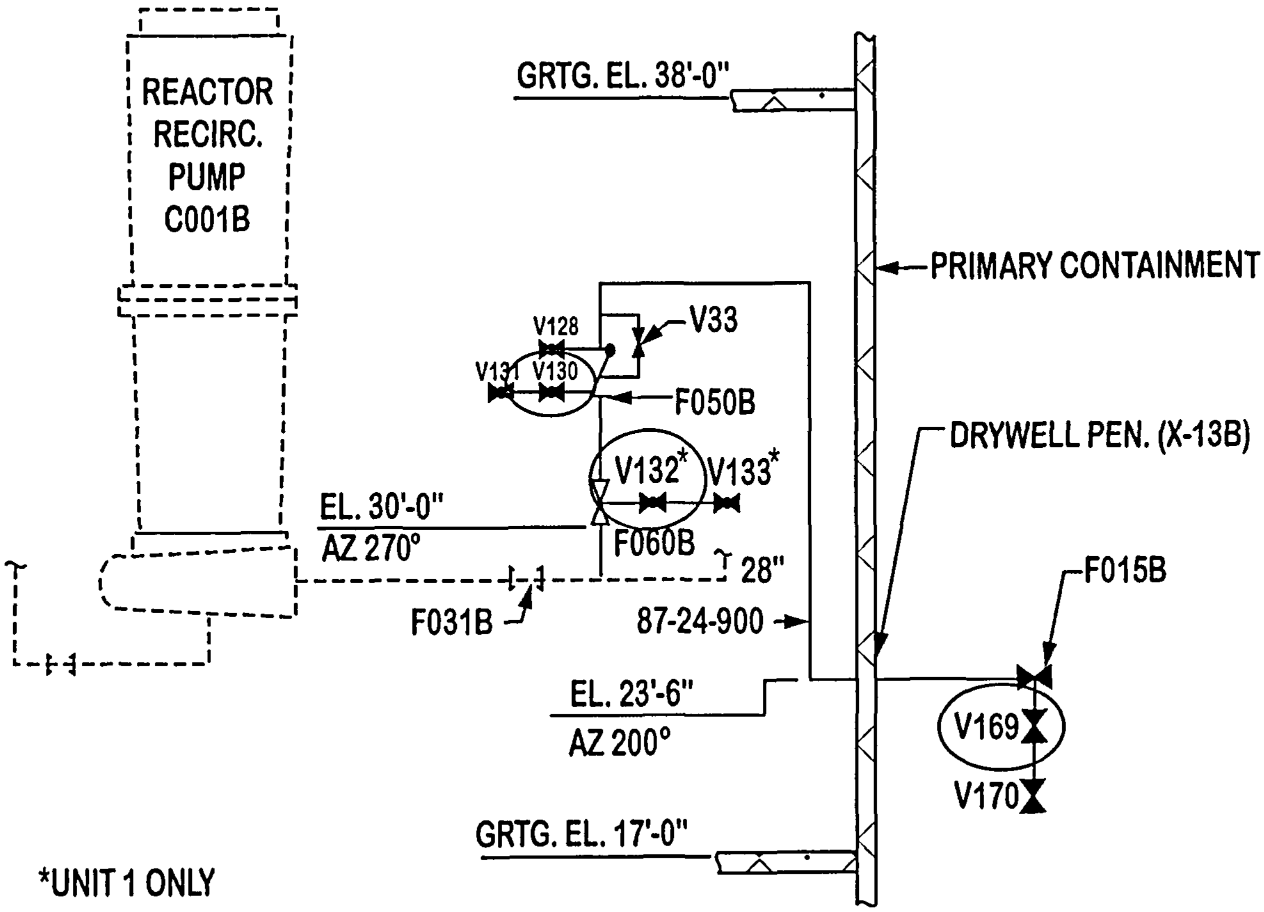


Figure 13 - Residual Heat Removal (RHR) Shutdown Cooling

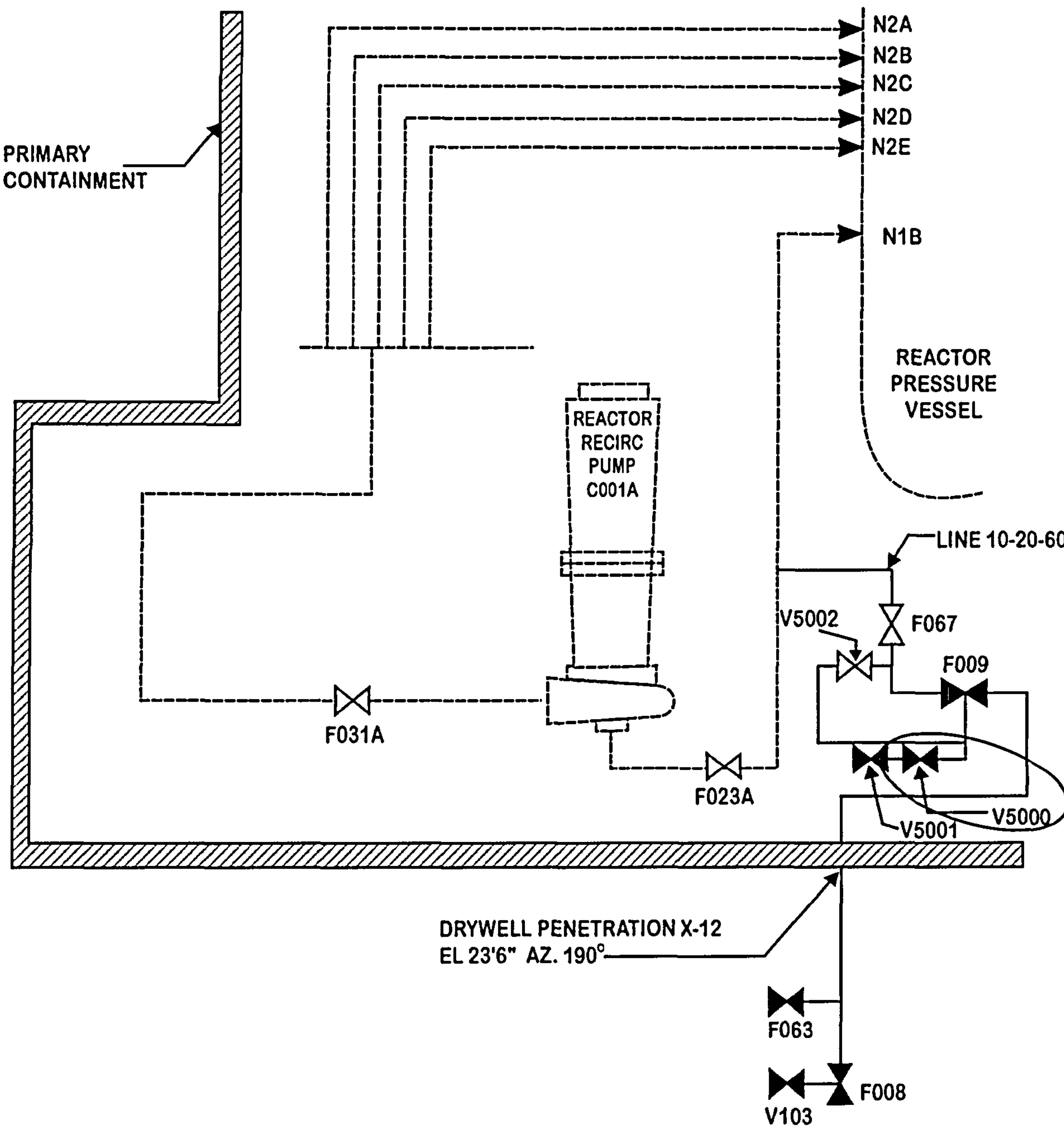


Figure 14 - RPV Closure Head Vent Lines

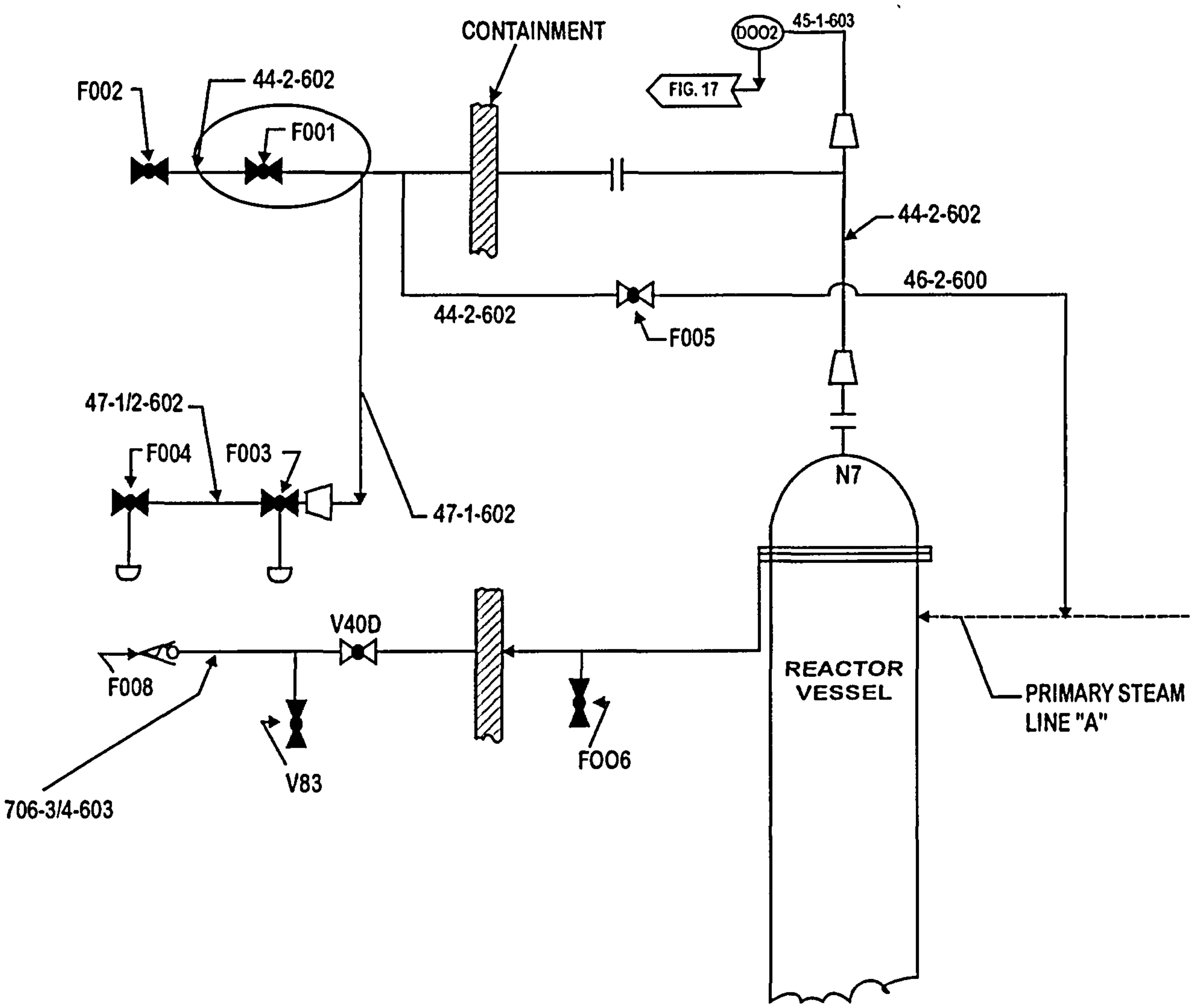


Figure 15 – Reactor Water Cleanup (RWCU)

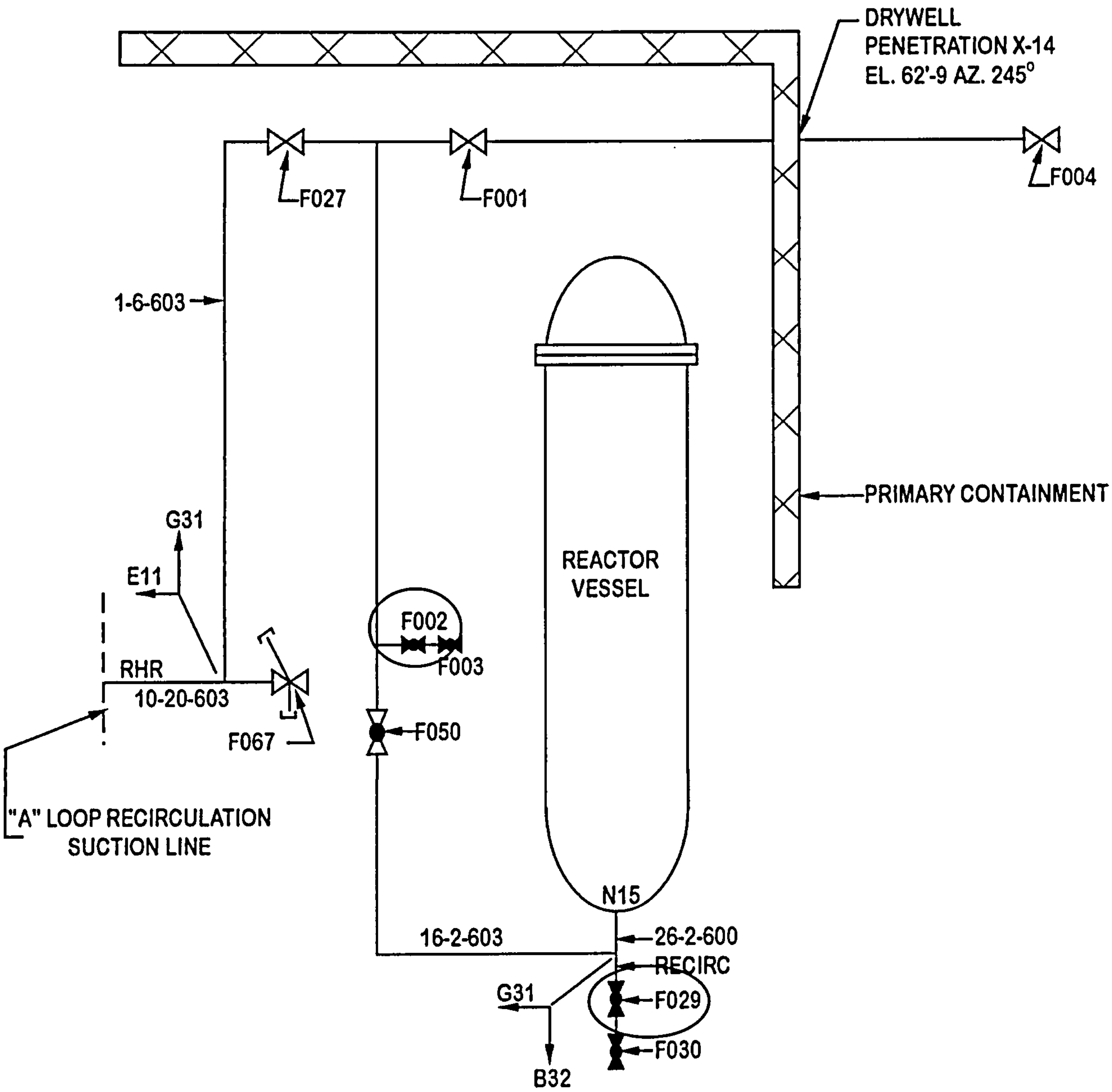


Figure 16 - Standby Liquid Control (SLC)