

Appendix 4A

Figures and Drawings

09/2007

WA7890008967, Part III, Operating Unit 10
Waste Treatment and Immobilization Plant

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APPENDIX 4A**ENGINEERING FIGURES**

The figures listed below are included in this appendix, and are to be used in conjunction with the text in the DWPA Chapter 4.

Title	Figure Number
Simplified Plant Flow Figures	
WTP Simplified Flow Diagram	4A -1
Primary Pretreatment Process Systems	4A -2
Primary Pretreatment Process Systems (Continued)	4A-02A
Primary LAW Vitrification Systems	4A -3
Primary HLW Vitrification Systems	4A -4
Process Flow Figures	
Cesium Resin Addition Process System (CRP)	4A -11
LAW Melter Process System (LMP)	4A -21
LAW Container Finishing Handling System (LFH)	4A -24
HLW Melter Process System (HMP)	4A -27
Typical System Figures	
Typical Tank System – Cesium Ion Exchange Column	4A -38
Typical Tank System – Technetium Ion Exchange Column	4A -39
Typical System – LAW Melter Process System (LMP)	4A -48
Typical Tank System – SBS Column Vessel, LAW Primary Off-gas Process System (LOP)	4A -49
Typical Tank System – LAW Secondary Off-gas/Vessel Vent Process System (LVP)	4A -51
Typical Tank System – HLW Melter Feed Process System (HFP)	4A -53
Typical Tank System – HLW Melter Process System (HMP)	4A -54
RESERVED	4A -58
Typical Tank System – Containment Building (Sheet 1)	4A -59
Typical System - Containment Building Typical Design Features Crosswalk (Sheet 2)	4A -59
Simplified General Arrangement Figures	
Simplified General Arrangement Pretreatment – Plan at El. 98'	4A -65
Simplified General Arrangement LAW – Plan at El. 48'	4A -70
RESERVED	4A -73
RESERVED	4A -76
Waste Management Area Figures	
RESERVED	4A -88
Analytical Laboratory Figures	
RESERVED	4A -114
Miscellaneous Figures	
Schematic of an Example IHLW Container and Label	4A -118
Schematic of an Example ILAW Container and Label	4A -119
Typical Arrangement of a Reverse Flow Diverter	4A -120
Basic Reverse Flow Diverter Design	4A -121
Typical Arrangement of a Steam Ejector System	4A -122

Title	Figure Number
Typical Seal Pot Arrangement	4A -123
Typical Breakpot Arrangement	4A -124
Typical Bulge Configuration	4A -127

Figure 4A-1 WTP Simplified Flow Diagram

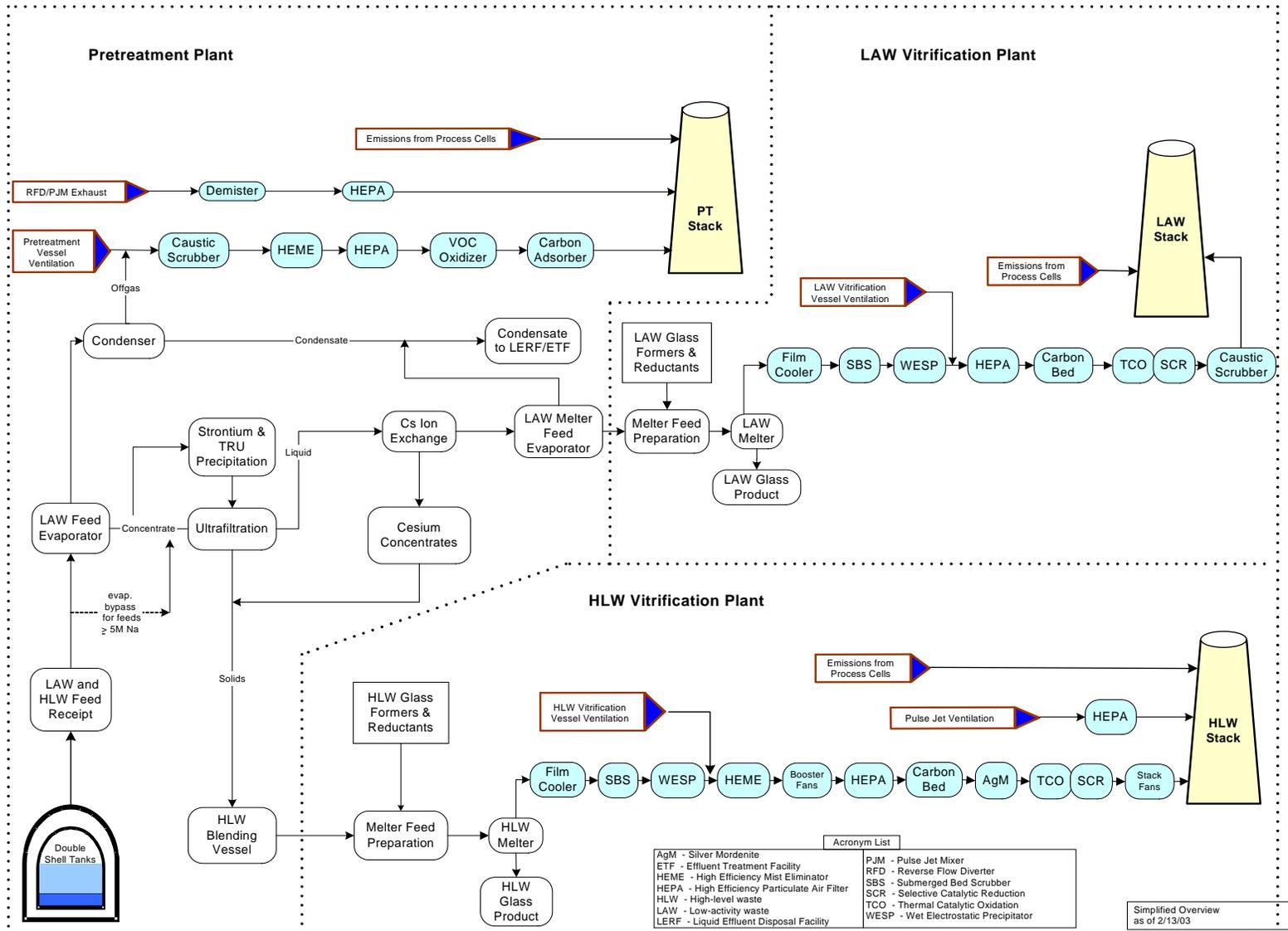


Figure 4A-2 Primary Pretreatment Process Systems

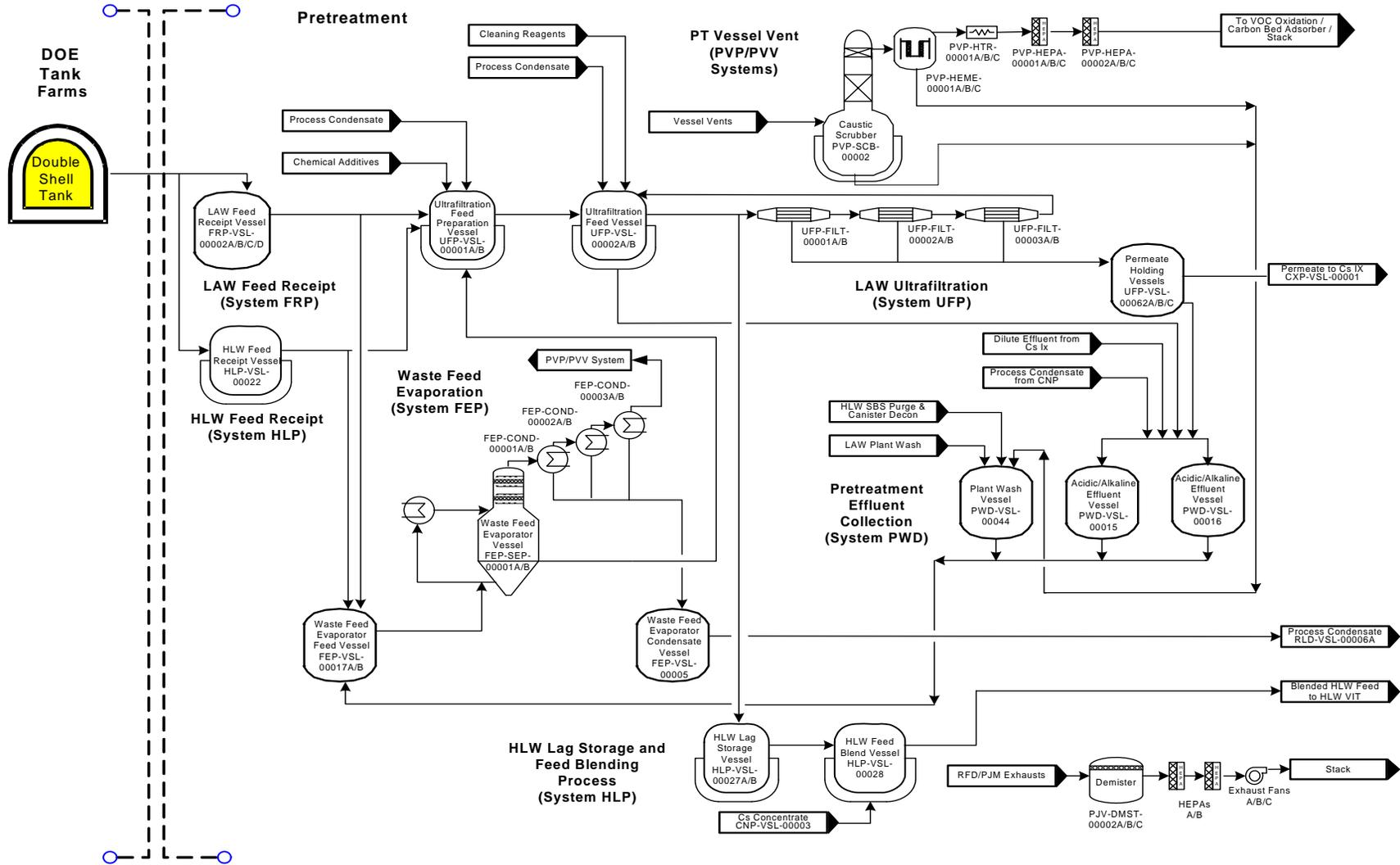


Figure 4A-02A Primary Pretreatment Process Systems (Continued)

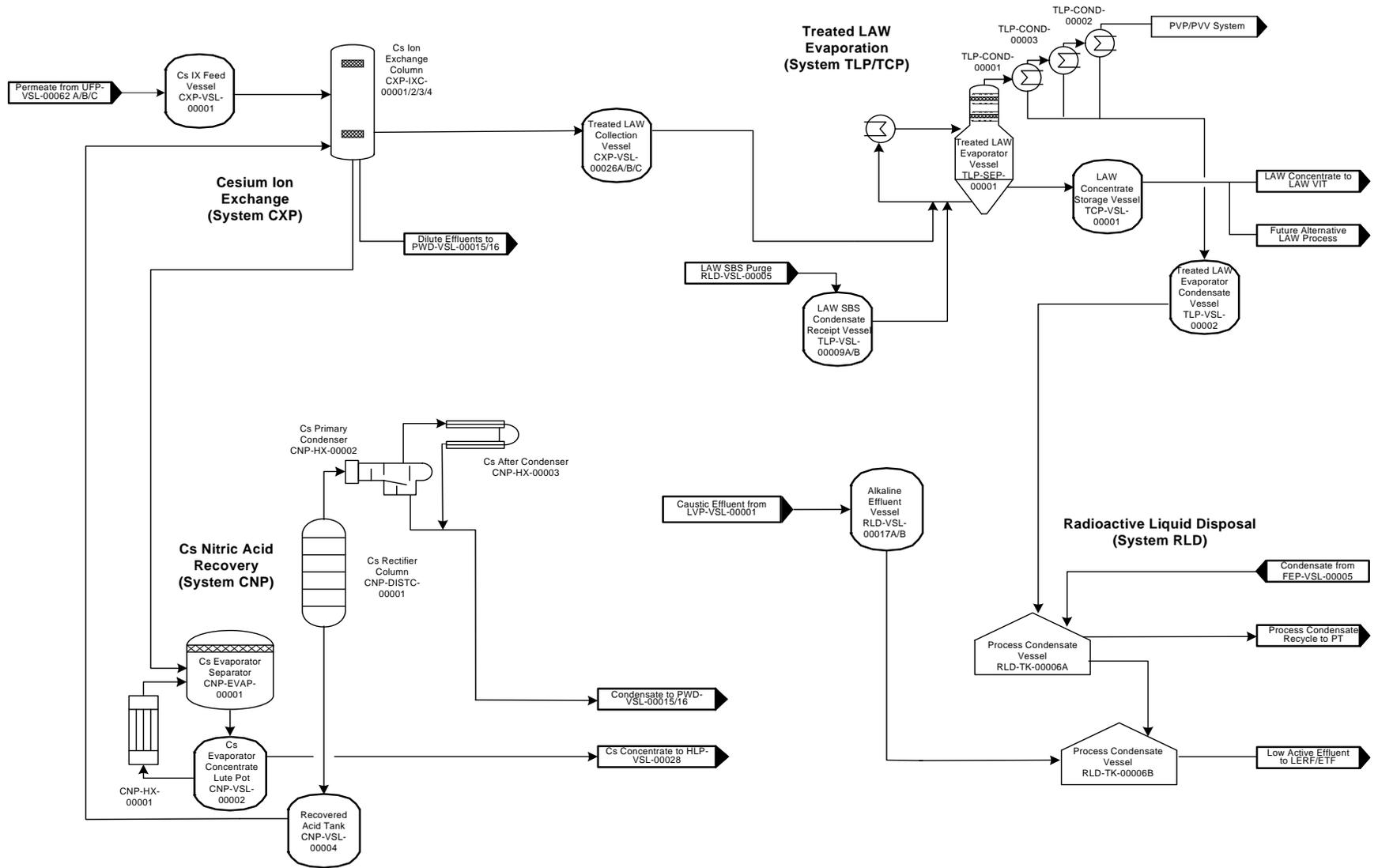
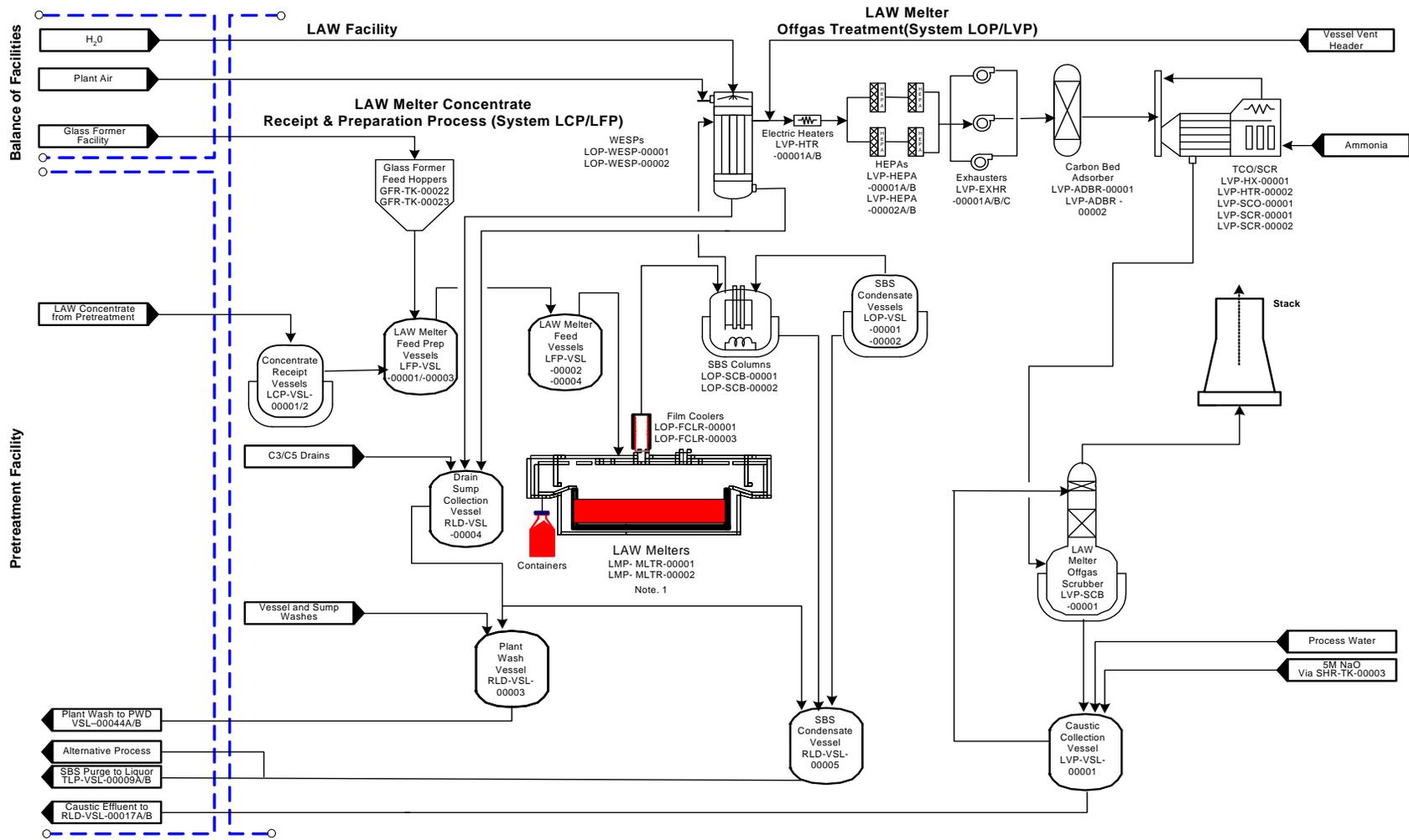


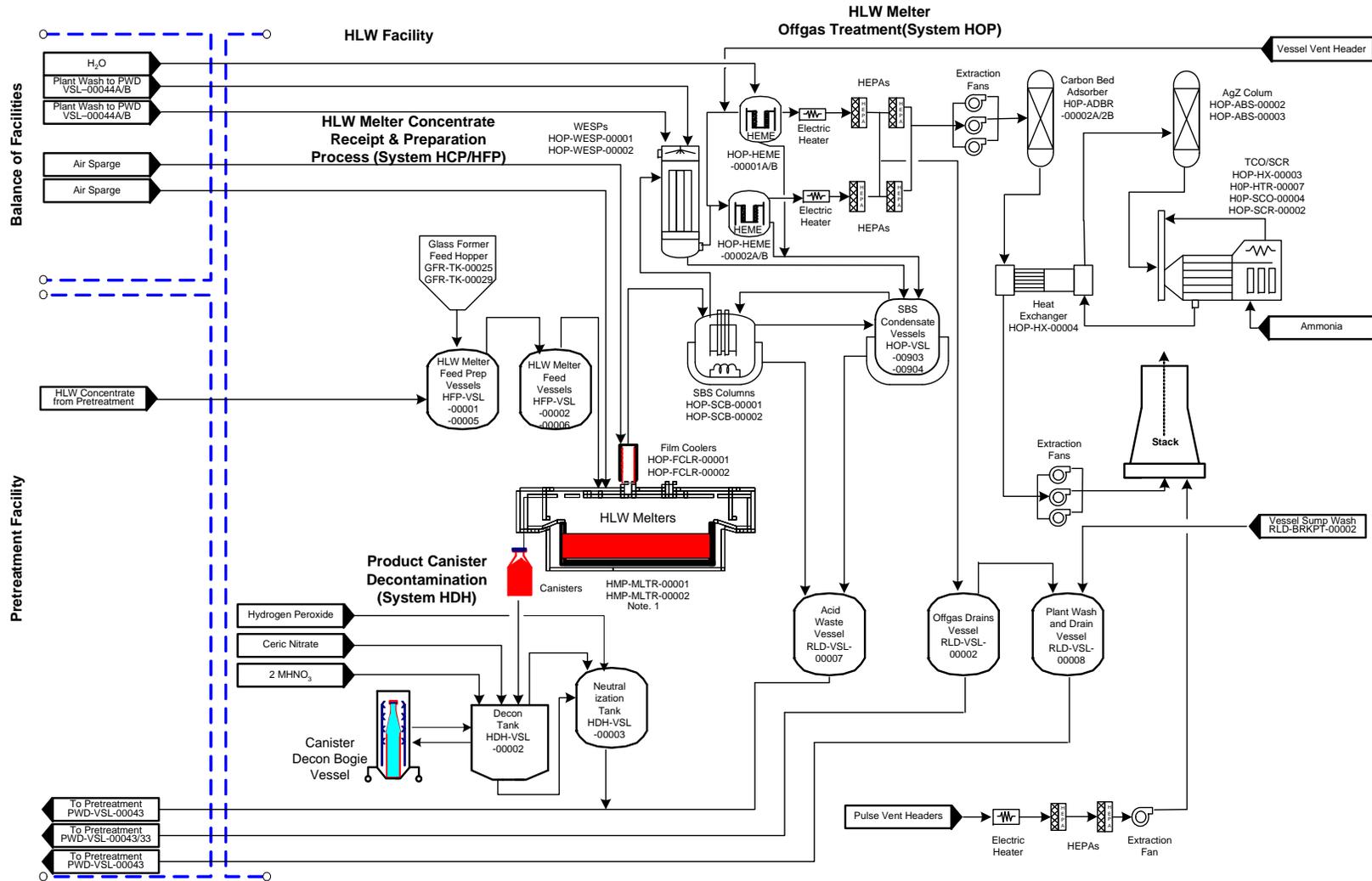
Figure 4A-3 Primary LAW Vitrification Systems



Notes:

1. For this diagram one melter system is shown but assumes a total of two LAW melter systems of identical capacity.

Figure 4A-4 Primary HLW Vitrification Systems



Notes:
1. For this diagram one melter system is shown but assumes a total of two HLW melter systems of identical capacity.

Figure 4A-11 Cesium Resin Addition Process System (CRP)

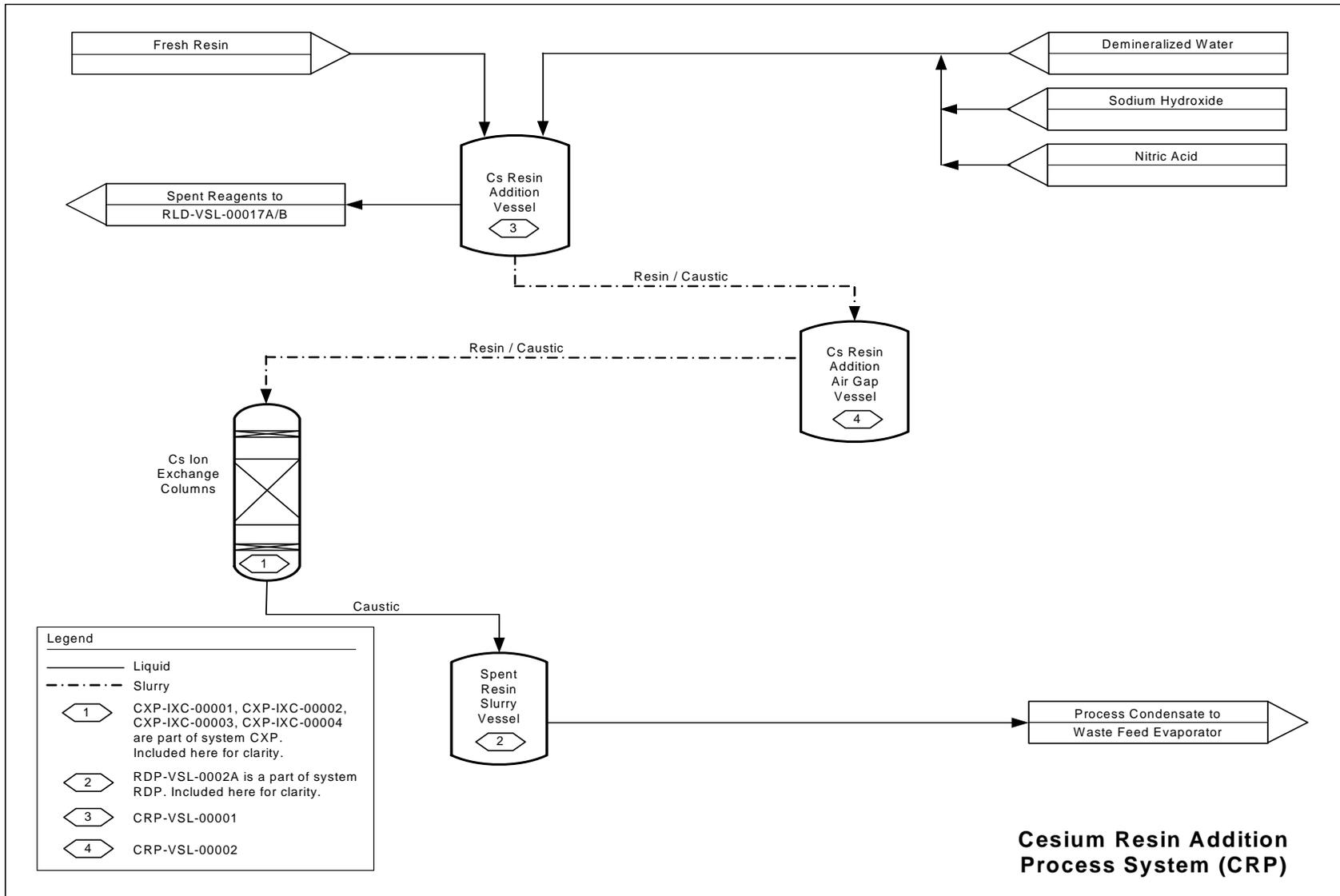


Figure 4A-21 LAW Melter Process System (LMP)

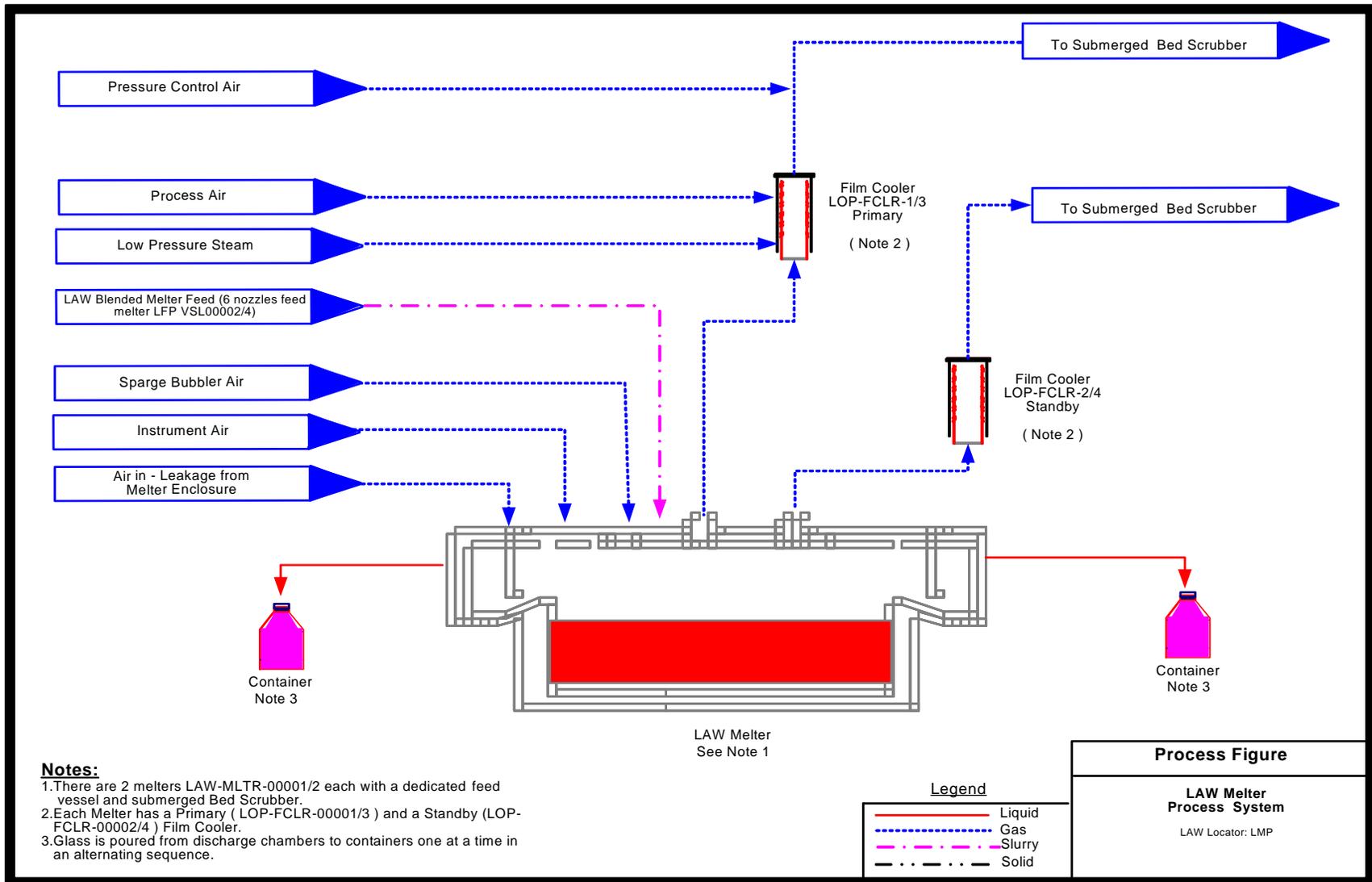


Figure 4A-24 LAW Container Finishing Handling System (LFH)

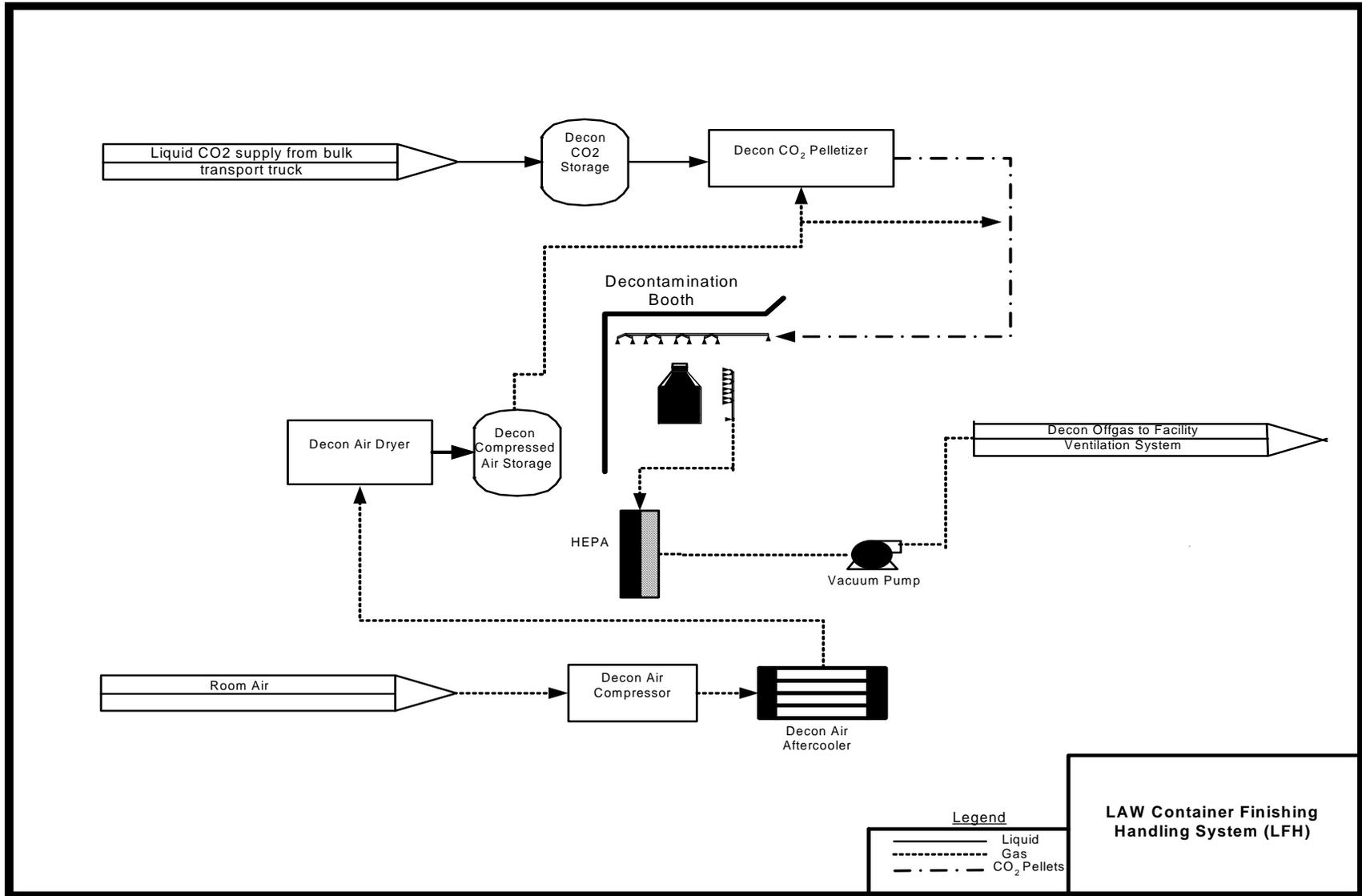


Figure 4A-27 HLW Melter Process System (HMP)

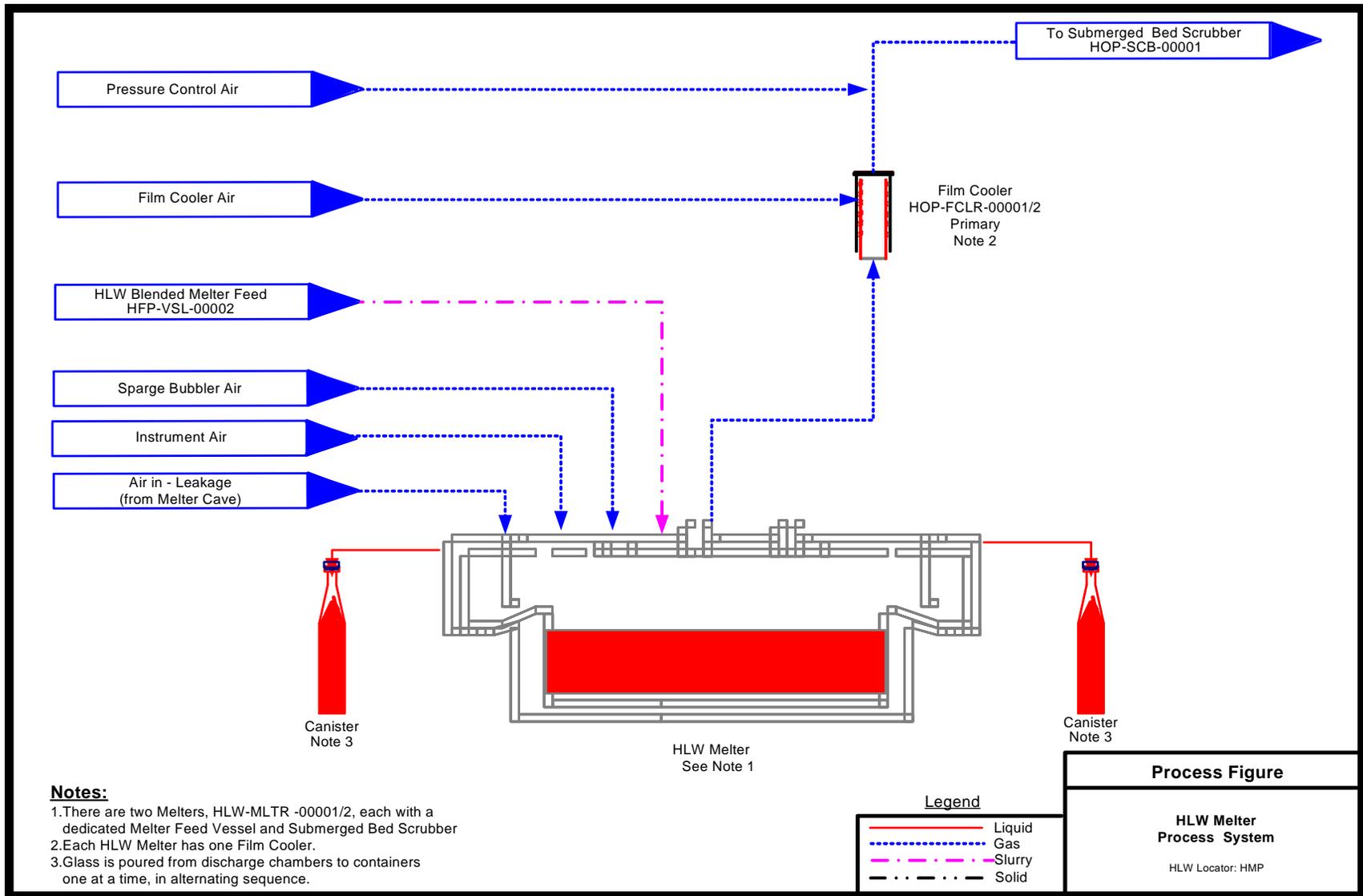


Figure 4A-38 Typical Tank System – Cesium Ion Exchange Column

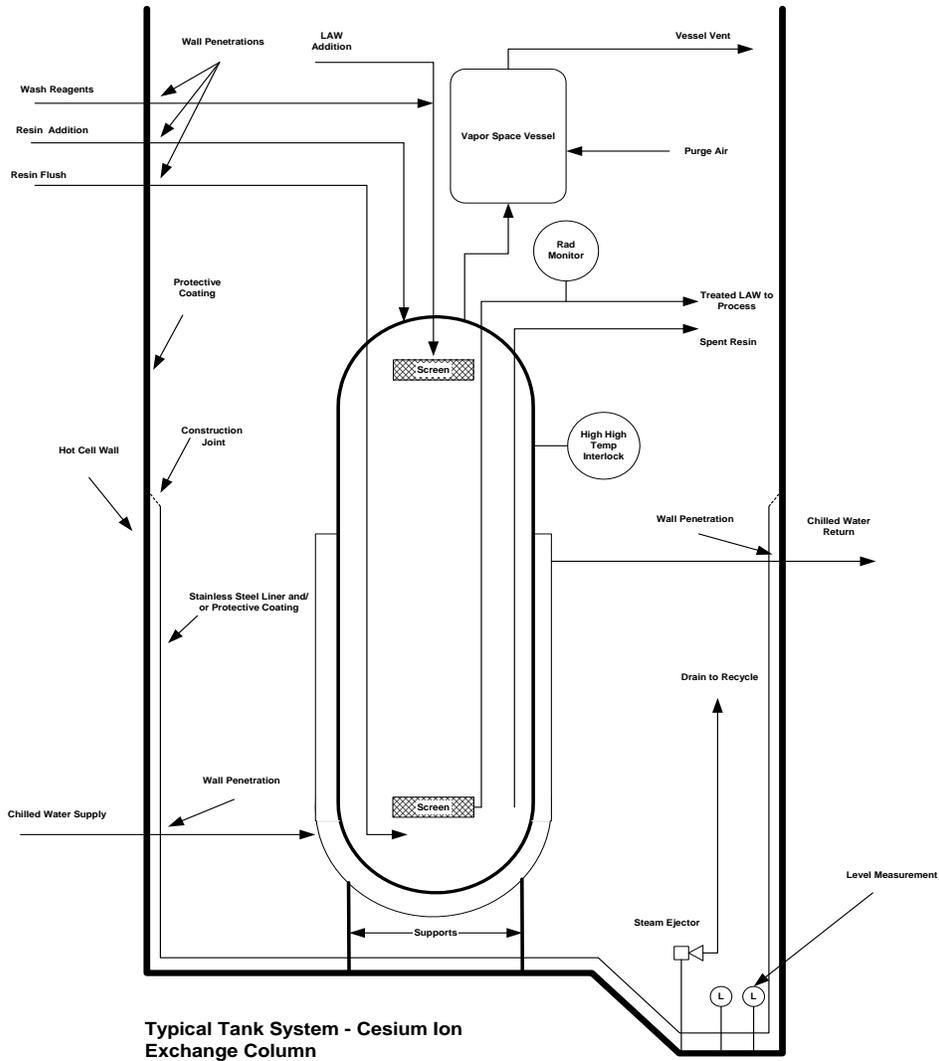


Figure 4A-39 –Technetium Ion Exchange Column

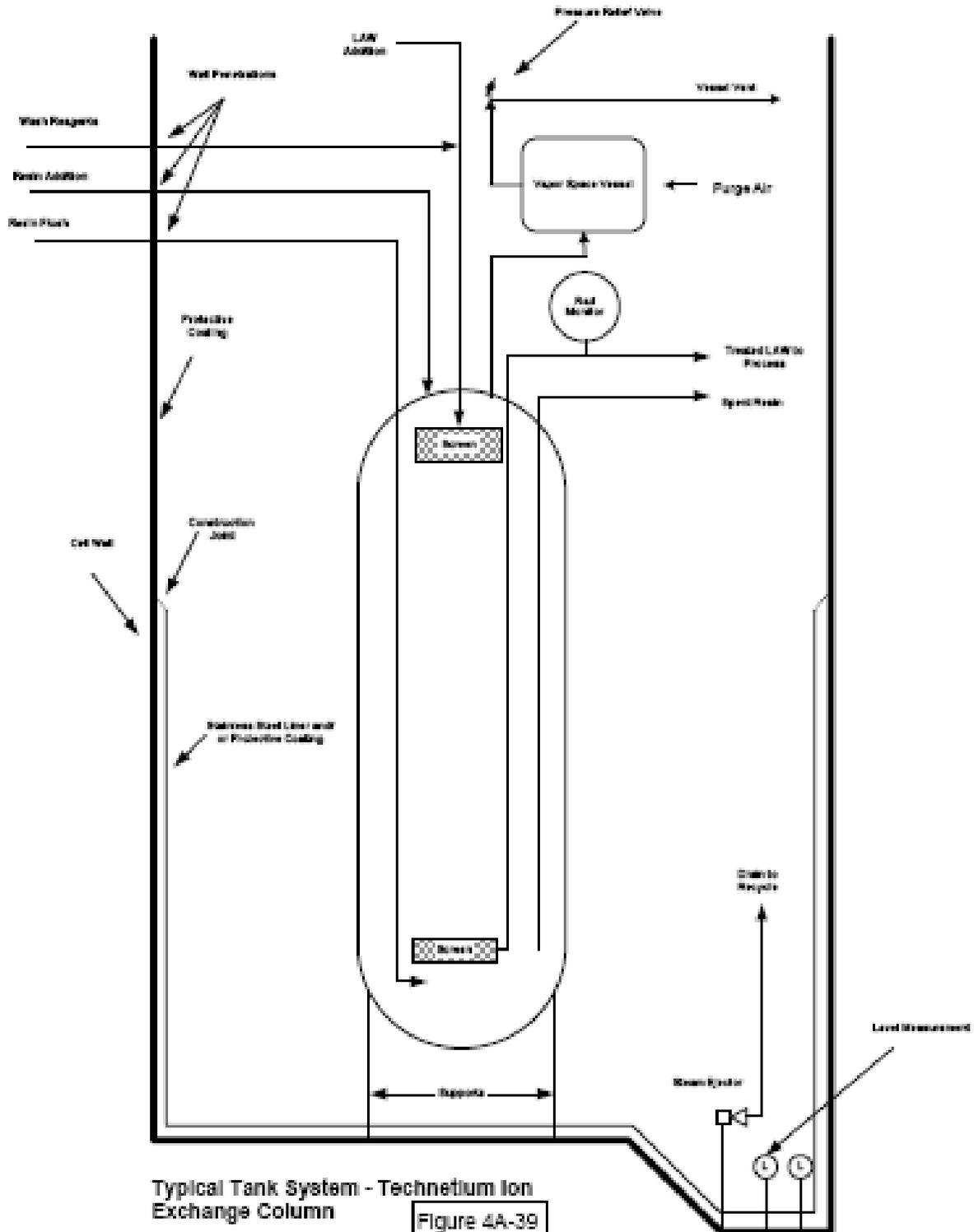
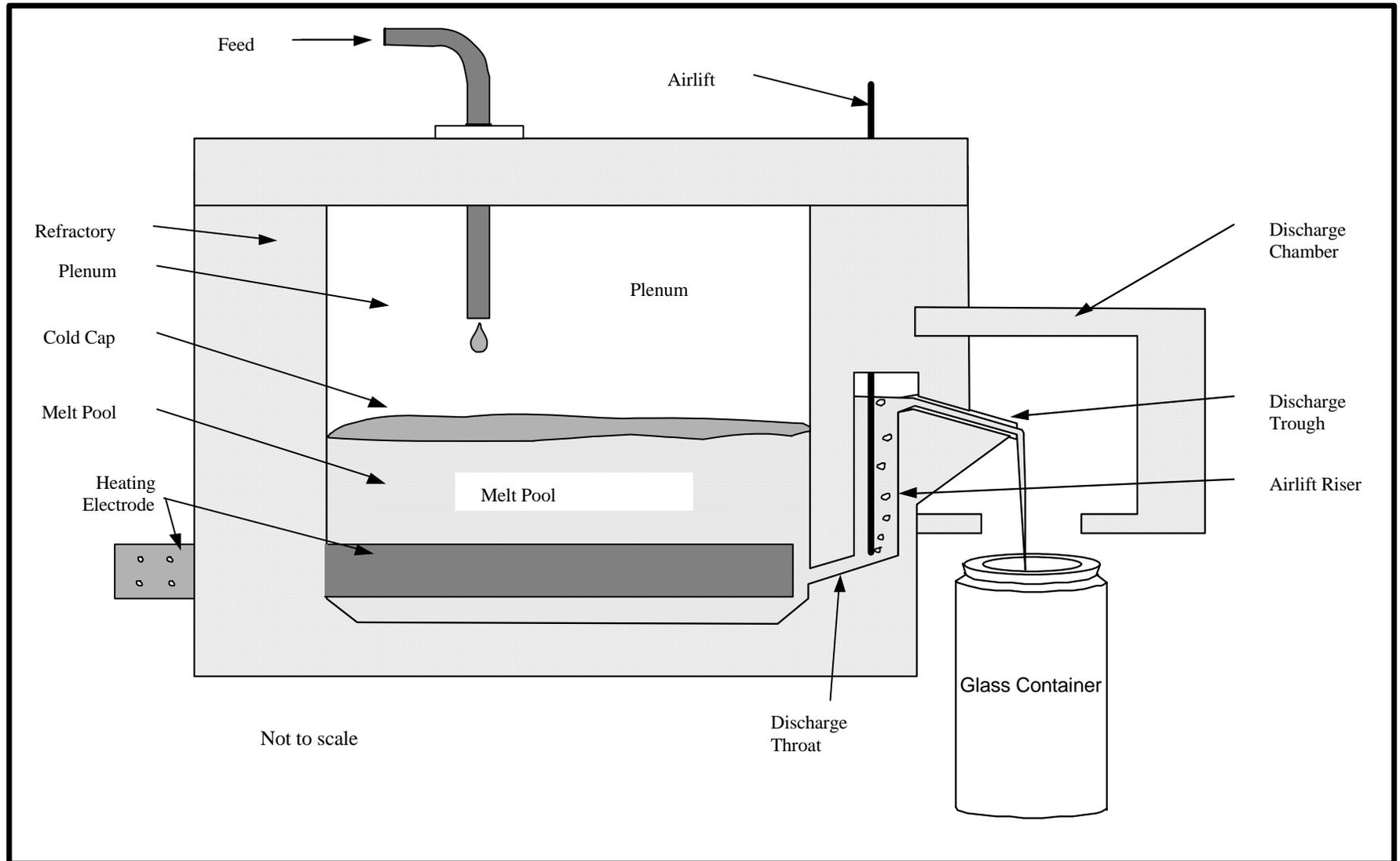
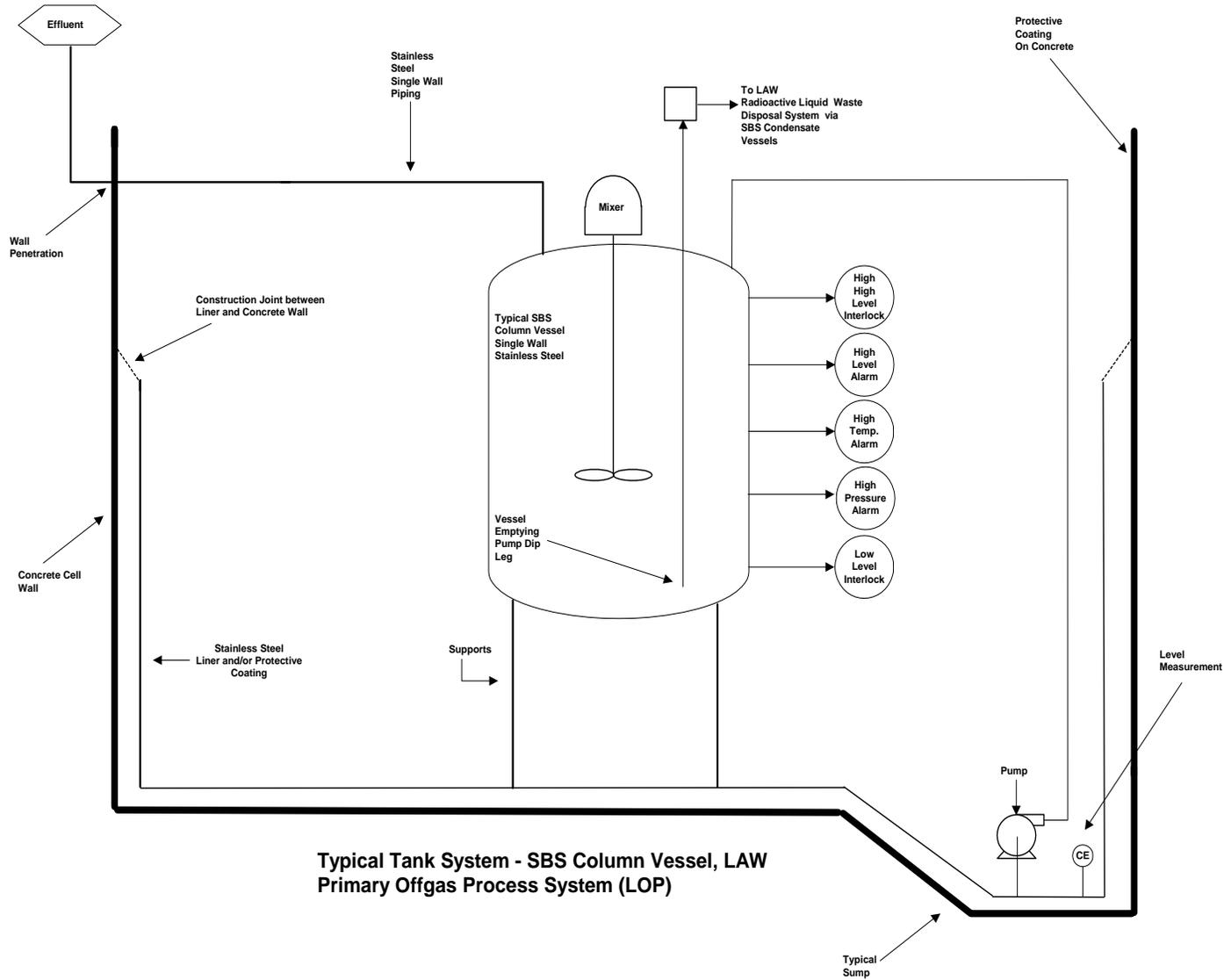


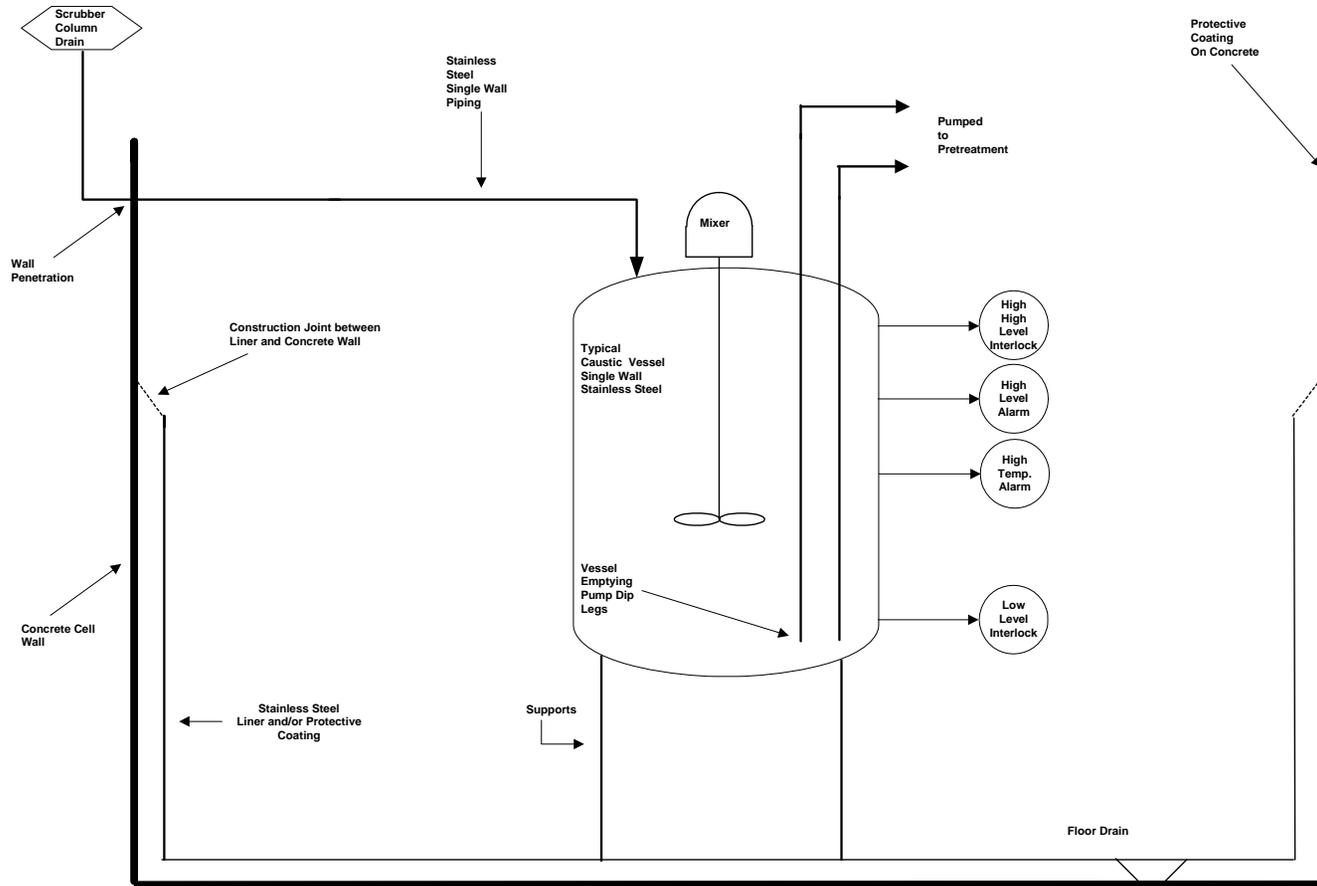
Figure 4A-48 Typical System - LAW Melter Process System (LMP)





**Typical Tank System - SBS Column Vessel, LAW
Primary Offgas Process System (LOP)**

Figure 4A-49 Typical Tank System – SBS Column Vessel, LAW Primary Offgas Process System (LOP)



Typical Tank System - LAW Secondary
Offgas/Vessel Vent Process System (LVP)

Figure 4A-51 Typical Tank System – LAW Secondary Offgas/Vessel Vent Process System (LVP)

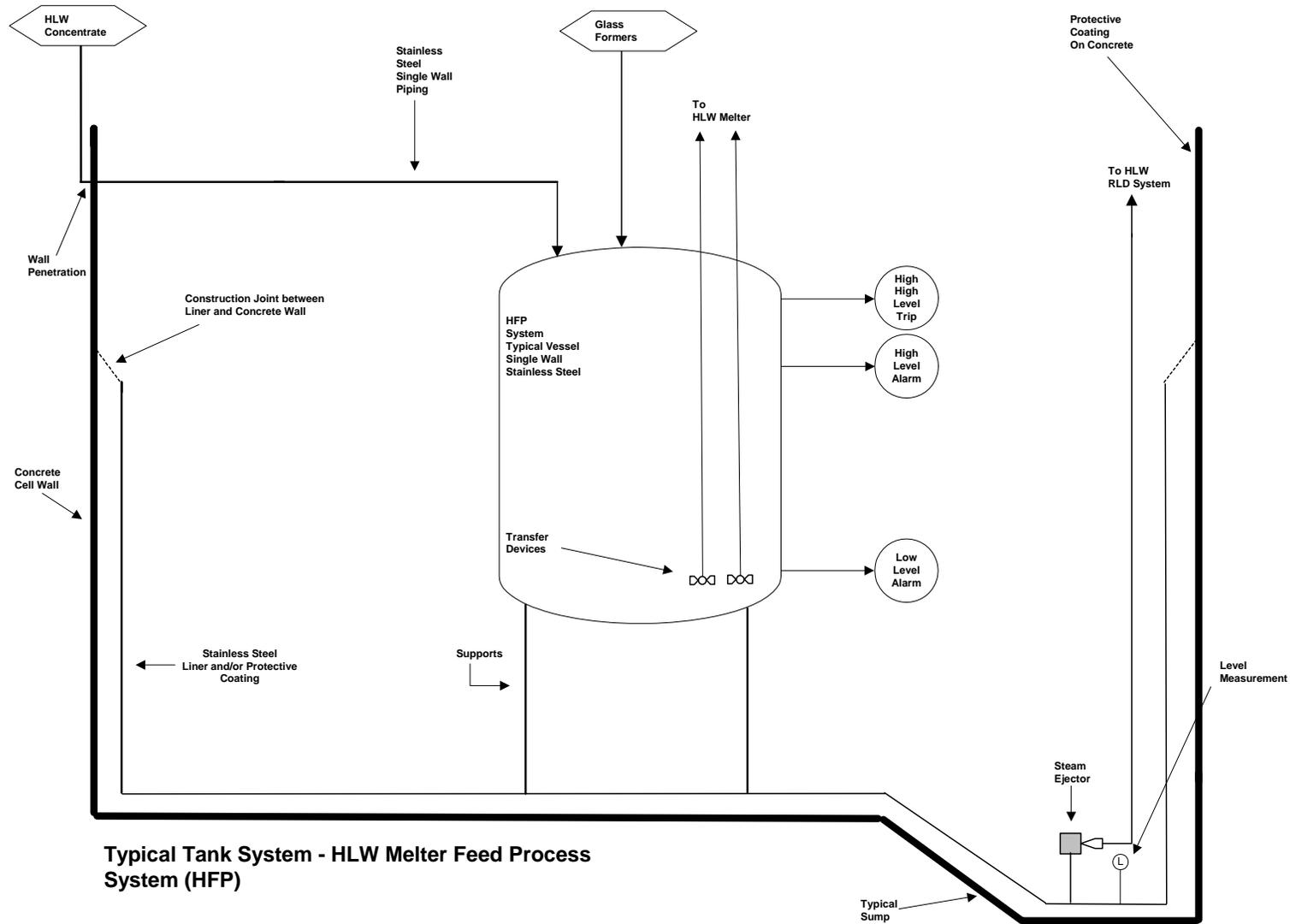
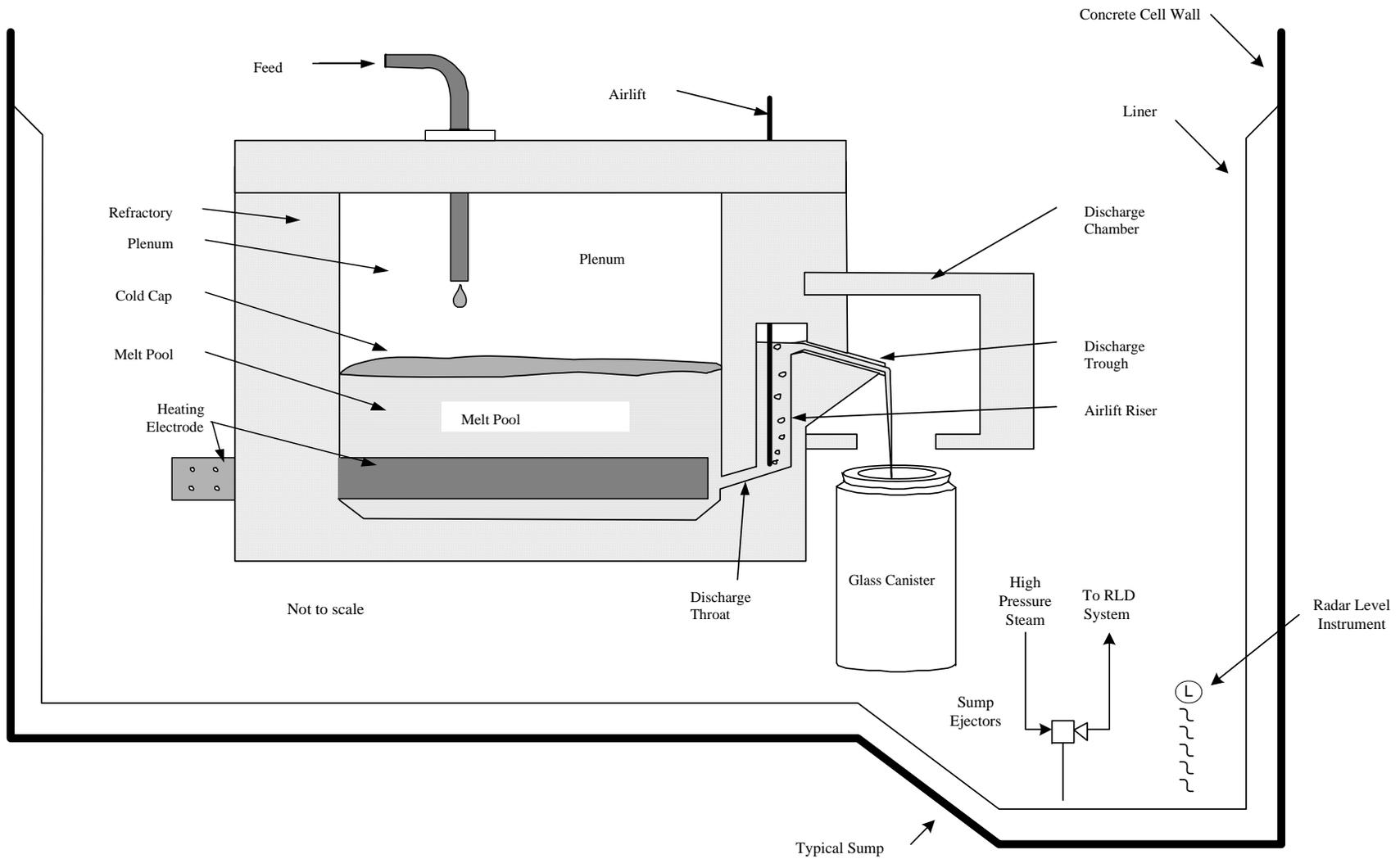


Figure 4A-53 Typical Tank System – HLW Melter Feed Process System (HFP)

Figure 4A-54 Typical System - HLW Melter Process System (HMP)



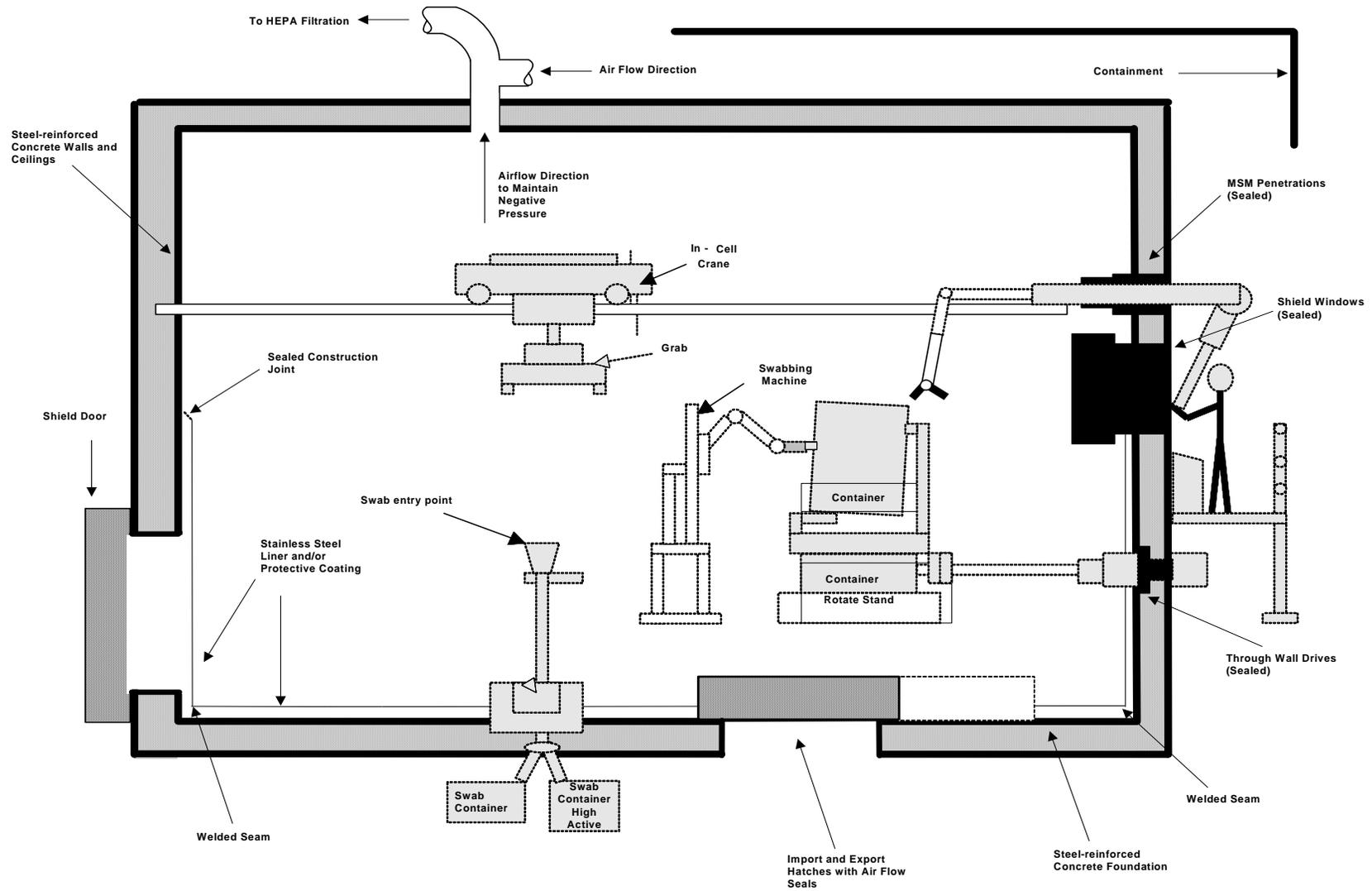
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Figure 4A-58

RESERVED

Figure 4A-59 Typical System - Containment Building (Sheet 1)



Typical System - Containment Building

**Figure 4A-59 Typical System - Containment Building Typical Design Features Crosswalk
(Sheet 2)**

	Negative Cell Air Pressure	Air Flow to HEPA Filters	SS Liner With Welded Seams	Import / Export Hatch - (Controlled Air Gap)	Shield Windows - (Sealed)	Steel Reinforced Concrete Floor/Foundation	Steel Reinforced Concrete Walls & Ceilings	Through Wall MSMs - (Sealed)	In - Cell Bridge Crane / Monorail	Horiz./Vertical Shield Doors - (Controlled Air Gap)	Miscellaneous In-cell Room Equipment
Containment Building											
Pretreatment Plant											
Pretreatment Hot Cell Containment Building (P-0123)	X	X	X	X	X	X	X	X	X	X	X
Pretreatment Maintenance Containment Building											
PM0124 Hot Cell Crane Maintenance Mezzanine	X				X	X	X		X		X
P-0121A Spent Resin Dewatering	X	X		X	X	X	X				X
P-0122A Waste Packaging Area	X	X		X	X	X	X				X
P-0123A Remote Decontamination Maintenance Cave	X	X	X	X	X	X	X		X		X
P-0124 C3 Workshop	X	X		X	X	X	X		X		X
P-0124A C3 Workshop	X	X		X	X	X	X		X		X
P-0125 Cask Lidding Airlock	X	X		X	X	X	X			X	X
P-0125A Cask Lidding Room	X	X		X	X	X	X		X		X
P-0128A MSM Repair Area	X	X		X	X	X	X				X
P-0128 Temporary Storage Room	X				X	X	X				X
Pretreatment Filter Package Maintenance Containment Building (P-0223)	X	X	X			X	X			X	X
Pretreatment Filter Cave Room-Containment Building (P-0335)	X	X	X			X	X			X	X

	Negative Cell Air Pressure	Air Flow to HEPA Filters	SS Liner With Welded Seams	Import / Export Hatch - (Controlled Air Gap)	Shield Windows - (Sealed)	Steel Reinforced Concrete Floor/Foundation	Steel Reinforced Concrete Walls & Ceilings	Through Wall MSMS - (Sealed)	In - Cell Bridge Crane / Monorail	Horiz./Vertical Shield Doors - (Controlled Air Gap)	Miscellaneous In-cell Room Equipment
Containment Building											
LAW Vitrification Plant											
LAW LSM Gallery Containment Building (L-0112)	X	X				X	X			X	X
ILAW Container Finishing Containment Building											
L-0109B Swabbing Cell North Line	X	X		X	X	X	X	X	X	X	X
L-0109C Decontamination Area North Line	X	X		X	X	X	X	X	X	X	X
L-0109D Inert Fill / Welding Area North Line	X	X		X	X	X	X	X	X	X	X
L-0115B Swabbing Cell South Line	X	X		X	X	X	X	X	X	X	X
L-0115C Decontamination Area South Line	X	X		X	X	X	X	X	X	X	X
L-0115D Inert Fill / Welding Area South Line	X	X		X	X	X	X	X	X	X	X
L-0109E Container Monitoring/Export Area - North Line	X	X		X	X	X	X	X	X	X	X
L-0115E Container Monitoring/Export Area - South Line	X	X		X	X	X	X	X	X	X	X
LAW Vit Plant C3 Workshop Containment Building (L-226A)	X	X				X	X		X		X
LAW Consumable Import/Export Containment Building (L-0119B)	X	X				X	X		X		X
LAW Pour Cave Containment Building											
L-B015A Pour Cave (Melter 1)	X	X		X	X	X	X	X	X	X	X
L-B013C Pour Cave (Melter 1)	X	X		X	X	X	X	X	X	X	X
L-B013B Pour Cave (Melter 2)	X	X		X	X	X	X	X	X	X	X
L-B011C Pour Cave (Melter 2)	X	X		X	X	X	X	X	X	X	X
L-B011B (Spare)	X	X		X	X	X	X	X	X	X	X
L-B009B (Spare)	X	X		X	X	X	X	X	X	X	X
ILAW Container Buffer Storage Containment Building											
L-B025C											
L-B025D											

	Negative Cell Air Pressure	Air Flow to HEPA Filters	SS Liner With Welded Seams	Import / Export Hatch - (Controlled Air Gap)	Shield Windows - (Sealed)	Steel Reinforced Concrete Floor/Foundation	Steel Reinforced Concrete Walls & Ceilings	Through Wall MSMs - (Sealed)	In - Cell Bridge Crane / Monorail	Horiz./Vertical Shield Doors - (Controlled Air Gap)	Miscellaneous In-cell Room Equipment
Containment Building											
HLW Vitrification Plant											
HLW Melter Cave No. 1 Containment Building:	X	X	X	X	X	X	X	X	X	X	X
H-0117 Melter Cave No. 1	X	X	X	X	X	X	X	X	X	X	X
H-0116B Melter Cave No. 1 - C2/C3 Airlock	X	X				X	X			X	
H-0310A Melter Cave No. 1 Equipment Decontamination Area	X	X	X	X	X	X	X	X	X	X	
HLW Melter Cave No. 2 Containment Building:	X	X	X	X	X	X	X	X	X	X	X
H-0106 Melter Cave No. 2	X	X	X	X	X	X	X	X	X	X	X
H-0105B Melter Cave No. 2 - C2/C3/ Airlock	X	X				X	X		X	X	
H-0304A Melter Cave No. 2 Equipment Decontamination Area	X	X	X	X	X	X	X	X	X	X	
IHLW Canister Handling Cave Containment Building (H-0136)	X	X	X	X	X	X	X	X	X	X	X
IHLW Canister Swab and Monitoring Cave Containment Building (H-0133)	X	X	X	X	X	X	X	X	X	X	
HLW Vit Plant C3 Workshop Containment Building (H-0311A/B)	X	X				X	X				X
HLW Filter Cave Containment Building (H-0104)	X	X		X	X	X	X	X	X	X	X
HLW Waste Handling Area Containment Building:	X	X				X	X				
H-0410B Waste Handling Area	X	X				X	X				
H-0411 Waste Handling Area	X	X				X	X				
HLW Pour Tunnel No. 1 Containment Building (H-B032)	X	X	X	X		X	X		X		
HLW Pour Tunnel No. 2 Containment Building (H-B005A)	X	X	X	X		X	X		X		
HLW Drum Swabbing and Monitoring Area Containment Building:	X	X				X	X		X		
H-0126A/B Swabbing and Monitoring Area	X	X				X	X				
HB-028 Cask Transfer Tunnel	X	X				X	X		X		

09/2007

WA7890008967, Part III, Operating Unit 10
Waste Treatment and Immobilization Plant

Figure 4A-73

RESERVED

Figure 4A-76

RESERVED

Figure 4A-88

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Figure 4A-114

RESERVED

Figure 4A-118 Schematic of an Example IHLW Container and Label

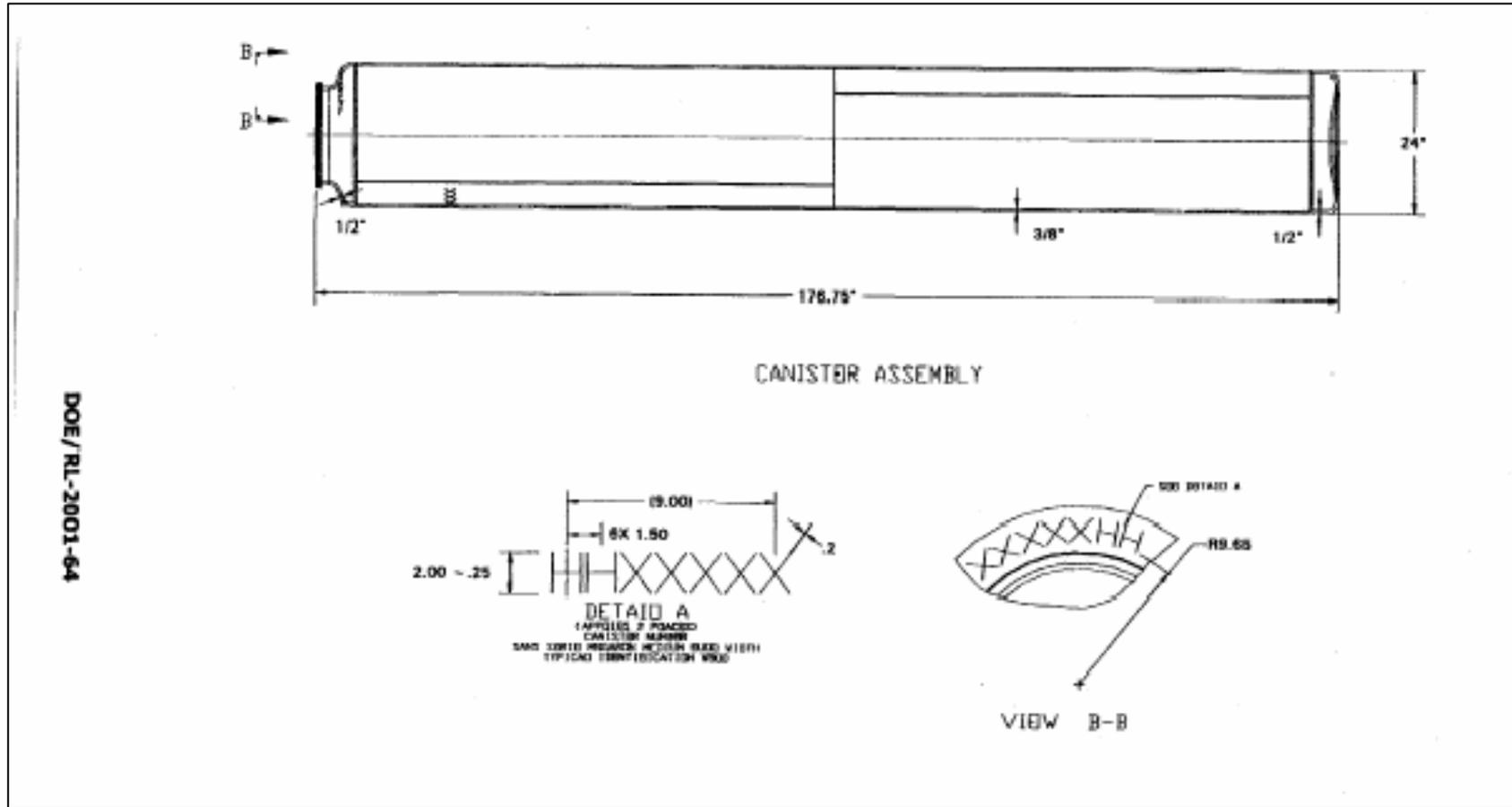


Figure 4A-119 Schematic of an Example ILAW Container and Label

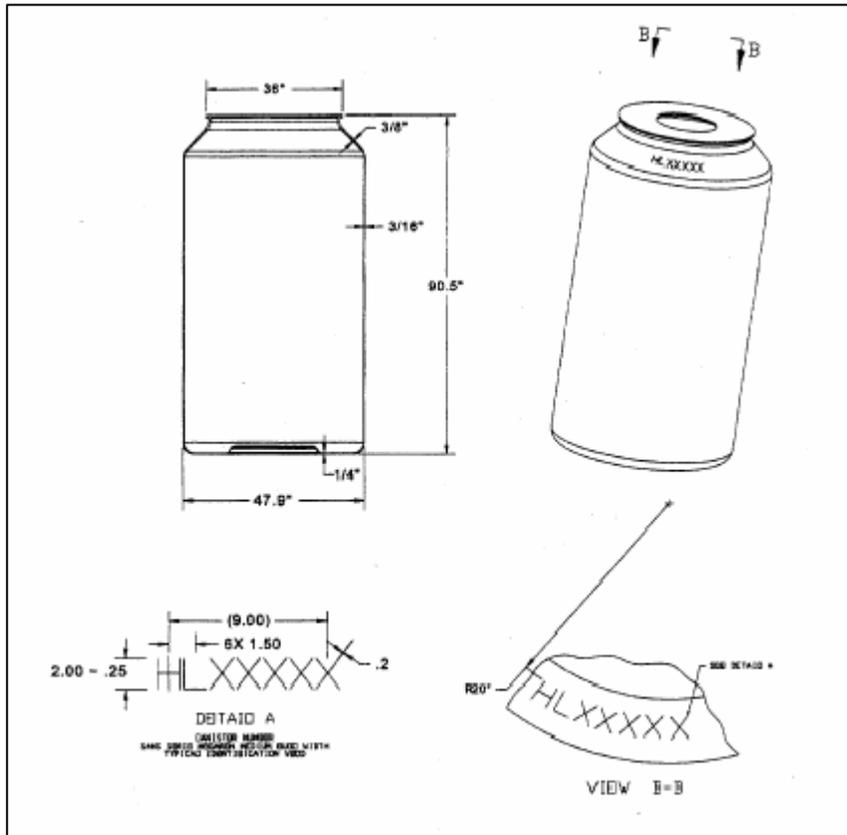


Figure 4A-120 Typical Arrangement of a Reverse Flow Diverter

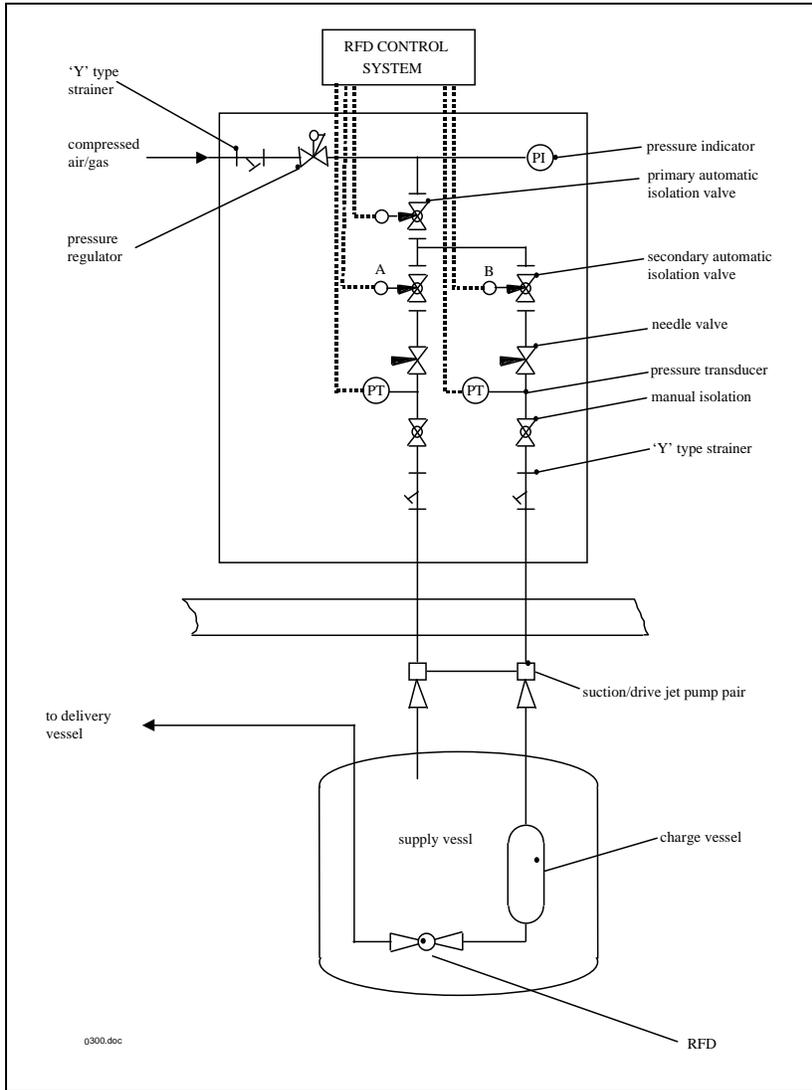


Figure 4A-121 Basic Reverse Flow Diverter Design

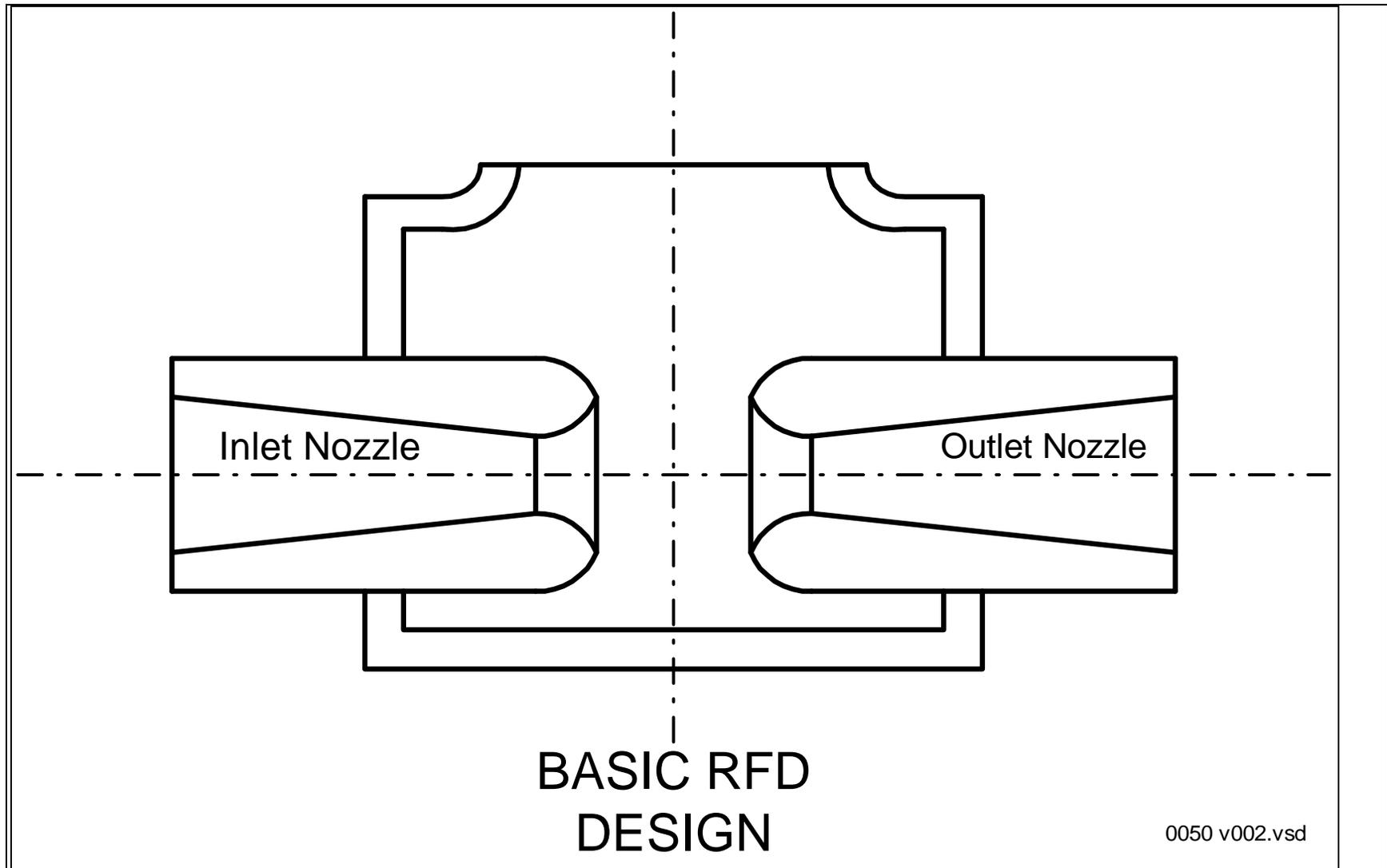


Figure 4A-122 Typical Arrangement of a Steam Ejector System

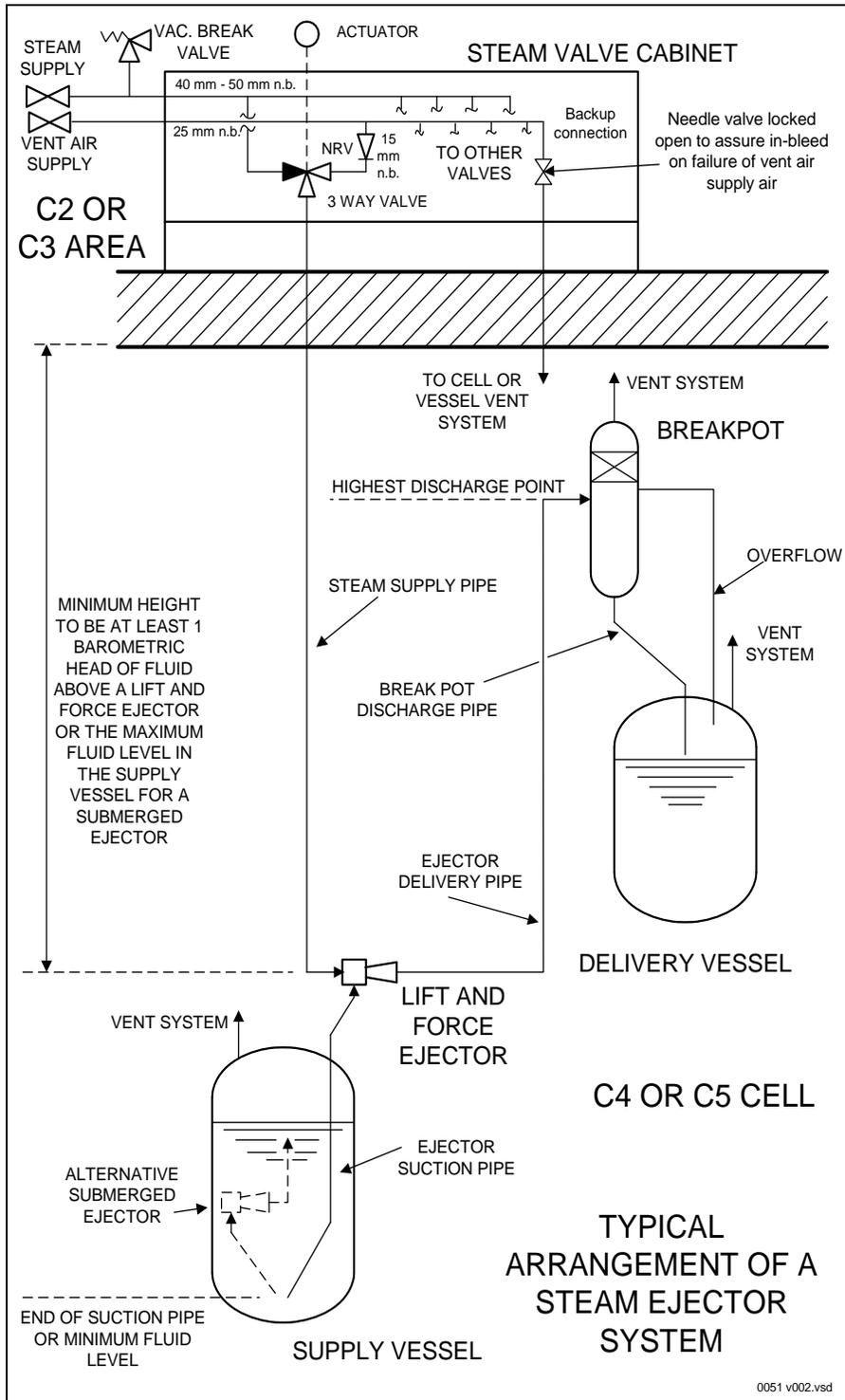


Figure 4A-123 Typical Seal Pot Arrangement

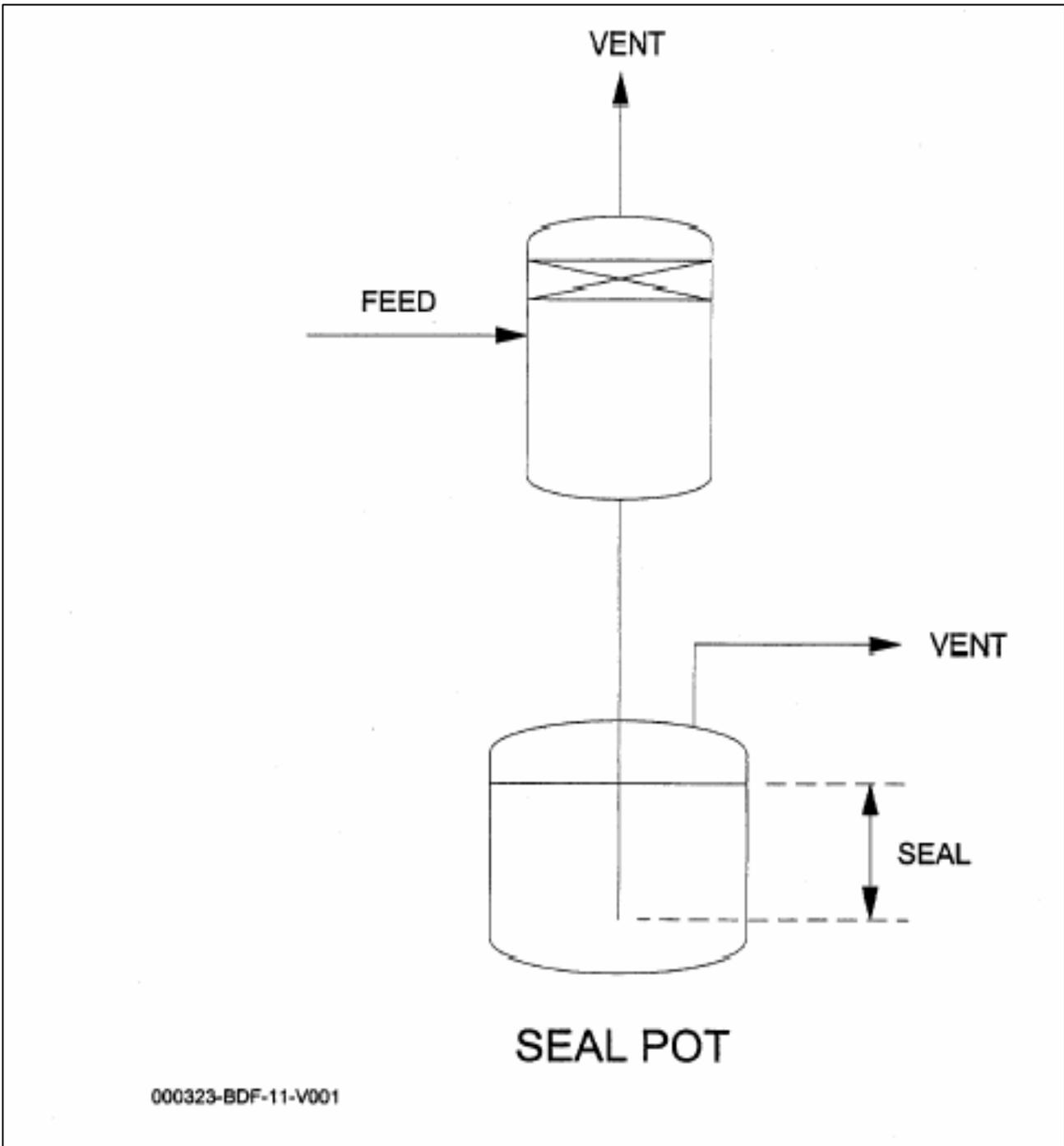


Figure 4A-124 Typical Breakpot Arrangement

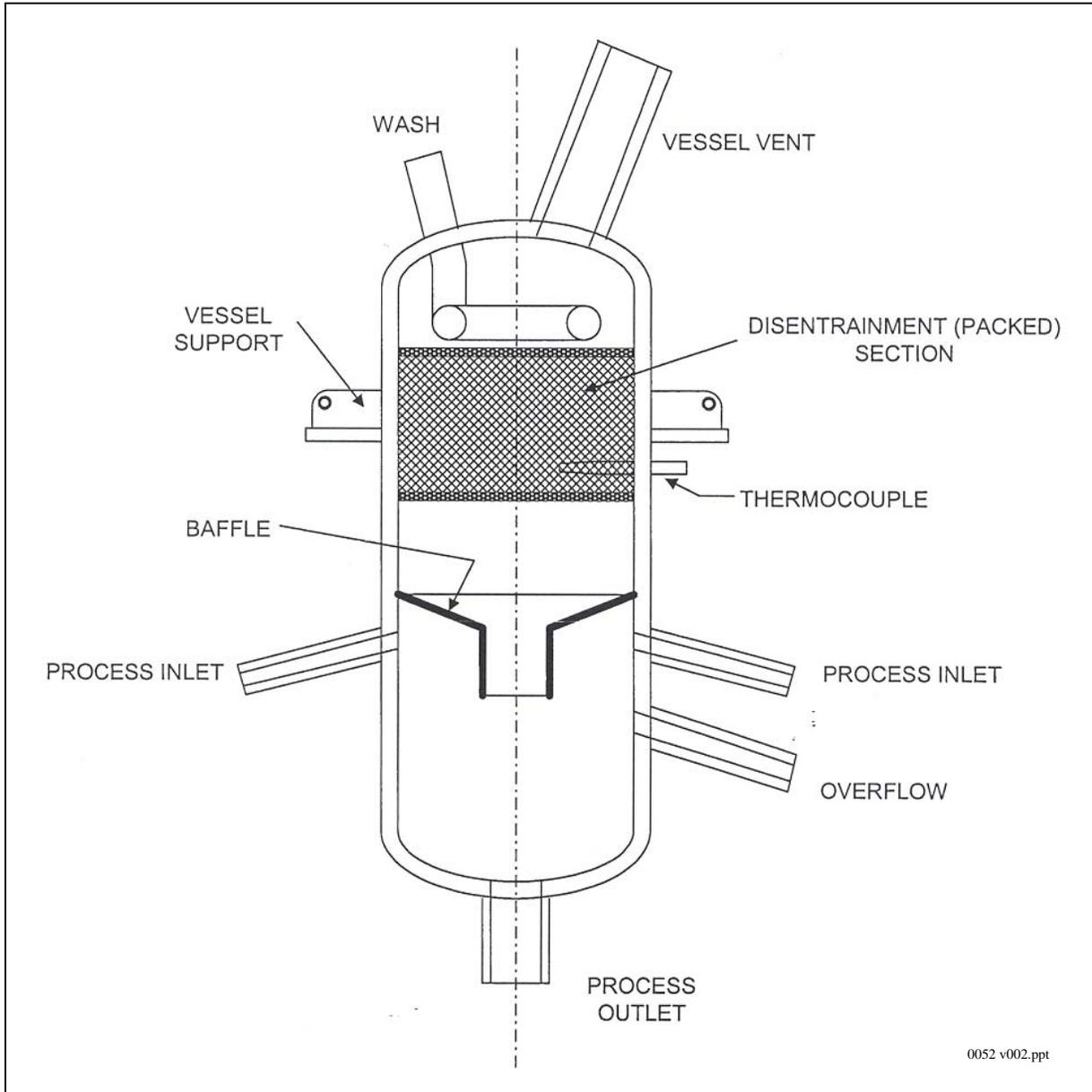


Figure 4A-127 Typical Bulge Configuration

