Nebraska Public Power District

GENERAL OFFICE
P. O. BOX 499, COLUMBUS, NEBRASKA 68601
TELEPHONE (402) 564-8561

November 16, 1979

Mr. C. O. Thomas
Bulletins & Orders Task Force
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Thomas:

During the July 12, 1979 meeting between the GE BWR Owners Group and the NRC Bulletins & Orders Task Force, several plant-unique Systems Group questions were deferred to a later date. Enclosed please find Nebraska Public Power District's response to these deferred questions.

It should be noted that complete in-house review and verification has not yet been completed for all of the information provided. If our final review determines that any of the enclosed information is incorrect, the correct information will be immediately submitted.

If you have any questions regarding the enclosed, please do not hesitate to contact me.

Sincerely,

Jay M. Pilant
Director of Licensing
and Quality Assurance

JDW/cmk

Enclosure

cc: P. W. Marriott (GE) w/o drawings

PLANT Cooper Nuclear Station

BYPASS CAPACITY

Plant Steam Bypass Capacity, % Rated 25

PLANT Cooper Nuclear Station

SYSTEMS AND COMPONENTS SHARED BETWEEN UNITS

PAGE 1 CONTINUED PAGE ____.

Single-unit plant check here [X] and do not complete

PLANT Cooper Nuclear Station

PLANT-SPECIFIC SYSTEM INFORMATION

System	General		Water Sources		Instrumentation and Control		Frequency of System and Component Tests
	Safety Classification	Seismic Category	Safety Classification	Seismic Category	Safety Classif.	Seismic Category	
1. RCIC	N.S.R.	I	S.R. (Note A)	I	N.S.R.	II	SAAT=R, P&VOT=M FRT=Q
2. HPCI	S.R.	I	S.R. (Note A)	I	S.R.	I	SAAT=R, P&VOT=M FRT=Q
3. LPCS	N.A. (Note B)				N.A.	N.A.	SAAT=R, P&VOT=M, FRT=Q
4. LPCI	Part of RHR System Modes (See Item 7)				-	-	SAAT=R, P&VOT=M, FRT=Q
5. ADS	(Note C)		N.A.	N.A.	S.R.	I	(Note L) SAAT=R
6. SRV	S.R.	I	N.A.	N.A.	S.R.	I	(Note L)
7. RHR (Including shutdown cooling, steam condensing, suppression pool cooling, containment spray modes)	S.R.	I	S.R. (Note D)	I	S.R.	I	P&VOT=Q, FRT=Q
8. Service Water (SW)	S.R.	I	(Note E)		(Note K)		P&VOT=M, FRT=Q
9. RBCCW	(Note F)				(Note K)		P&VOT=M, FRT=Q
10. CRDS	(Note G)		N.S.R.	II	S.R.	I	(Note M)
11. CST	(Note H)		N.S.R.	II	S.R.	I	None
12. Main Feedwater	(Note I)		N.S.R.	II	N.S.R.	II	None
13. Recirculation Pump/Motor Cooling	N.S.R.	II	(Note J)	II	N.S.R.	II	None

Legend:
S.R. - Safety Related
N.S.R. - Non-Safety Related
N.A. - Not Applicable

M = Once/Month
Q = Once/3 Months
R = Once/Operating Cycle (or each refueling)
SAAT = Simulated Automatic Actuation Test
P&VOT = Pump and Valve Operability Test
FRT = Flow Rate Test

1402 032

Note A - For HPCI and RCIC Systems, water sources are either the Torus (Suppression Pool) or the Emergency Condensate Storage Tanks located in Basement of Control Building.

Note B - CNS has a Core Spray System (CS) which has the characteristics identical to those listed for the RHR System

Note C - Piping upstream of SRV's is safety related and Seismic Category I. Piping downstream of SRV's is not safety related and Seismic Category II

Note D - Water source is the Torus (Suppression Pool)

Note E - Water source is the river (Missouri). Classification does not apply.

Note F - RBCCW System is divided into essential portion (safety related, Seismic Category I) and a non-essential portion (non-safety related, Seismic Category II). The boundaries are delineated on the System Flow Diagrams (DWG 2031 attached).

Note G - CRD System is divided into safety related, Seismic Category I and non-safety related, Seismic Category I . The boundaries are delineated on the System Flow Diagram (DWG 2039 attached). Water source is from the Condensate Storage Tank.

Note H - Condensate Storage Tank (CRT) is Seismic Category II, not safety related. Water source is demineralized water from Plant Make-up System.

Emergency Condensate Storage Tank is Seismic Category I, safety related. Water source is from the Condensate Storage Tank.

Note I - Main Feedwater is Seismic Category II, not safety related, from Hotwell (Main Condenser) to Steam Tunnel.

From Steam Tunnel to Reactor Pressure Vessel, System is safety related, Seismic Category I.

Water source is from the Condensate Storage Tank

Note J - Cooling Water Supply is from the RBCCW System (Note F).

Note K - SW and RBCCW Systems are composed of safety and non-safety related categories. Instrumentation and controls required for safety related functions have been qualified for Seismic Category I service.

Note L - Half of the SRV's are bench checked once per operating cycle. All SRV's are tested every two cycles.

Note M - Each operable control rod is exercised one notch once each week when >30% power. Scram time tests = R. 10% of the CRD's are scram time tested at 16 week intervals.

PLANT Cooper UNIT —

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

PAGE 1 CONTINUED ON PAGE 2

POOR ORIGINAL

1102 0035 20V1

Penetration Number	Line size, In.	System	Is System an Engineered safety function	Figure	Process Fluid	Isolation Valves: Valve Number	Isolation Signal Code(s)	Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Rm.	Positions: Normal	Shutdown	Post Accident	Power Failure	Comments
7A	24"	Main Steam (ms)	Y	A	S	80A	I	I	GB	AO	A	Rm	3-5	A	D	O	C	C	C	
			Y	A	S	86A	I	O	GB	AO	A	Rm	3-5	A	D	O	C	C	C	
7B	24"	Main Steam (ms)	Y	A	S	80B	I	I	GB	AO	A	Rm	3-5	A	D	O	C	C	C	
			Y	A	S	86B	I	O	GB	AO	A	Rm	3-5	A	D	O	C	C	C	
7C	24"	Main Steam (ms)	Y	A	S	80C	I	I	GB	AO	A	Rm	3-5	A	D	O	C	C	C	
			Y	A	S	86C	I	O	GB	AO	A	Rm	3-5	A	D	O	C	C	C	
7D	24"	Main Steam (ms)	Y	A	S	80D	I	I	GB	AO	A	Rm	3-5	A	D	O	C	C	C	
			Y	A	S	86D	I	O	GB	AO	A	Rm	3-5	A	D	O	C	C	C	
8	3"	Condensate Drain	N	B	W	74	I	I	GT	MO	A	Rm	≤30	AC	O	O	C	C	AI	
			N	B	W	79	I	O	GT	MO	A	Rm	≤30	DC	D	O	C	C	AI	
9A	18"	Feedwater (RF)	Y	C	W	156V	—	O	CK	—	RF	N.A	—	—	—	O	C	C	—	
			Y	C	W	165V	—	I	CK	—	RF	N.A	—	—	—	O	C	C	—	
		RCIC	Y	C	W	23	—	O	CK	AO	RF	N.A	—	A	D	C	C	O	C	
			Y	C	W	17	—	O	GB	MO	RM	N.A	—	AC	D	C	C	C	AI	
		RWCU	N	C	W	15	—	O	CK	—	RF	—	—	—	AC	C	C	C	—	
9B	18"	Feedwater (RF)	Y	D	W	135V	—	O	CK	—	RF	—	—	—	—	O	C	C	—	
			Y	D	W	147V	—	I	CK	—	RF	—	—	—	—	O	C	C	—	
		HPCI	Y	D	W	18	—	O	CK	AO	RF	RM	—	—	D	C	C	O	C	
			Y	D	W	57	—	O	GB	MO	RM	N.A	—	AC	D	C	C	C	AI	
10	3"	RCIC	Y	E	S	15	IV	I	GT	MO	A	RM	≤25	AC	D	O	S	O	AI	Note 1
			Y	E	S	16	V	O	GT	MO	A	RM	≤25	DC	D	O	S	O	AI	Note 1
11	10"	HPCI	Y	F	S	15	IV	I	GT	MO	A	RM	≤60	AC	D	O	S	O	AI	Note 1
			Y	F	S	16	V	O	GT	MO	A	RM	≤60	DC	D	O	S	O	AI	Note 1
12	20"	RHR	Y	G	W	17	II	O	GT	MO	A	RM	≤40	DC	D	C	O	C	AI	
			Y	G	W	18	II	I	GT	MO	A	RM	≤40	AC	D	C	O	C	AI	
13A	24"	RHR	Y	H	W	25A	—	O	GT	MO	A	RM	≤35	DC	D	C	O	O	AI	Note 1, 2
			Y	H	W	27A	—	O	GB	MO	A	RM	≤24	AC	D	C	O	O	AI	Note 1, 2

PLANT Cooper UNIT ___

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

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Penetration Number	Line Size, In.	System	Is System an Engineered safety function	Figure	Process Fluid	Valve Number	Isolation Signal Code(s)	Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Rm.	Positions: Normal	Positions: Shutdown	Positions: Post Accident	Positions: Power Failure	Comments
		Isolation Valves																		
13B	24"	RHR	Y	G	W	25B	—	O	GT	mo	A	Rm	≤20	DC	D	C	O	O	AI	Note 1, 2
			Y	G	W	27B	—	O	GB	mo	A	Rm	≤35	AC	D	C	O	O	AI	Note 1, 2
14	6"	RWCU	N	J	W	15	III	I	GT	mo	A	Rm	≤60	AC	D	O	O	C	AI	
			N	J	W	18	III	O	GT	mo	A	Rm	≤60	DC	D	O	O	C	AI	
16A	10"	Core Spray (CS)	Y	K	W	11A	—	O	GT	mo	A	Rm	—	AC	D	O	O	O	AI	Note 1
			Y	K	W	12A	—	O	GT	mo	A	Rm	≤60	AC	D	C	C	O	AI	Note 1
16B	10"	Core Spray (CS)	Y	K	W	11B	—	O	GT	mo	A	Rm	—	AC	D	O	O	O	AI	Note 1
			Y	K	W	12B	—	O	GT	mo	A	Rm	≤60	AC	D	C	C	O	AI	Note 1
17	6"	RHR	Y	G	W	32	II	I	GT	mo	A	Rm	≤60	AC	D	C	C	C	AI	
			Y	G	W	33	II	O	GT	mo	A	Rm	≤60	DC	D	C	C	C	AI	
18	3"	Rad Waste (RW)	N	M	W	732	II	O	GT	AO	A	Rm	≤15	A	D	O	O	C	C	
			N	M	W	733	II	O	GT	AO	A	Rm	≤15	A	D	O	O	C	C	
19	3"	Rad Waste (RW)	N	M	W	765	II	O	GT	AO	A	Rm	≤15	A	D	O	O	C	C	
			N	M	W	766	II	O	GT	AO	A	Rm	≤15	A	D	O	O	C	C	
20	4"	Demineralized Water (DW)	N	N	W	133	—	O	GT	—	M	—	—	H	N	C	O	C	—	
			N	N	W	219	—	I	GT	—	M	—	—	H	D	C	O	C	—	
21	1"	Service Air (SA)	N	O	A	15	—	O	CK	—	RF	—	—	H	N	C	O	C	—	
			N	O	A	357	—	O	GB	—	M	—	—	H	N	C	O	C	—	
22	1"	Instrument Air (IA)	N	P	A	14	—	O	CK	—	RF	—	—	H	N	C	O	C	—	
			N	P	A	87	—	O	GB	—	M	—	—	H	N	C	O	C	—	
		Primary Containment (PC)	N	P	N_2	173	—	O	GB	—	M	—	—	H	N	O	C	O	—	No Supply to IA header is Drywell
23	8"	REC	Y	Q	W	7	—	I	CK	—	RF	—	—	H	N	O	O	O	—	
			Y	Q	W	702	—	O	GT	mo	Rm	M	—	AC	D	O	O	O	AI	
24	8"	REC	Y	Q	W	709	—	O	GT	mo	Rm	M	—	AC	D	O	O	O	AI	
25	20"	Primary Containment (PC)	Y	R	A	232	VI	O	B	mo	A	Rm	≤15	AC	D	O	O	C	AI	
			Y	R	A	238	VI	O	B	AO	A	Rm	≤15	A	D	O	O	C	C	
		ICAD	N	R	A	1305	II	O	GT	mo	A	Rm	≤15	DC	D	C	C	C	AI	Note 6
			N	R	A	1306	II	O	GT	mo	A	Rm	≤15	AC	D	C	C	C	AI	Note 6

PLANT Cooper UNIT —

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

PAGE 3 CONTINUED ON PAGE 4

Penetration Number	Line Size, In.	System	Is System an Engineered Safety Function	Figure	Process Fluid	Valve Number	Isolation Signal Code(s)	Isolation Valves: Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Rm	Positions: Normal	Shutdown	Post Accident	Power Failure	Comments
26	20"	Primary Containment	Y	S	A	231	VII	O	B	MO	A	Rm	≤15	AC	D	C	O	C	AI	
			Y	S	A	246	VII	O	B	AO	A	Rm	≤15	A	D	C	O	C	C	
		ACAD	N	S	A	1310	II	O	B	MO	A	Rm	≤15	DC	D	C	C	C	AI	Note 6
27A	1"	NBI	Y	I	W	53	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	19	—	O	BCK	—	EF	—	—	P	N	O	O	O	—	
27B	1"	NBE	Y	I	W	54	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	20	—	O	BCK	—	EF	—	—	P	N	O	O	O	—	
27C	1"	HPCI	Y	I	W	196	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	10	—	O	BCK	—	EF	—	—	P	N	O	O	O	—	
27D	1"	HPCI	Y	I	W	197	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	11	—	O	BCK	—	EF	—	—	P	N	O	O	O	—	
27E	1"	REC	N	T	A	466	—	O	GB	—	M	—	—	H	N	C	C	C	—	Note 4
27F	1"	RHR	N	T	A	374	—	O	GB	—	M	—	—	H	N	C	C	C	—	Note 4
28A	1"	NBI	Y	I	W	45	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	13	—	O	BCK	—	EF	—	—	P	N	O	O	O	—	
			Y	I	W	46	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	14	—	O	BCK	—	EF	—	—	P	N	O	O	O	—	
28B	1"	NBI	Y	I	W	47	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	15	—	O	BCK	—	EF	—	—	P	N	O	O	O	—	
28C	1"	NBI	Y	I	W	44	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	13	—	O	BCK	—	EF	—	—	P	N	O	O	O	—	
28D	1"	NBI	Y	I	W	43	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	11	—	O	BCK	—	EF	—	—	P	N	O	O	O	—	
28E	1"	NBI	Y	I	W	42	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	10	—	O	BCK	—	EF	—	—	P	N	O	O	O	—	
28F	1"		Y	I	W	573	—	O	GB	—	M	—	—	H	N	O	O	O	—	
				I	W	48	—	O	BCV	—		—	—	P	N	O	O	O	—	
29A	1"	NBI	Y	I	W	57	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	28		O	BCK	—	EF	—	—	P	N	O	O	O	—	

PLANT Cooper UNIT —

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

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POOR ORIGINAL

Penetration Number	Line Size, In.	System	Is System an Engineered Safety Function	Figure	Process Fluid	Valve Number	Isolation Signal Code(s)	Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Rm.	Positions: Normal	Positions: Shutdown	Positions: Post Accident	Power Failure	Comments
29a	1"	NBI	Y	I	W	58	—	O	GB	—	M	—	—	H	N	O	O	O	C	
			Y	I	W	24	—	O	BCV	—	EF	—	—	G	N	O	O	O	—	
29b	1"	NBI	Y	I	W	59	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	25	—	O	BCV	—	EF	—	—	G	N	O	O	O	—	
29c	1"	NBI	Y	I	W	56	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	22	—	O	BCV	—	EF	—	—	G	N	O	O	O	—	
29d	1"	NBI	Y	I	W	55	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	21	—	O	BCV	—	EF	—	—	G	N	O	O	O	—	
29e	1"	RRU	N	I	A	216	—	O	GB	—	M	—	—	H	N	O	O	O	—	Air Supply to ABV-7412V
29f	1"	HVAC	N	U	A	528	—	O	SV	SO	A	—	—	AC	N	C	C	C	C	Note 3
30a	1"	MS	Y	I	W	189	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	11	—	O	BCV	—	EF	—	—	G	N	O	O	O	—	
30b	1"	MS	Y	I	W	188	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	10	—	O	BCV	—	EF	—	—	G	N	O	O	O	—	
30c	1"	MS	Y	I	W	191	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	12	—	O	BCV	—	EF	—	—	G	N	O	O	O	—	
30d	1"	MS	Y	I	W	190	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	I	W	13	—	O	BCV	—	EF	—	—	G	N	O	O	O	—	
30e	1"	NBI	N	I	A	502	—	O	GB	—	M	—	—	H	N	C	C	C	—	Supply to MSIV-222 (Ha & Flange seal Note 4 valve)
				I																
30f	1"	MS	Y	I	A	900	—	O	GB	—	M	—	—	H	N	C	C	C	—	Supply to MSIV-739 (head vent valve Note 4
31a	1"	RR	N	I	W	45	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			N	I	W	10	—	O	BCV	—	EF	—	—	G	N	O	O	O	—	
31b	1"	RR	N	I	W	46	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			N	I	W	11	—	O	BCV	—	EF	—	—	G	N	O	O	O	—	
31c	1"	RR	N	I	W	49	—	O	GB	—	M	—	—	H	N	C	C	C	—	Note 5
			N	I	W	14	—	O	BCV	—	EF	—	—	G	N	O	O	O	—	

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PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

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Penetration Number	Line Size, In.	System	Is System an Engineered safety function	Figure	Process Fluid	Valve Number	Isolation Signal Code(s)	Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Rm.	Positions: Normal	Positions: Shutdown	Positions: Post Accident	Positions: Power Failure	Comments
																Isolation Valves				
31d	1"	RR	N	T	W	64	—	O	GB	—	M	—	—	H	N	LC	LC	LC	I	Note 5
			N	T	W	29	—	O	BCV	—	EF	—	—	S	N	O	O	O	I	
31e	1"	RR	N	T	W	51	—	O	GB	—	M	—	—	H	N	O	O	O	I	
			N	T	W	16	—	O	BCV	—	EF	—	—	S	N	O	O	O	I	
31f	1"	RR	N	T	W	66	—	O	GB	—	M	—	—	H	N	O	O	O	I	
			N	T	W	31	—	O	BCV	—	EF	—	—	S	N	O	O	O	I	
32a	1"	RR	N	T	W	53	—	O	GB	—	M	—	—	H	N	O	O	O	I	
			N	T	W	18	—	O	BCV	—	EF	—	—	S	N	O	O	O	I	
32b	1"	RR	N	T	W	52	—	O	GB	—	M	—	—	H	N	O	O	O	I	
			N	T	W	17	—	O	BCV	—	EF	—	—	S	N	O	O	O	I	
32c	1"	RR	N	T	W	62	—	O	GB	—	M	—	—	H	N	O	O	O	I	
			N	T	W	27	—	O	BCV	—	EF	—	—	S	N	O	O	O	I	
32d	1"	RR	N	T	W	63	—	O	GB	—	M	—	—	H	N	O	O	O	I	
			N	T	W	28	—	O	BCV	—	EF	—	—	S	N	O	O	O	I	
32e	1"	RR	N	T	W	50	—	O	GB	—	M	—	—	H	N	O	O	O	I	
			N	T	W	15	—	O	BCV	—	EF	—	—	S	N	O	O	O	I	
32f	1"	RR	N	T	W	65	—	O	GB	—	M	—	—	H	N	O	O	O	I	
			N	T	W	30	—	O	BCV	—	EF	—	—	S	N	O	O	O	I	
33a	1"	RR	N	T	W	47	—	O	GB	—	M	—	—	H	N	O	O	O	I	
			N	T	W	13	—	O	BCV	—	EF	—	—	S	N	O	O	O	I	
33b	1"	RR	N	T	W	48	—	O	GB	—	M	—	—	H	N	O	O	O	I	
			N	T	W	13	—	O	BCV	—	EF	—	—	S	N	O	O	O	I	
33c	1"	RR	N	T	W	62	—	O	GB	—	M	—	—	H	N	O	O	O	I	
			N	T	W	37	—	O	BCV	—	EF	—	—	S	N	O	O	O	I	
33d	1"	RR	N	T	W	63	—	O	GB	—	M	—	—	H	N	O	O	O	I	
			N	T	W	28	—	O	BCV	—	EF	—	—	S	N	O	O	O	I	
33e	1"	NBI	N	T	A	501	—	O	GB	—	M	—	—	H	N	C	C	C	I	Air supply to 1751-AO Note 4

PLANT Cooper UNIT 1

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

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Penetration Number	Line Size, In.	System	Is System an Engineered safety function	Figure	Process Fluid	Valve Number	Isolation Signal Code(s)	Isolation Valves: Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Rm.	Positions: Normal	Shutdown	Post Accident	Power Failure	Comments
33f	1"	ms	N	T	A	899	I	O	GB	—	M	—	—	H	N	C	C	C	—	Air Supply to ms-AO-738 Wk 4
34a	1"	ms	Y	I	W	193	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	T	W	16	—	O	BCK	—	EF	—	—	B	N	O	O	O	—	
34b	1"	ms	Y	T	W	192	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	T	W	14	—	O	BCK	—	EF	—	—	B	N	O	O	O	—	
34c	1"	ms	Y	T	W	195	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	T	W	17	—	O	BCK	—	EF	—	—	B	N	O	O	O	—	
34d	1"	ms	Y	T	W	194	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			Y	T	W	15	—	O	BCK	—	EF	—	—	B	N	O	O	O	—	
34e	1"	CS	N	T	A	141	—	O	GB	—	M	—	—	H	N	C	C	C	—	
34f	1"	CS	N	T	A	142	—	O	GB	—	M	—	—	H	N	C	C	C	—	
35a	3/8"	TIP "D"	W	V	—	107D	II	O	BL	SO	A	RM		AC	D	C	C	C	C	Double "O" Ring Seal
35b	3/8"	TIP "A"	W	V	—	107A	II	O	BL	SO	A	RM		AC	D	C	C	C	C	Double "O" Ring Seal
35c	3/8"	TIP "C"	W	V	—	107C	II	O	BL	SO	A	RM		A	D	C	C	C	C	Double "O" Ring Seal
35d	3/8"	TIP "B"	W	V	—	107B	II	O	BL	SO	A	RM			D	C	C	C	C	Double "O" Ring Seal
35e	3/8"	TIP N2 Purge	W	V	N_2	113	—	O	CK	—	EF	—	—	P	N	O	O	O	—	Double "O" Ring Seal
36	3"	Spare																		Line is capped inside and outside drywell

PLANT Cooper UNIT —

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

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POOR ORIGINAL

Penetration Number	Line Size, In.	System	Is System an Engineered safety function	Figure	Process Fluid	Valve Number	Isolation Signal Code(s)	Isolation Valves: Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Rm.	Positions: Normal	Shutdown	Post Accident	Power Failure	Comments
37A→	1"	CRD insert	Y	W	W	101	—	O	GL	—	M	—	—	H	N	O	O	O	O	
37D		(one line of 37C used	Y	W	W	120	—	O	SV	SO	RM	—	—	AC	N	C	C	C	C	
		to CRD mini-Purge to	Y	W	W	123	—	O	SV	SO	RM	—	—	AC	N	C	C	C	C	
		1A RR Pump Seal)	Y	W	W	126	—	C	DCV	AO	A	RM	—	A		C	C	O	O	
			N	X	W	14	—	I	CK	—	RF	—	—	P	N	O	O	O	O	
			N	X	W	54	—	I	GT	—	M	—	—	H	N	O	O	O	—	
			N	X	W	13	—	O	CK	—	RF	—	—	P	N	O	O	O	—	
			N	X	W	52	—	O	GT	—	M	—	—	H	N	O	O	O	—	
38A→	1"	CRD withdraw	Y	W	W	102	—	O	GB	—	M	—	—	H	N	O	O	O	—	
38D		(one line of 38C used	Y	W	W	121	—	O	SV	SO	RM	—	—	AC	N	C	C	C	C	
		for CRD mini-Purge to	Y	W	W	122	—	O	SV	SO	RM	—	—	AC	N	C	C	C	C	
		1B RR Pump Seal	Y	W	W	127	—	O	DCV	AO	A	RM	—	A		C	C	O	O	
				X	W	16	—	I	CK	—	RF	—	—	P	N	O	O	O	—	
			N	X	W	55	—	I	GT	—	M	—	—	H	N	O	O	O	—	
			N	X	W	15	—	O	CK	—	RF	—	—	P	N	O	O	O	—	
			N	X	W	53	—	O	GT	—	M	—	—	H	N	O	O	O	—	
39A	12"	RHR	Y	H	W	26A	—	O	ET	MO	A	RM	≤20	AC	D	C	C	C	AI	
			Y	H	W	31A	—	O	GT	MO	A	RM	≤20	AC	D	C	C	C	AI	
39B	12"	RHR	Y	G	W	26B	—	O	GT	MO	A	RM	≤20	AC	D	C	C	C	AI	
			Y	G	W	31B	—	O	GT	MO	A	RM	≤20	AC	D	C	C	C	AI	
		ACAD	N	Z	A	1311	II	O	GT	MO	A	RM	≤15	DC	D	C	C	C	AI	Note 6
			N	Z	A	1312	II	O	GT	MO	A	RM	≤15	C	D	C	C	C	AI	Note 6
			N	Z	A	42	—	O	GB	—	M	—	—	H	N	O	O	O	—	

PLANT Cooper UNIT -

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

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Penetration Number	Line Size, In.	System	Is System an Engineered safety function	Figure	Process Fluid	Valve Number	Isolation Signal Code(s)	Isolation Valves: Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Rm.	Positions: Normal	Shutdown	Post Accident	Power Failure	Comments
40A a	1"	RR	N	T	W	35	-	O	GB	-	M	-	-	H	N	O	O	O	O	
			N	T	W	38	-	O	BCV	-	EF	-	-	P	N	O	C	C	O	
40A-b	1"	RR	N	T	W	52	-	O	GB	-	M	-	-	H	N	O	O	O	O	
			N	T	W	18	-	O	BCV	-	EF	-	-	P	N	O	C	C	O	
40A-c	1"	RR	N	T	W	49	-	O	GB	-	M	-	-	H	N	O	O	O	O	
			N	T	W	17	-	O	BCV	-	EF	-	-	P	N	O	C	C	O	
40A-d	1"	RR	N	T	W	37	-	O	GB	-	M	-	-	H	N	O	O	O	O	
			N	T	W	36	-	O	BCV	-	EF	-	-	P	N	O	C	C	O	
e	1"	RR	N	T	W	48	-	O	GB	-	M	-	-	H	N	O	O	O	O	
			N	T	W	16	-	O	BCV	-	EF	-	-	P	N	O	C	C	O	
40A-f	1"	RR	N	T	W	36	-	O	GB	-	M	-	-	H	N	O	O	O	O	
			N	T	W	37	-	O	BCV	-	EF	-	-	P	N	O	C	C	O	
40B-a	1"	RR	N	T	W	38	-	O	GB	-	M	-	-	H	N	O	O	O	O	
			N	T	W	35	-	O	BCV	-	EF	-	-	P	N	O	C	C	O	
40B-b	1"	RR	N	T	W	51	-	O	GB	-	M	-	-	H	N	O	O	O	O	
			N	T	W	31	-	O	BCV	-	EF	-	-	P	N	O	C	C	O	
40B-c	1"	RR	N	T	W	50	-	O	GB	-	M	-	-	H	N	O	O	O	O	
			N	T	W	30	-	O	BCV	-	EF	-	-	P	N	O	C	C	O	
40B-d	1"	RR	N	T	W	40	-	O	GB	-	M	-	-	H	N	O	O	O	O	
			N	T	W	33	-	O	BCV	-	EF	-	-	P	N	O	C	C	O	
40B-e	1"	RR	N	T	W	41	-	O	GB	-	M	-	-	H	N	O	O	O	O	
			N	T	W	32	-	O	BCV	-	EF	-	-	P	N	O	C	C	O	
40B-f	1"	RR	N	T	W	39	-	O	GB	-	M	-	-	H	N	O	O	O	O	
			N	T	W	34	-	O	BCV	-	EF	-	-	P	N	O	C	C	O	

PLANT Cooper UNIT —

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

PAGE 9 CONTINUED ON PAGE 10

Penetration Number	Line Size, In.	System	Is System an Engineered safety function	Figure	Process Fluid	Valve Number	Isolation Signal Code(s)	Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Rm.	Positions: Normal	Positions: Shutdown	Positions: Post Accident	Positions: Power Failure	Comments
							Isolation Valves													
40C-a	1"	RR	N	T	W	34	+	O	GB	—	M	—	—	H	N	O	O	O	—	
			N	T	W	47	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
40C-b	1"	RR	N	T	W	64	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			N	T	W	28	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
40C-c	1"	RR	N	T	W	61	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			N	T	W	27	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
40C-d	1"	RR	N	T	W	32	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			N	T	W	45	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
40C-e	1"	RR	N	T	W	31	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			N	T	W	44	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
40C-f	1"	RR	N	T	W	33	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			N	T	W	46	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
40D-a	1"	RR	N	T	W	60	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			N	T	W	26	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
40D-b	1"	RR	N	T	W	63	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			N	T	W	40	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
40D-c	1"	RR	N	T	W	62	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			N	T	W	39	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
40D-d	1"	RR	N	T	W	29	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			N	T	W	42	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
40D-e	1"	RR	N	T	W	28	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			N	T	W	41	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
40D-f	1"	RR	N	T	W	30	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			N	T	W	43	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	

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PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

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POOR ORIGINAL

Penetration Number	Line Size, In.	System	Is System an Engineered safety function	Figure	Process Fluid	Valve Number	Isolation Signal Code(s)	Isolation Valves: Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Rm.	Positions: Normal	Shutdown	Post Accident	Power Failure	Comments
41	1"	RR		AA	W	740	VII.	O		AO	A	Am	≤15	A	D	O	C	C	C	
				AA	W	741	VII	I		AO	A	Am	≤15	A	D	O	C	C	C	
42	1½"	Standby liquid Control	Y	BB	W	16	—	I	GT	—	—	—	—	H	ID	LO	LO	LO	—	
			Y	BB	W	17	—	I	CK	—	RF	—	—	P	N	C	C	C	—	
			Y	BB	W	13	—	O	CK	—	RF	—	—	P	N	C	C	C	—	
			Y	BB	W	15	—	O	GT	—	—	—	—	H	N	LO	LO	LO	—	
43	4"	RR (Decontamination)	N																	Penetrations Flanged Stub inside and outside drywell
44	4"	RR (Decontamination)	N																	
45		Spare																		
46a	1"	HVAC	N	U	A	327	—	O	GB	—	—	—	—	H	N	C	C	C	—	Drywell Ventilation System Damper Control Note 3
			N	U	A	521	—	O	SV	SO	A	Am	—	AC	N	O	O	C	C	
46b	1"	HVAC	N	U	A	328	—	O	GB	—	—	—	—	H	N	C	C	C	—	
			N	U	A	522	—	O	SV	SO	A	Am	—	AC	N	O	O	C	C	
46c	1"	HVAC	N	U	A	330	—	O	GB	—	—	—	—	H	N	C	C	C	—	
			N	U	A	524	—	O	SV	SO	A	Am	—	AC	N	C	O	C	C	
46d	1"	HVAC	N	U	A	331	—	O	GB	—	—	—	—	H	N	C	C	C	—	
			N	U	A	525	—	O	SV	SO	A	Am	—	AC	N	O	O	C	C	
46e	1"	HVAC	N	U	A	332	—	O	GB	—	—	—	—	H	N	C	C	C	—	
			N	U	A	526	—	O	SV	SO	A	Am	—	AC	N	O	O	C	C	
46f	1"	HVAC	N	U	A	333	—	O	GB	—	—	—	—	H	N	C	C	C	—	
			N	U	A	527	—	O	SV	SO	A	Am	—	AC	N	O	O	C	C	
47a	1"	HVAC	N	U	A	329	—	O	GB	—	—	—	—	H	N	C	C	C	—	
			N	U	A	523	—	O	SV	SO	A	Am	—	AC	N	O	O	C	C	
47b	1"	PC	Y	T	A		—	O	GB	—	—	—	—	H	N	O	C	O	—	PC-PI-513 Drywell Press Sensing Line
47c	1"	HVAC	N	U	A	325	—	O	GB	—	—	—	—	H	N	C	C	C	—	Drywell Ventilation System Damper Control Note 3
			N	U	A	501A	—	O	SV	SO	A	Am	—	AC	N	O	O	C	C	

PLANT Cooper UNIT —

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

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Isolation Valves

Penetration Number	Line Size, In.	System	Is System an Engineered Safety Function	Figure	Process Fluid	Valve Number	Isolation Signal Code(s)	Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Rm	Positions: Normal	Positions: Shutdown	Positions: Post Accident	Positions: Power Failure	Comments
47d	1"	HVAC	N	4	A	336	—	O	GB	—			—	H	N	C	C	C	—	AD 501B Drywell ventilation system damper control Note 3
			N	4	A	501B	—	O	SV	SO	A	—	—	AC	N	O	—	C	C	
47e	1"	HVAC	N	4	A	337	—	O	GB	—		—	—	H	N	C	C	C	—	AD 501C
			N	4	A	501C	—	O	SV	SO	A	—	—	AC	N	—	—	C	C	
47f	1"	HVAC	N	4	A	338	—	O	GB	—		—	—	H	N	C	C	C	—	AD501D
			N	4	A	501D	—	O	SV	SO	A	—	—	AC	N	—	—	C	C	
48	—	(SPARE)																		
49a	1"	RR	N	T	W	54	—	O	GB	—	M	—	—	H	N	LC	LC	LC	—	Note 5
			N	T	W	19	—	O	BCV	—	EF	—	—	P	Y	O	O	O	—	
49b	1"	RR	N	T	W	58	—	O	GB	—	M	—	—	H	N	LC	LC	LC	—	Note 5
			N	T	W	23	—	O	BCV	—	EF	—	—	P	Y	O	O	O	—	
49c	1"	RR	N	T	W	59	—	O	GB	—	M	—	—	H	N	LC	LC	LC	—	Note 5
			N	T	W	24	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
49d	1"	RR	N	T	W	55	—	O	GB	—	M	—	—	H	N	LC	LC	LC	—	Note 5
			N	T	W	20	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
49e	1"	REC	N	T	A	664	—	O	GB	—	m	—	—	H	N	C	C	C	—	Air Supply for REC-704 AV Note 4
			N																	
49f	1"	REC	N	T	A	665	—	O	GB	—	m	—	—	H	N	C	C	C	—	Air Supply for REC-705 AV Note 4
			N																	
50a	1"	RR	N	T	W	56	—	O	GB	—	M	—	—	H	N	LC	LC	LC	—	Note 5
			N	T	W	21	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	Note 5
50b	1"	RR	N	T	W	60	—	O	GB	—	M	—	—	H	N	LC	LC	LC	—	
			N	T	W	25	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	Note 5
50c	1"	RR	N	T	W	61	—	O	GB	—	M	—	—	H	N	LC	LC	LC	—	
			N	T	W	26	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	Note 5
50d	1"	RR	N	T	W	57	—	O	GB	—	M	—	—	H	N	LC	LC	LC	—	
			N	T	W	22	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	

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PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

PAGE 12 CONTINUED ON PAGE 13

Penetration Number	Line Size, In.	System	Is System an Engineered safety function	Isolation Valves: Figure	Process Fluid	Valve Number	Isolation Signal Code(s)	Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Rm.	Positions: Normal	Shutdown	Post Accident	Power Failure	Comments
50e	1"	RCIC	N	T	W	88	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			N	T	W	11	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
50f	1"	RCIC	N	T	W	87	—	O	GB	—	M	—	—	H	N	O	O	O	—	
			N	T	W	10	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
51a	1"	NBI	N	T	W	65	—	O	GB	—	M	—	—	H	N	O	O	O	—	
				T	W	29	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
51b	1"	RCC	N	T	A	663	—	O	GB	—	m	—	—	H	N	C	C	C	—	Air Supply for REC-703AV Note 4
51c	1"	RHR	N	T	A	375	—	O	GB	—	m	—	—	H	N	C	C	C	—	Air Supply for RHR-532AV Note 4
51d	1"	Primary Containment Instr	N	CC	A	42	—	O	GB	—	M	—	—	H	N	O	O	O	—	O_2+H_2 Sample line
51e	1"	Primary Containment Instr	N	CC	A	43	—	O	GB	—	M	—	—	H	N	O	O	O	—	O_2+H_2 Sample line
51f	1"	Primary Containment Instr	N	CC	A	44	—	O	GB	—	M	—	—	H	N	O	O	O	—	O_2+H_2 Sample line
52a	1"	RCIC	N	T	W	85	—	O	GB	—	M	—	—	H	N	O	O	O	—	
				T	W	12	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
52b	1"	RCIC	N	T	W	86	—	O	GB	—	M	—	—	H	N	O	O	O	—	
				T	W	13	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
52c	1"	Core Spray	N	T	W	65	—	O	GB	—	M	—	—	H	N	O	O	O	—	
				T	W	16	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
52d	1"	Core Spray	N	T	W	64	—	O	GB	—	M	—	—	H	N	O	O	O	—	
				T	W	17	—	O	BCV	—	EF	—	—	P	N	O	O	O	—	
52e	1"	RCC	N	T	A	667	—	O	GB	—	m	—	—	H	N	C	C	C	—	Air Supply for REC-707AV Note 4
52f	1"	RCC	N	T	A	668	—	O	GB	—	m	—	—	H	N	C	C	C	—	Air Supply for REC-708AV Note 4

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PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

PAGE 13 CONTINUED ON PAGE 14

Penetration Number	Line Size, In.	System	Is System an Engineered Safety Function	Figure	Process Fluid	Valve Number	Isolation Signal Code(s)	Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Rm.	Positions: Normal	Positions: Shutdown	Positions: Post Accident	Positions: Power Failure	Comments
203A	1"	Primary Containment	Y	CC	A	45	I	O	GB	—	m	—	—	H	N	C	C	C	C	H_2+O_2 Sample Point
203B	1"	Primary Containment	Y	CC	A	48	—	O	GB	—	m	—	—	H	N	C	C	C	C	H_2+O_2 Sample Return
205	20"	Primary Containment	Y	DD	A	233	VII	O	B	MO	A	Rm	≤15	AC	D	C	O	C	AI	
		" "	Y	DD	A	237	VI	O	B	AO	A	Rm	≤15	A	D	C	O	C	C	
		" "	Y	DD	A	13	—	O	VB	—	AF	—	—	—	D	C	C	C	—	
		" "	Y	DD	A	243	—	O	B	AO	Rm	—	≤20	A	D	C	C	C	C	
		" "	Y	DD	A	14	—	O	VB	—	AF	—	—	—	D	C	C	C	—	
		" "	Y	DD	A	244	—	O	B	AO	Rm	—	≤20	A	D	C	C	C	C	
		ACAD	N	DD	A	1303	II	O	GT	MO	A	Rm	≤15	DC	D	C	C	C	AI	Note 6
		ACAD	N	DD	A	1304	II	O	GT	MO	A	Rm	≤15	AC	D	C	C	C	AI	Note 6
206A	1"	Primary Containment	N	EE	W	214	—	O	GB	—	m	—	—	H	N	O	O	O	—	
206B	1"	" "	N	EE	W	217	—	O	GB	—	m	—	—	H	N	O	O	O	—	
206C	1"	" "	N	FF	W	59	—	O	GB	—	m	—	—	H	N	O	O	O	—	
206D	1"	" "	N	FF	W	60	—	O	GB	—	m	—	—	H	N	O	O	O	—	
209A	1"	PC	N	JJ			—	O	GT	—	m	—	—	H	N	O	O	O	—	
209B	1"	PC	N	JJ			—	O	GT	—	m	—	—	H	N	O	O	O	—	
209C	1"	PC	N	JJ			—	O	GT	—	m	—	—	H	N	O	O	O	—	
209D	1"	PC	N	JJ			—	O	GT	—	m	—	—	H	N	O	O	O	—	
210A	18"	RHR	Y	H	W	21A	—	O	GT	MO	Rm	FJ	≤40	AC	D	C	C	C	AI	
		RHR	Y	H	W	16A	—	O	GT	MO	A	Rm	≤60	AC	D	O	C	C	AI	
		RHR	Y	H	W	10	—	O	CK	—	RF	—	—	P	—	C	C	C	—	
		RHR	Y	H	W	12	—	O	CK	—	RF	—	—	P	—	C	C	C	—	
		RCIC	Y	C	W	27	—	O	GB	MO	A	Rm	≤35		D	C	C	C	AI	
		RCIC	Y	C	W	13	—	O	CK	—	—	—	—	P	—	C	C	C	—	
		RHR	Y	H	W	37A	—	O	GB	MO	Rm	A1	≤60	AC	D	C	C	C	AI	
		RHR	Y	H	W	37A	—	O	GT	MO	Rm	M	≤180	AC	D	C	C	C	AI	

PLANT Cooper UNIT —

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

PAGE 14 CONTINUED ON PAGE 15

Penetration Number	Line Size, In.	System	Is System an Engineered safety Function	Figure	Process Fluid	Valve Number	Isolation Signal Code(s)	Isolation Valves: Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position, Indication in Control Rm	Positions: Normal	Shutdown	Post Accident	Power Failure	Comments
210B	18"	RHR	Y	G	W	21B	—	O	GT	mo	Rm	m	≤90	AC	D	C	C	C	AF	
—	—	"	Y	G	W	16B	—	O	GT	mo	A	Rm	≤60	AC	D	O	C	C	AI	
—	—	"	Y	G	W	11	—	O	CK	—	RF	—	—	P	N	C	C	C	—	
—	—	"	Y	G	W	13	—	O	CK	—	RF	—	—	P	N	C	C	C	—	
—	—	"	Y	G	W	37B	—	O	GB	mo	Rm	m	≤60	AC	D	C	C	C	AF	
—	—	"	Y	G	W	39B	—	O	GT	mo	Rm	m	≤180	AC	D	C	C	C	AF	
—	—	HPCI	Y	D	W	17	—	O	CK	—	RF	—	—	P	N	C	C	C	—	
—	—	HPCI	Y	D	W	25	—	O	GB	mo	A	Rm	≤10	DC	D	C	C	C	AI	
—	—	HPCI	Y	H	W	38A	—	O	GB	mo	Rm	m	≤20	AC	D	C	C	C	AI	See Note
211A	6"	RHR	Y	G	W	38B	—	O	GB	mo	Rm	m	≤20	AC	D	C	C	C	AI	See Note
211B	6"	RHR	Y	G	W	38B	—	O	GT	mo	A	Rm	≤15	AC	D	C	C		AI	Note 6
211B	—	ACAD	N	G	A	1301	II	O	GT	mo	A	Rm	≤15	DC	D	C	C		AI	Note 6
—	—	"	N	G	A	1302	II	O	GT	mo	A	Rm	≤15	DC	D	C	C		AI	Note 6
212	12"	RCIC	Y	E	S	15	—	O	CK	—	RF	—	—	P	N	C	C	O	—	
—	—	"	Y	E	S	37	—	O	SCV	—	RF	—	—	P	N	C	C	O	—	
213A	8"	RC	N																	Turbine drain Normal Shut
213B	8"	RC	N																	Turbine drain Normal Shut
214	24"	HPCI	Y	F	S	15		O	CK	—	RF	—	—	P	N	C	C	O	—	
—	—	HPCI	Y	F	S	44		O	SCV	—	RF	—	—	P	N	C	C	O	—	
—	—	HPCI	Y	F	W	70	IV	O	BL	AO	A	Rm	≤15	A	D	C	C	C	C	
—	—	HPCI	Y	F	W	71	IV	O	BL	AO	A	Rm	≤15	A	D	C	C	C	C	
—	—	RHR	Y	F	W	146A	—	O	GB	mo	Rm	m	≤30	AC	D	C	C	C	AI	
—	—	RHR	Y	F	W	147A	—	O	GB	mo	Rm	m	≤30	AC	D	C	C	C	AI	
—	—	RHR	Y	F	W	146B	—	O	GB	mo	Rm	m	≤30	AC	D	C	C	C	AI	
—	—	RHR	Y	F	W	147B	—	O	GB	mo	Rm	m	≤30	AC	D	C	C	C	AI	
215	1"	Primary Containment Isol	Y	FF	A	58		O	GG	—	m	—	—	H	N	O	O	O	—	
220	16"	Primary Containment	Y	GG	A	330	VI	O	B	mo	A	Rm	≤15	AC	D	C	C	C	AI	
—	—	Primary Containment	Y	GG	A	345	VI	O	B	AO	A	Rm	≤15	A	D	C	C	C	C	
—	—	ACAD	N	GG	A	1308	II	O	GT	mo	A	Rm	≤15	DC	D	C	C	C	AI	Note 6
—	—	RCIC	Y	F	A	12	—	—	CK	—	RF	—	—	P	N	C	C	O	—	
221	2"	RCIC	Y	E	A	42	—	—	SCV	—	RF	—	—	P	N	C	C	O	—	

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POOR ORIGINAL

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PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

PAGE 15 CONTINUED ON PAGE 16

Isolation Valves

Prim. Cont. Penetration Number	Line Size, In.	System	Is System an Engineered safety function	Figure	Process Fluid	Valve Number	Isolation Signal Code(s)	Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Rm.	Positions: Normal	Positions: Shutdown	Positions: Post Accident	Positions: Power Failure	Comments
222	2"	HPCI	Y	F	S	50	+	O	SCV	—	RF	—	—	P	N	C	C	O	—	
		"	Y	F	S	16	—	O	CK	—	RF	—	—	P	N	C	C	O	—	
223A	10"	Core Spray	Y	K	W	5A	—	O	GT	mo	m	—	—	AC	D	O	O	O	C	
		" "	Y	K	W	26A	—	C	GB	mo	Rm	m	—	AC	D	C	C	C	AI	
223B	10"	Core Spray	Y	K	W	5B	—	O	GT	mo	m	—	—	AC	D	O	O	O	O	
		" "	Y	K	W	26B	—	O	GB	mo	Rm	m	—	AC	D	C	C	C	AI	
224	6"	RCIC	Y	C	W	41	—	O	GT	mo	Rm	m	≤45	DC	D	C	C	C	AI	
		"	Y	C	W	23	—	O	GT	—	m	—	—	H	N	LO	O	O	—	
225A	20"	RHR	Y	H	W	13A	—	O	GT	mo	Rm	m	—	AC	D	O		O	AI	
		"	Y	H	W	17	—	O	GT	—	m	—	—	H	N	LO	O	O	—	
225B	20"	RHR	Y	H	W	13B	—	O	GT	mo	Rm	m	—	AC	D	O		O	AI	
		"	Y	H	W	18	—	O	GT	—	m	—	—	H	N	LO	O	O	—	
225C	20"	RHR	Y	G	W	13C	—	O	GT	mo	Rm	m	—	AC	D	O		O	AI	
		"	Y	G	W	19	—	O	GT	—	m	—	—	H	N	LO	O	O	—	
225D	20"	RHR	Y	G	W	13D	—	O	GT	mo	Rm	m	—	AC	D	O		O	AI	
		"	Y	G	W	20	—	O	GT	—	m	—	—	H	N	LO	O	O	—	
226	16"	HPCI	Y	D	W	58	IV	O	GT	mo	A	Rm	≤90	DC	D	C	C	C	AI	
		"	Y	D	W	12	—	O	GT	—	m	—	—	H	N	LO	LO	LO	—	
227A	16"	Core Spray	Y	K	W	7A	—	O	GT	mo	Rm	m	—	AC	D	O	O	O	AI	
		" "	Y	K	W	10	—	O	GT	—	m	—	—	H	N	LO	O	O	—	
227B	16"	Core Spray	Y	K	W	7B	—	O	GT	mo	Rm	m	—	AC	D	O	O	O	AI	
		" "	Y	K	W	11	—	O	GT	—	m	—	—	H	N	LO	O	O	—	
228	10"	Spare	—																	

PLANT Cooper UNIT 1

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

PAGE 16 CONTINUED ON PAGE 17

Penetration Number	Line Size, In.	System	Is System an Engineered safety function	Figure	Process Fluid	Valve Number	Isolation Signal Code(s)	Isolation Valves: Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Rm.	Positions: Normal	Shutdown	Post Accident	Power Failure	Comments
229A	1"	Instrument Air	N	HH	A	20	1	I	SV	SO	RM	—	—	AC	I	C	C	C	I	
229B	1"	" "	N	HH	A	21	—	I	SV	SO	RM	—	—	AC	I	C	C	C	I	
229C	1"	" "	N	HH	A	22	—	I	SV	SO	RM	—	—	AC	I	C	C	C	I	
229D	1"	" "	N	HH	A	23	—	I	SV	SO	RM	—	—	AC	I	C	C	C	I	
229E	1"	" "	N	HH	A	24	—	I	SV	SO	RM	—	—	AC	I	C	C	C	I	
229F	1"	" "	N	HH	A	25	—	I	SV	SO	RM	—	—	AC	I	C	C	C	I	
229G	1"	" "	N	HH	A	26	—	I	SV	SO	RM	—	—	AC	I	C	C	C	I	
229H	1"	" "	N	HH	A	27	—	I	SV	SO	RM	—	—	AC	I	C	C	C	I	
229J	1"	" "	N	HH	A	28	—	I	SV	SO	RM	—	—	AC	I	C	C	C	I	
229K	1"	" "	N	HH	A	29	—	I	SV	SO	RM	—	—	AC	I	C	C	C	I	
229L	1"	" "	N	HH	A	30	—	I	SV	SO	RM	—	—	AC	I	C	C	C	I	
229M	1"	" "	N	HH	A	31	—	I	SV	SO	RM	—	—	AC	I	C	C	C	I	

PLANT Cooper UNIT —

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

PAGE 17 CONTINUED ON PAGE 18

Electrical Penetrations Isolation Valves

Penetration Number	Line Size, In.	System	Is System an Engineered safety function	Figure	Process Fluid	Valve Number	Isolation Signal Code(s)	Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Rm.	Positions				Comments
																Normal	Shutdown	Post Accident	Power Failure	
100A	12"																			
100E	12"																			
100F	12"																			
100G	12"																			
100H	12"																			
101A	12"																			
101B	12"																			
101C	12"																			
101D	12"																			
101F	12"																			
102	12"																			
103	12"																			
104A	12"																			
104B	12"																			
104D	12"																			
104E	12"																			
105A	12"																			
105D	12"																			
106	12"																			
230	12"																			

PLANT Cooper UNIT —

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

ABBREVIATIONS

Engineered Safety Function

N = NO
Y = YES

Position Indication in Control Room

D = Direct
I = Indirect
N = None
Others stated in Table

Fluid

A = Air
S = Steam
W = Water
Others stated in Table

Isolation Valve Location

I = Inside Containment
O = Outside Containment
Others stated in Table

Isolation Valve Actuation Mode

A = Automatic
OP = Overpressure
RF = Reverse Flow
RM = Remote Manual
Others stated in Table
EF = Excess Flow
m = manual

Isolation Valve Positions

AI = As Is
C = Closed
O = Open
Others stated in Table
LC Locked Closed
LO Locked Open

Isolation Valve Type

B = Butterfly
BCK = Ball check
BL = Ball
CK = Check
DCV = Diaphragm Control Valve
GB = Globe
GT = Gate
RV = Relief
SCV = Stop Check
SV = Solenoid
VB = Vacuum Breaker
XV = Explosive
Others stated in Table
BCV = excess flow check valve

Isolation Valve Power Source

A = Air
AC = AC
DC = DC
H = Hand
P = Process fluid
Others stated in Table

Isolation Valve Actuator

AO = Air
MO = Motor
SO = Solenoid
Others stated in Table

Isolation Signal Codes (utility supply)

Code or Group	Parameter(s) Sensed 1 Isolation	Set Point (un.
(information on following pages)		

V. CONTAINMENT ISOLATION GROUPS

Group I

Isolation Signals:

1. Reactor low water level $\geq$ -37")
2. Main steam line low pressure ($\geq$ 850 psig) and mode switch in RUN
3. Main steam line area high temperature ($\leq$ 200°F)
4. Main steam line high radiation ($\leq$ 3 x normal full power background)
5. Main steam line high flow ($\leq$ 140% of rated flow)
6. Main condenser low vacuum ($\geq$ 7" hg)

Group II

Isolation Signals

1. Reactor low water level ($\geq$ +12.5")
2. High drywell pressure ($\leq$ +2 psig)

Group III

Isolation Signals

1. Reactor low water level ($\geq$+12.5")
2. RWCU system high flow ($\leq$ 200% of system rated flow)
3. RWCU system high area temperature ($\leq$ 200°F)
4. RWCU system high temperature ($\leq$ 140°F) (measured at non-regen HX outlet)

Group IV

Isolation Signals

1. HPCI steam line high flow ($\leq$ 300% of rated)
2. HPCI steam line area high temperature ($\leq$ 200°F)
3. HPCI steam line low pressure ($\geq$ 100 psig)
4. Manual isolation pushbutton (Only if initiation signal exists)

Group V

Isolation Signals

1. RCIC steam line high flow ($\leq$ 300% of rated)
2. RCIC steam line area high temperature ($\leq$ 200°F)
3. RCIC steam line low pressure ($\geq$ 50 psig)
4. Manual isolation pushbutton

Group VI

Isolation Signals

1. Group II isolation input; i.e.: High drywell pressure (≤ +2 psig) or low reactor water level (≥ +12.5") or

2. Reactor Building vent exhaust high radiation (≤ 100 mr/hr) (Tech. Spec. limit)

Group VII

Isolation Signals

1. Reactor low water level (≥ -37")

2. Main steam line high radiation (≤ 3 x normal full power background)

NOTES:

1. These valves if shut will open on a system initiation signal.

2. These valves open in shutdown when using this RHR Loop for shutdown cooling.

3. Drywell ventilation control system is isolated, providing maximum cooling to drywell.

4. These valves are kept closed except when required to operate the valve inside containment.

5. These lines were for instruments used for LPCI Loop Select logic. These instruments have been removed and the lines isolated at the penetration.

6. ACAD system is kept isolated due to not being approved by the NRC for use at this time.

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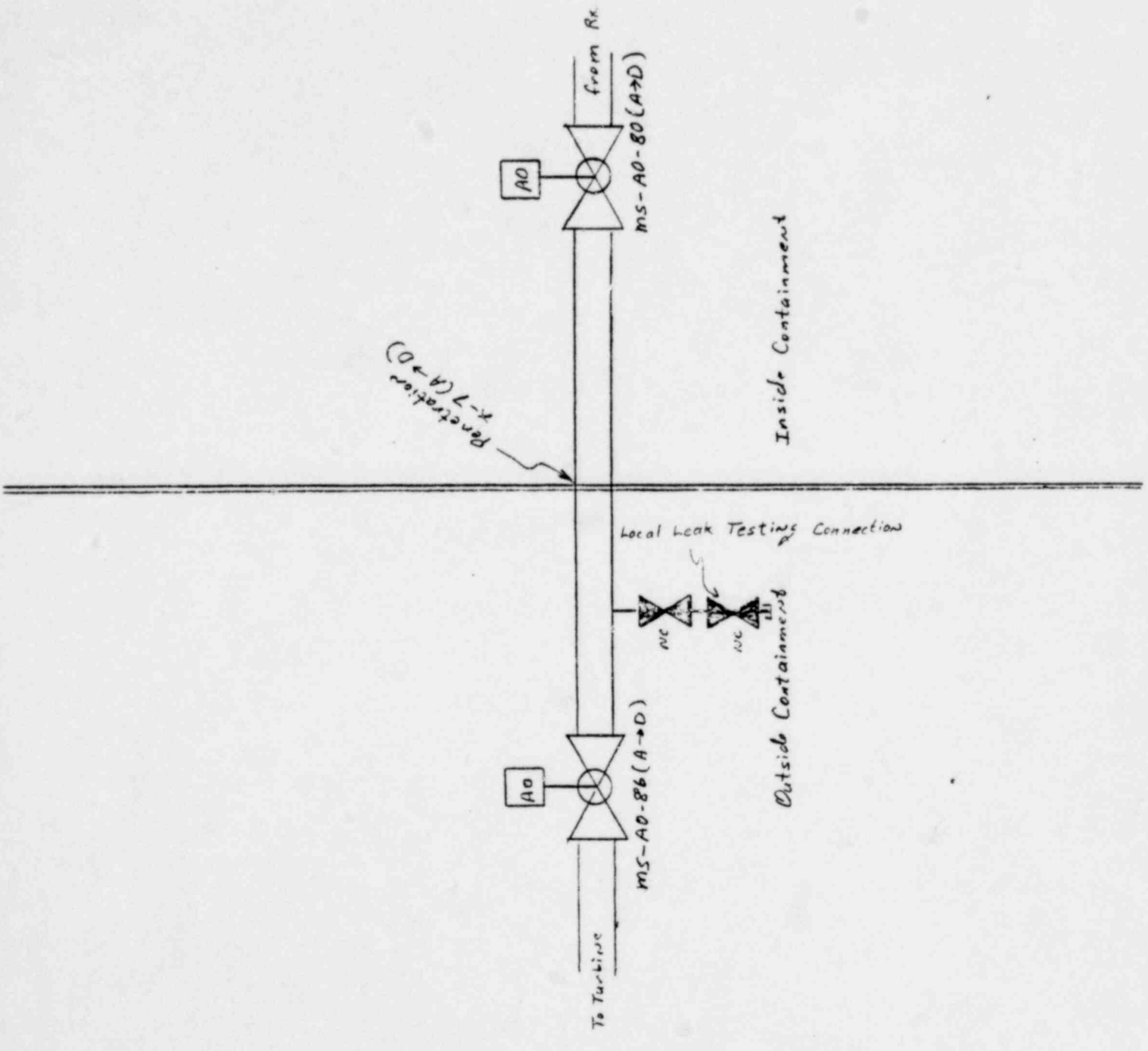
figure A



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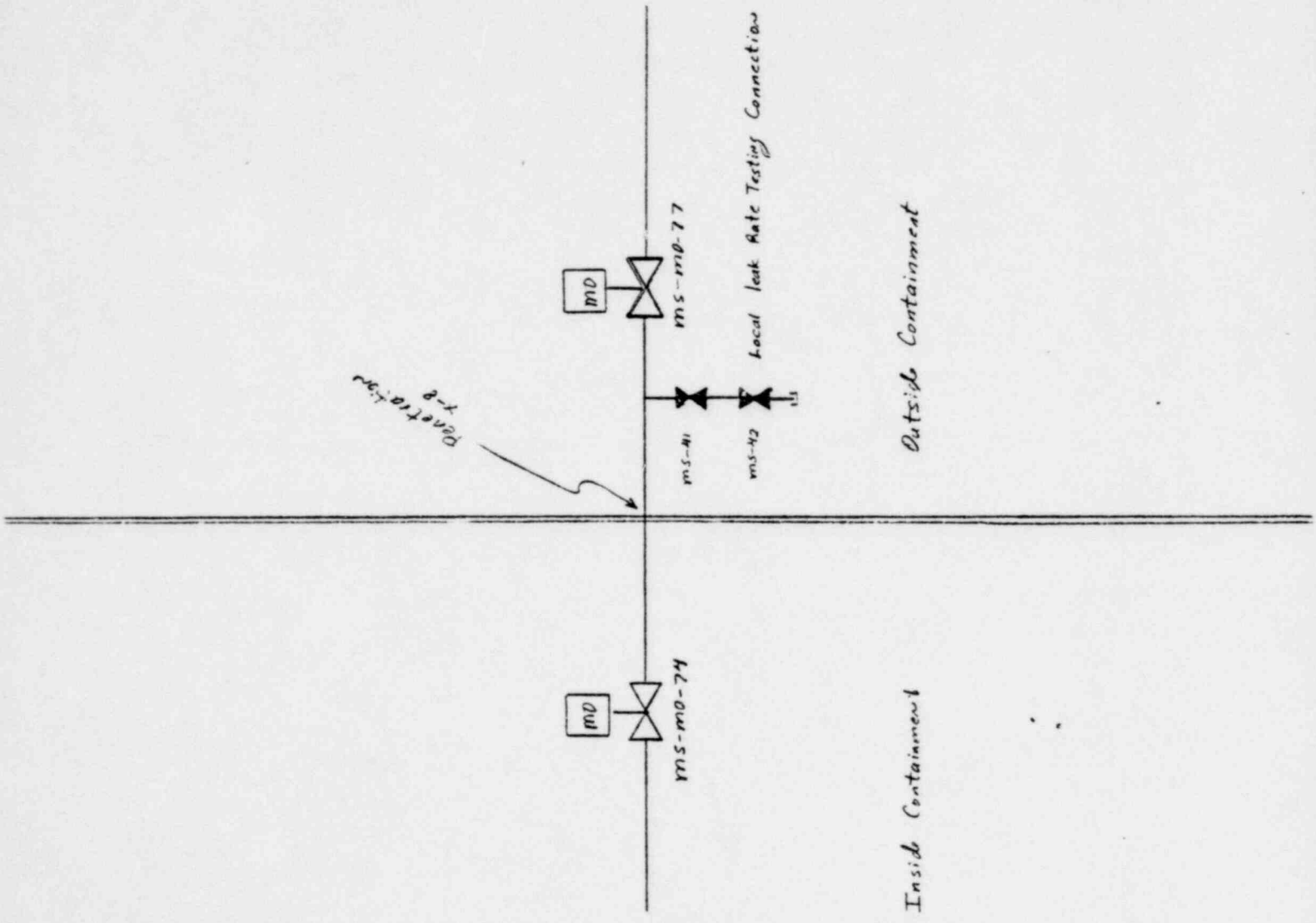
Plant Cooper

figure B



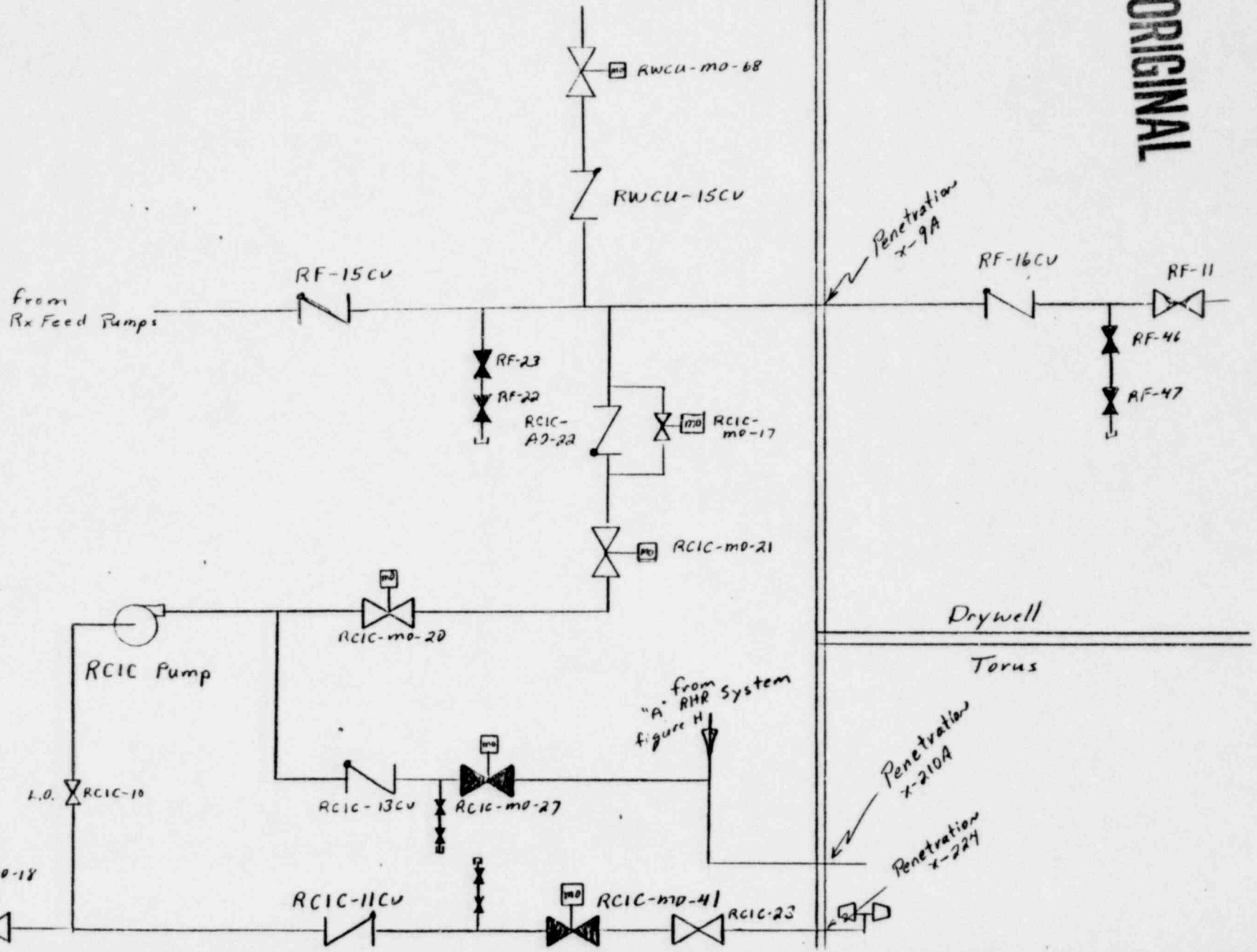


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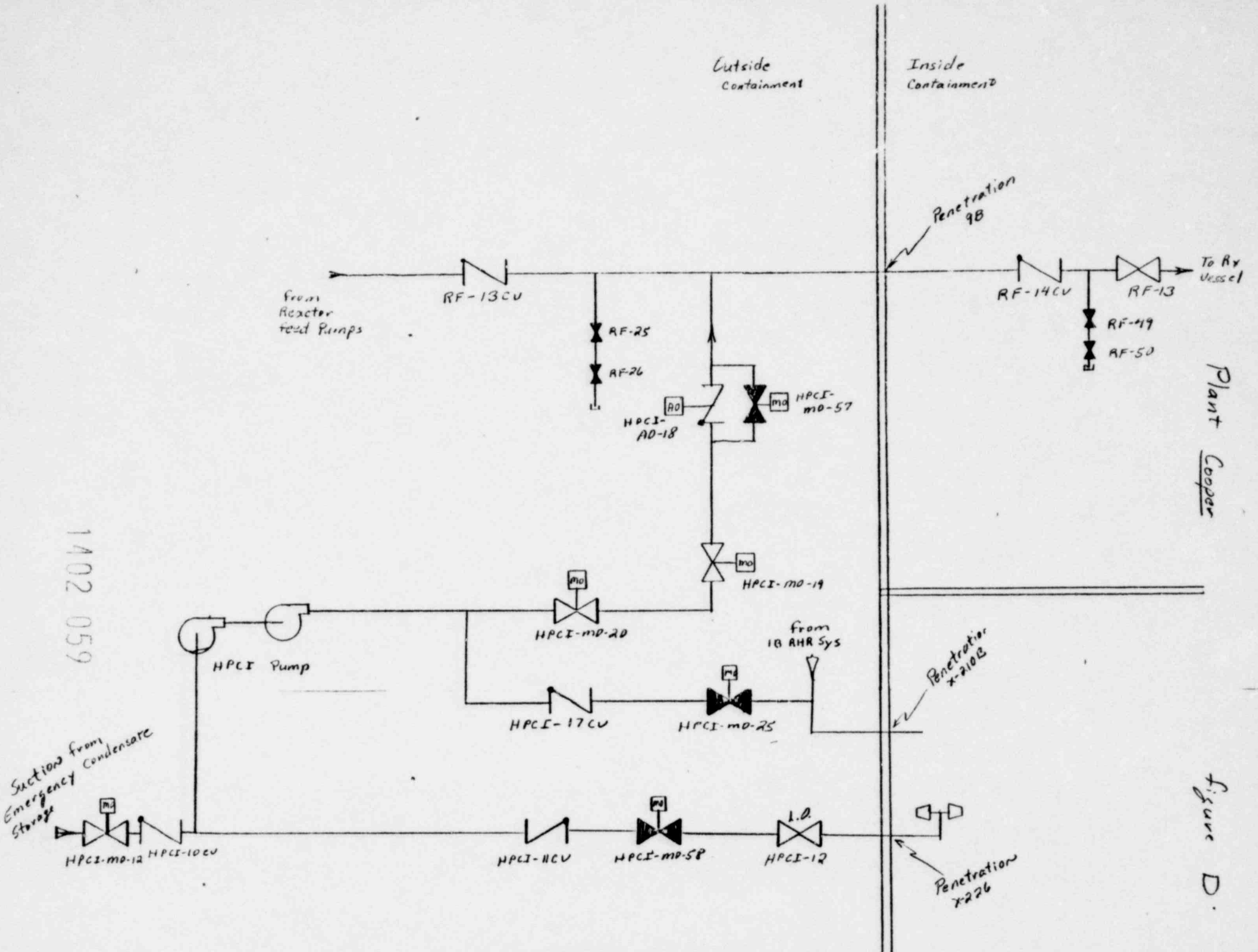
figure C



Plant Cooper

Figure D.

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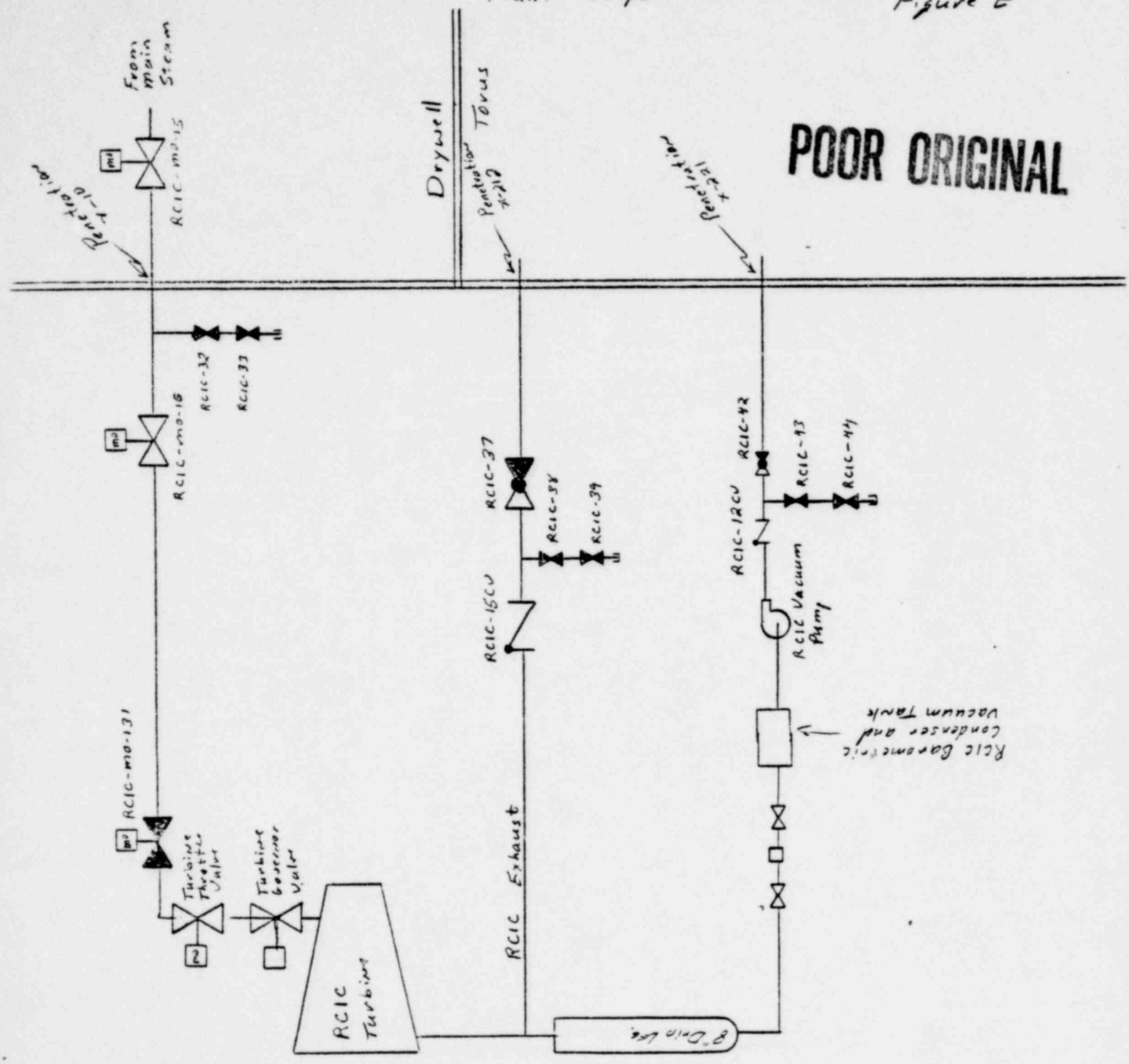
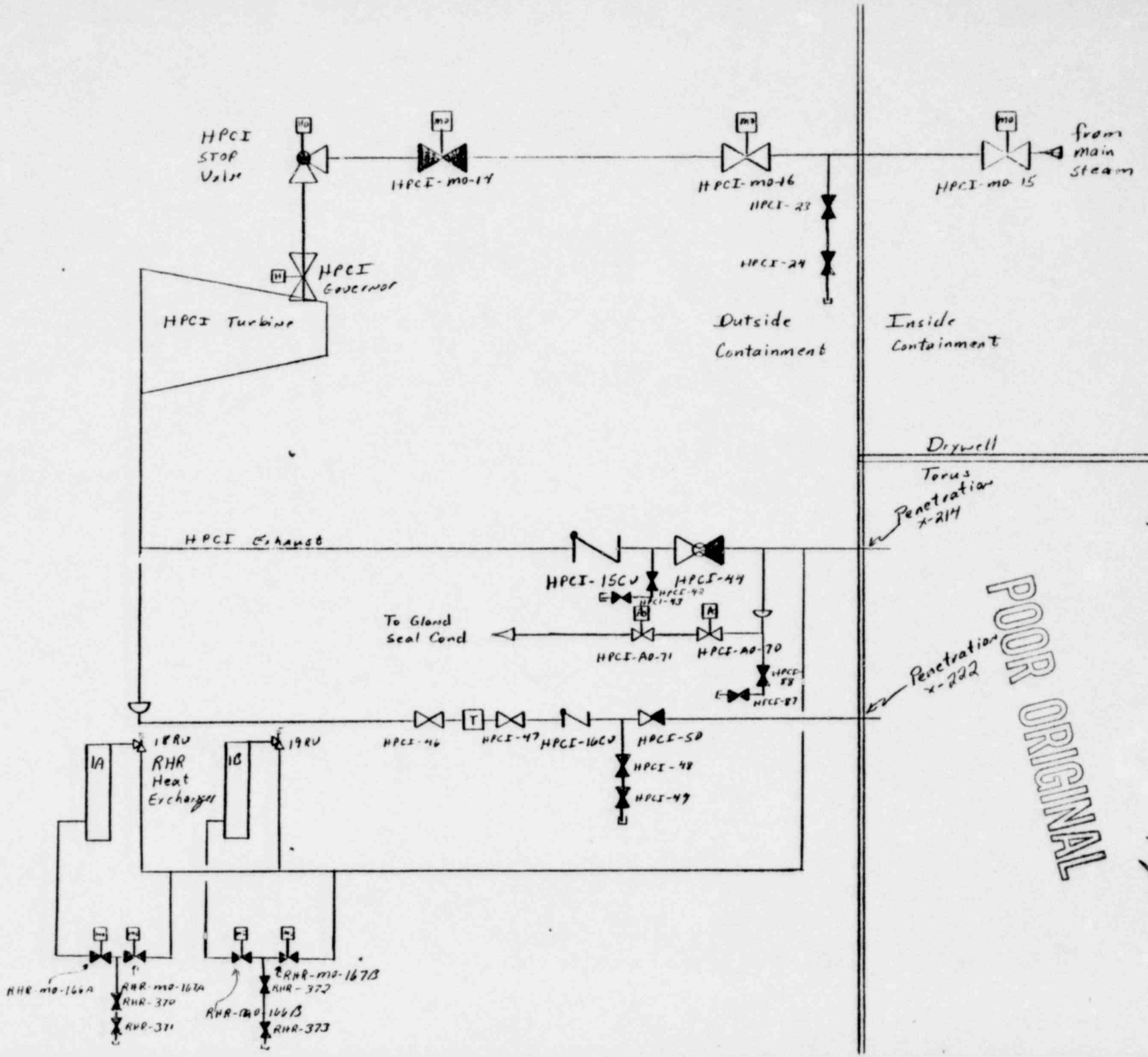
Plant Cooper

Figure E





POOR ORIGINAL

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Figure F

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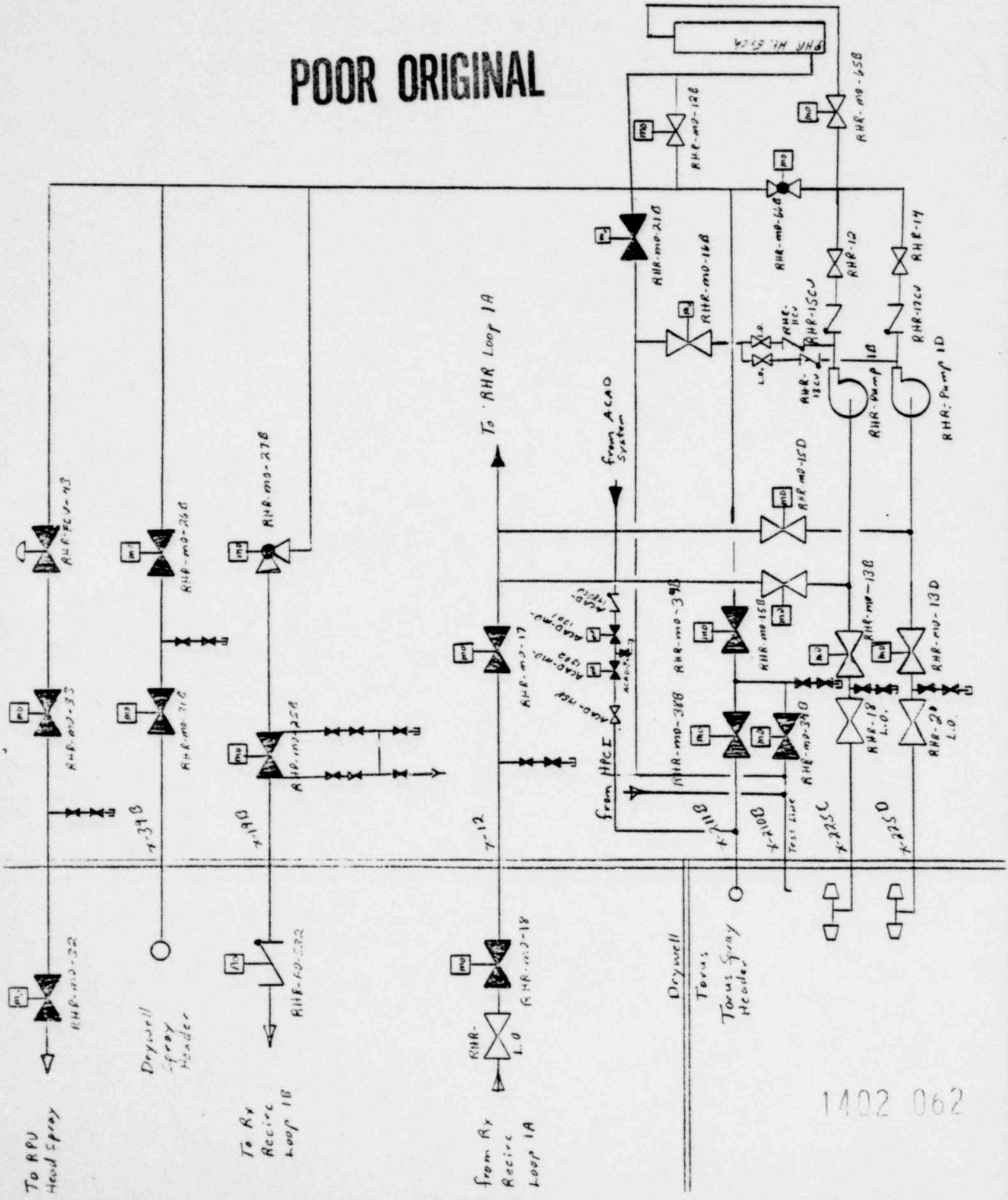
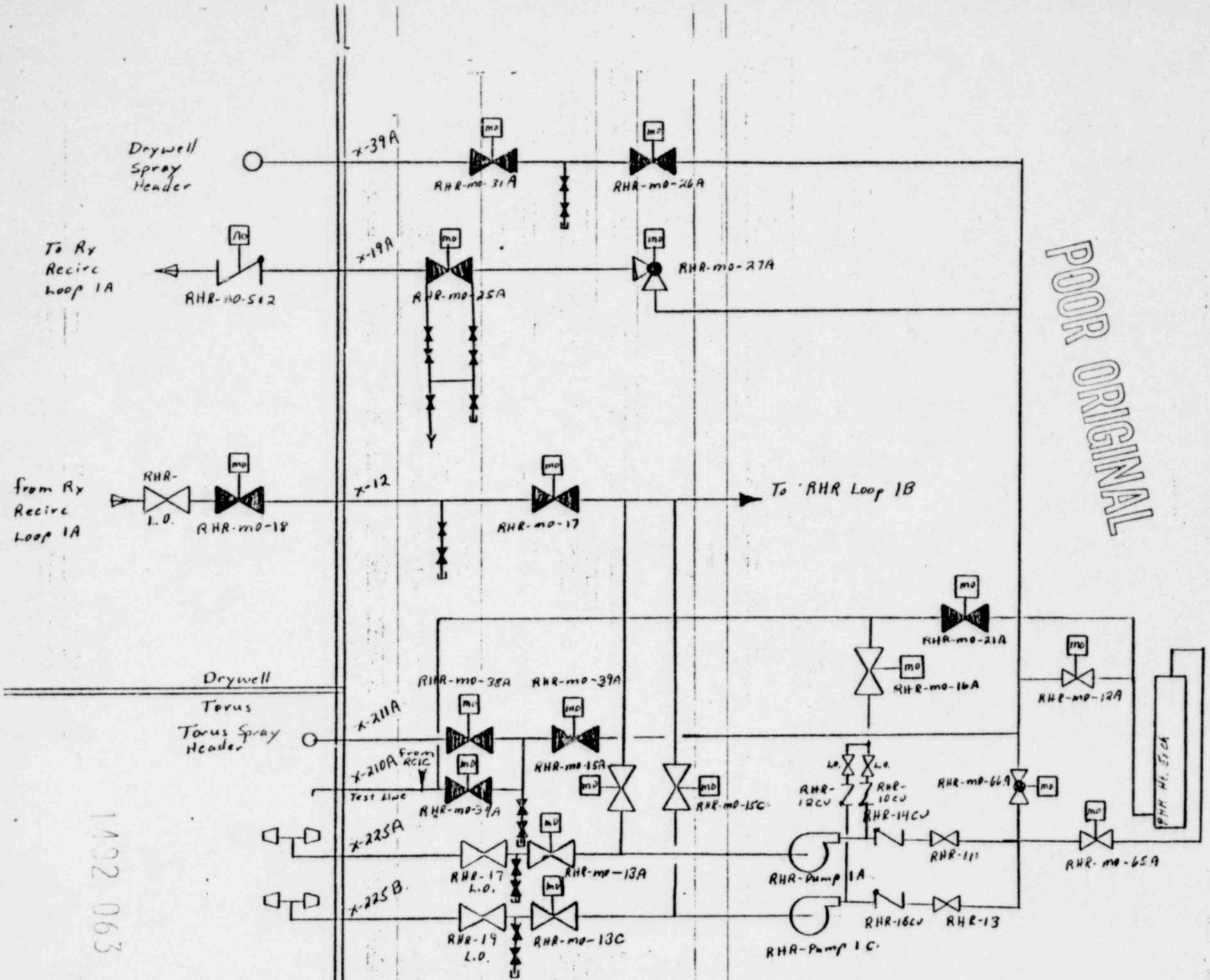
Plant Cooper

RHR-Loop 1B

Figure G.





POOR ORIGINAL

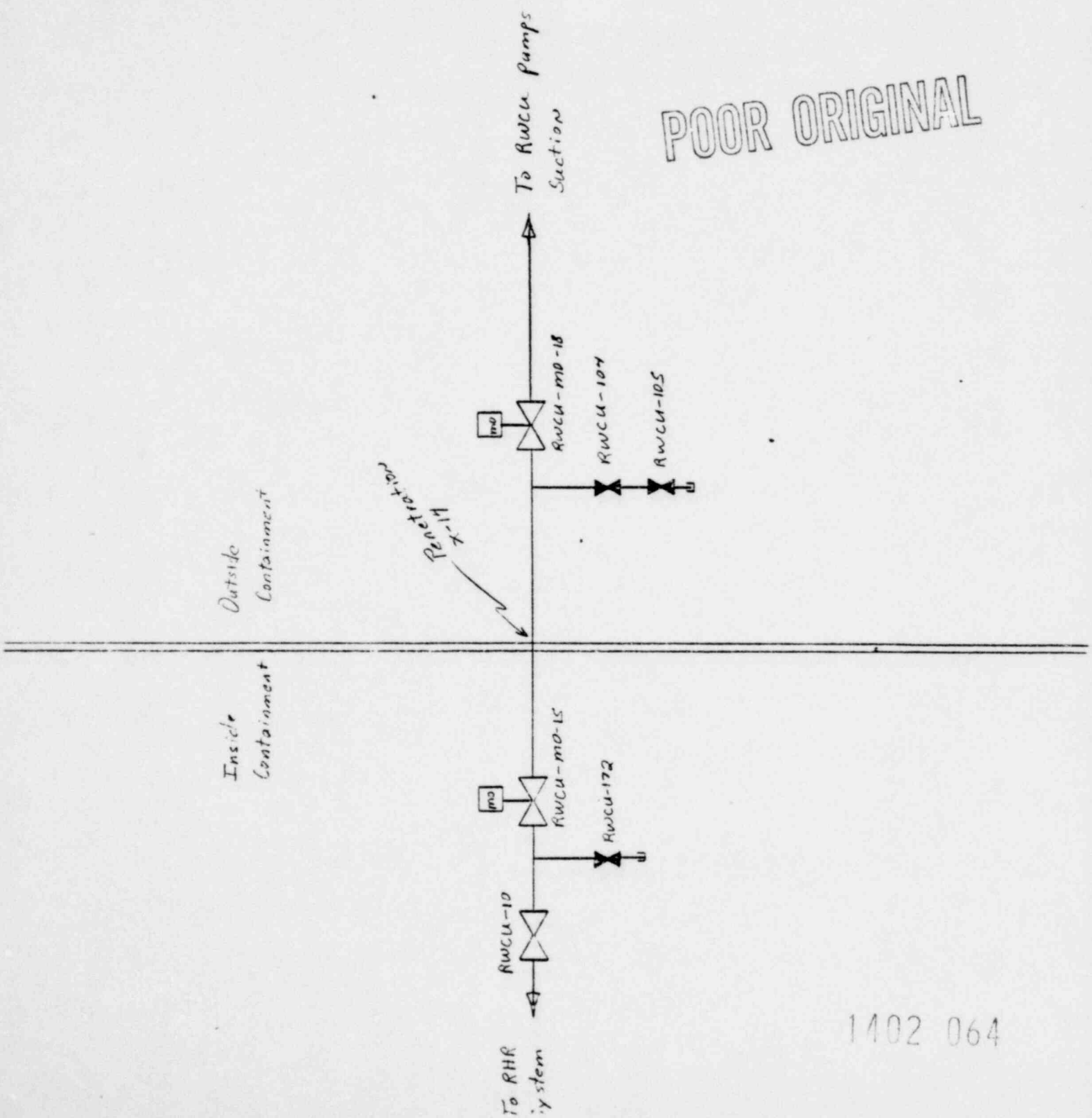
Plant Cooper
RHR-Loop 1A

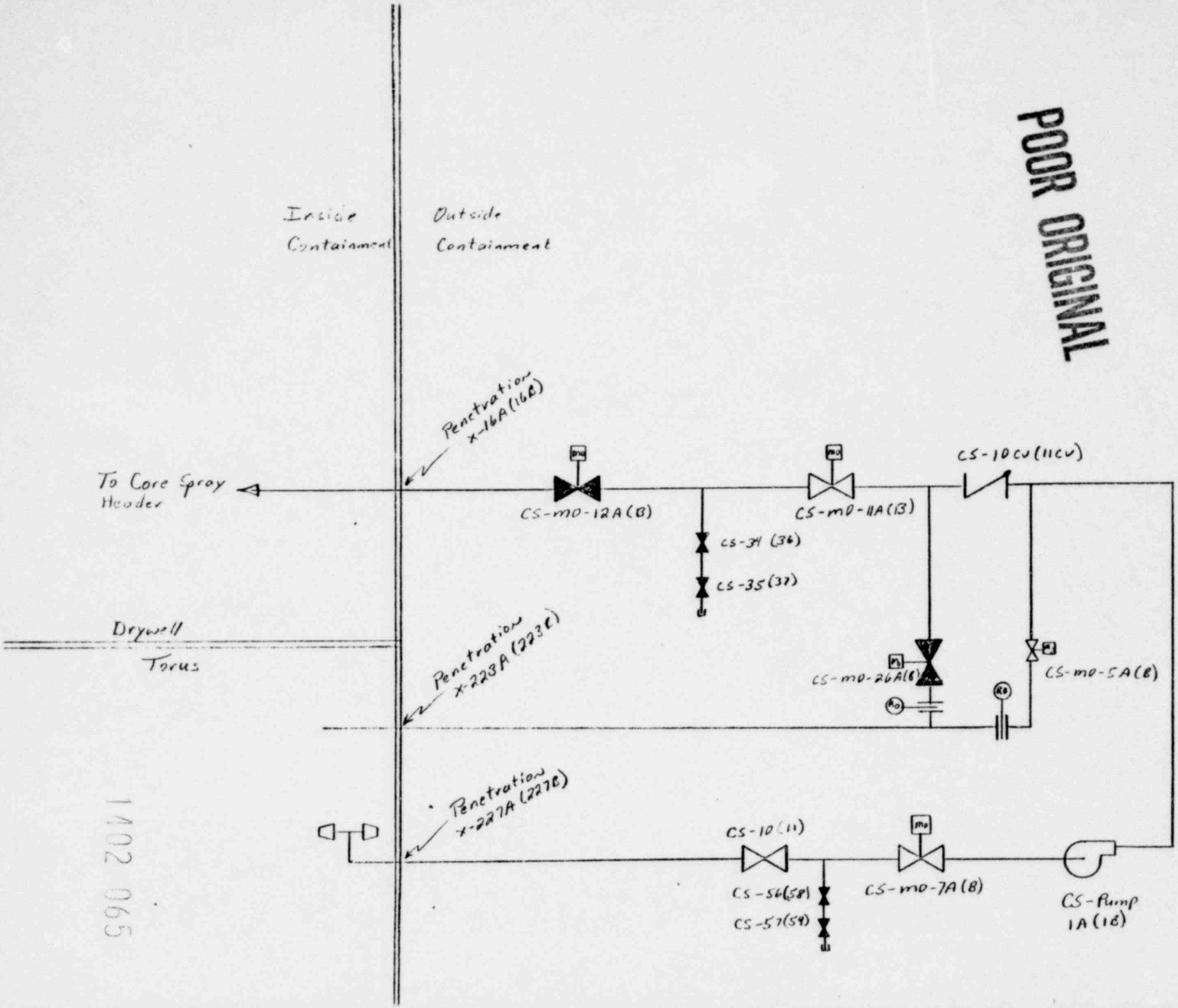
Figure H

1102 063

Plant Cooper

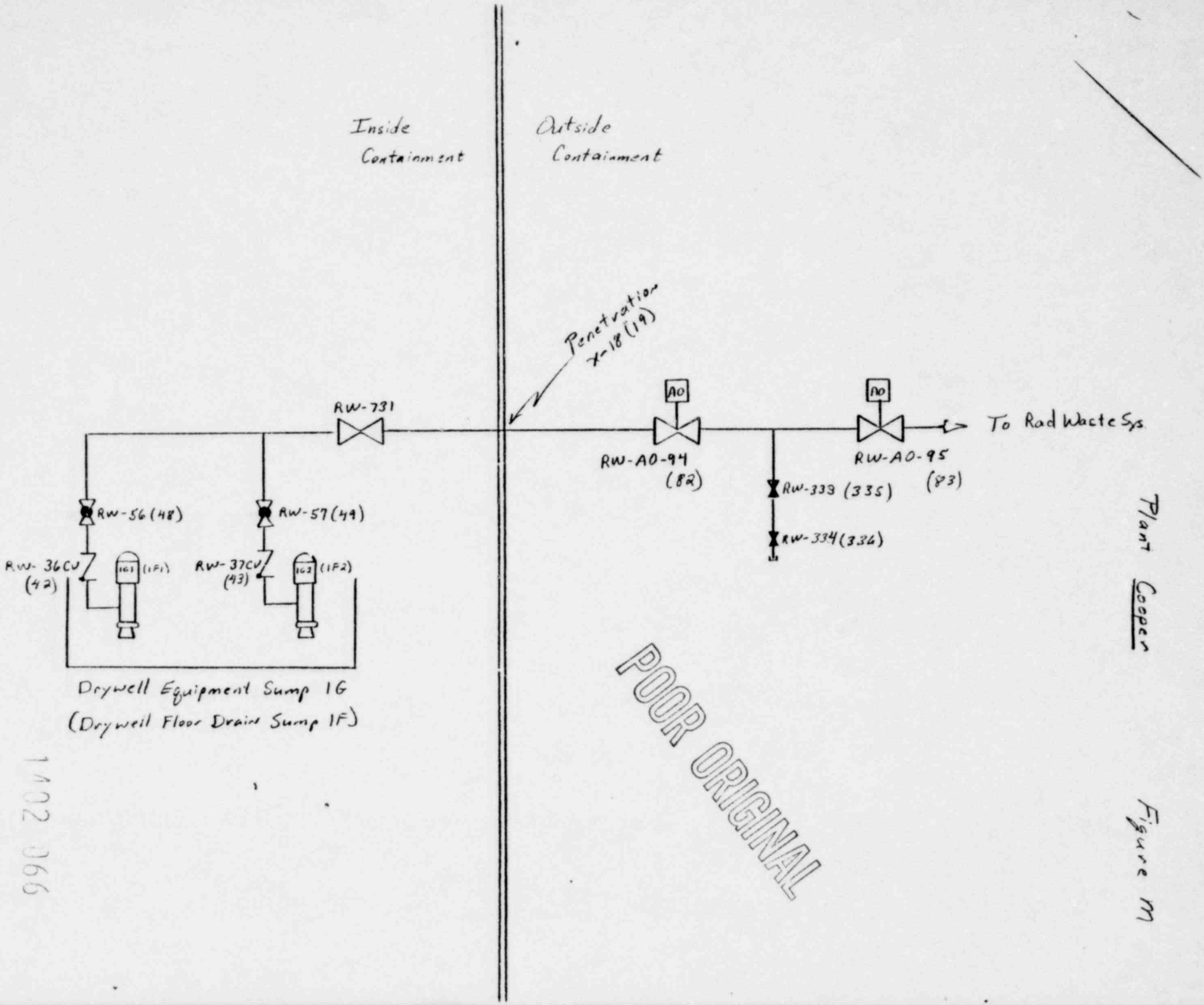
Figure 5





Plant Cooper

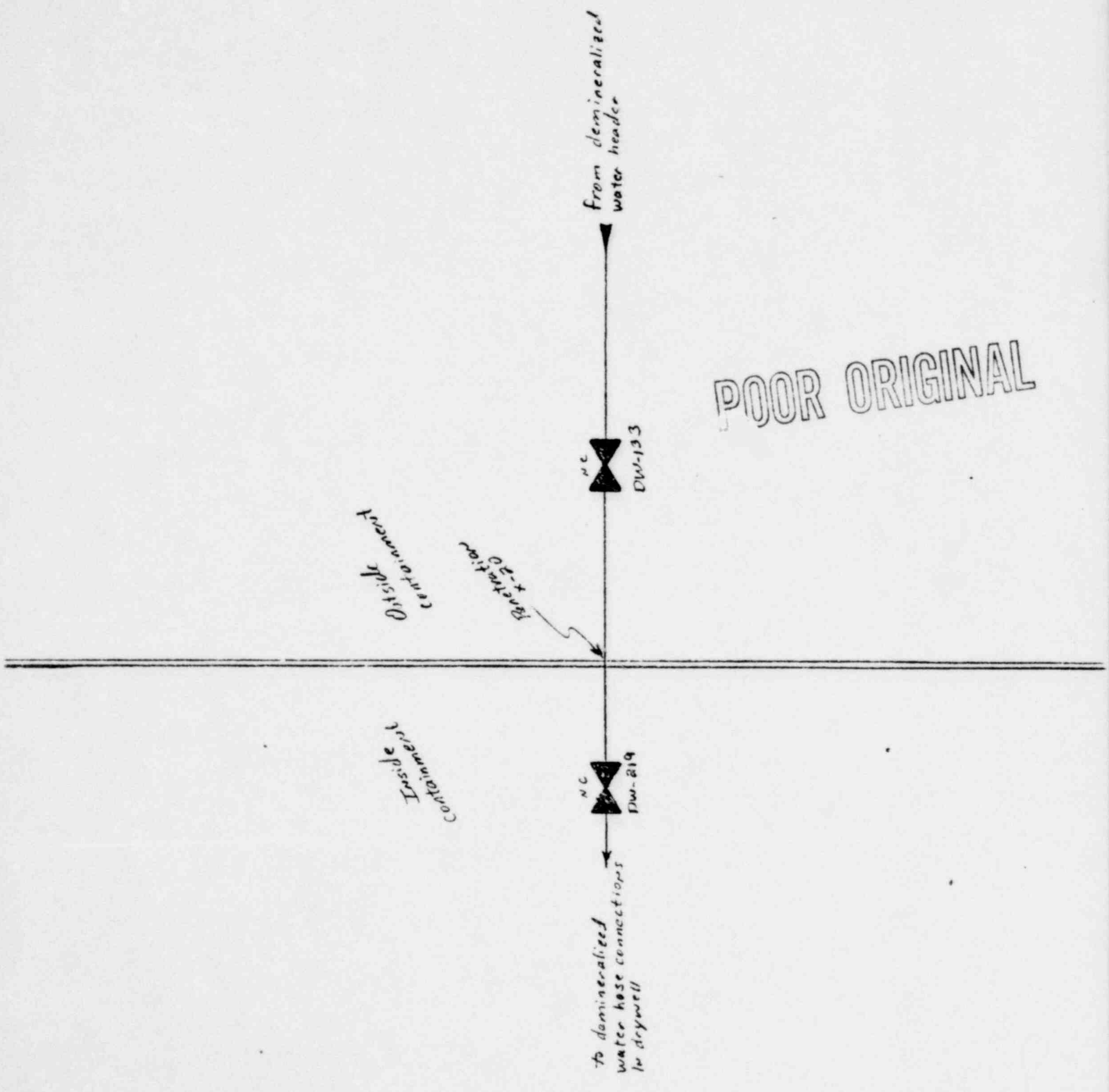
Figure K.



Plant Cooper

Figure M

Figure N



POOR ORIGINAL

1402 067

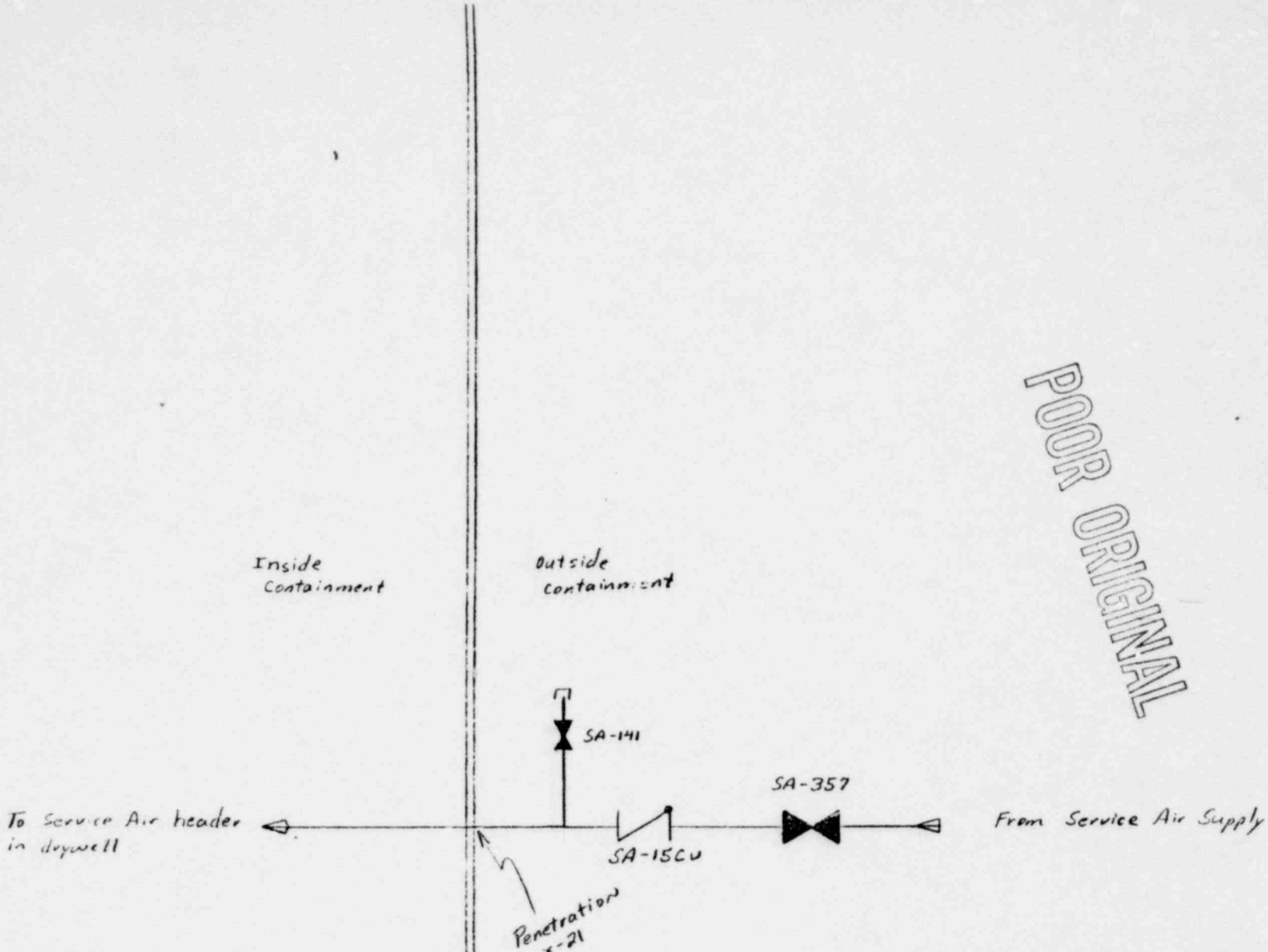


Figure 6

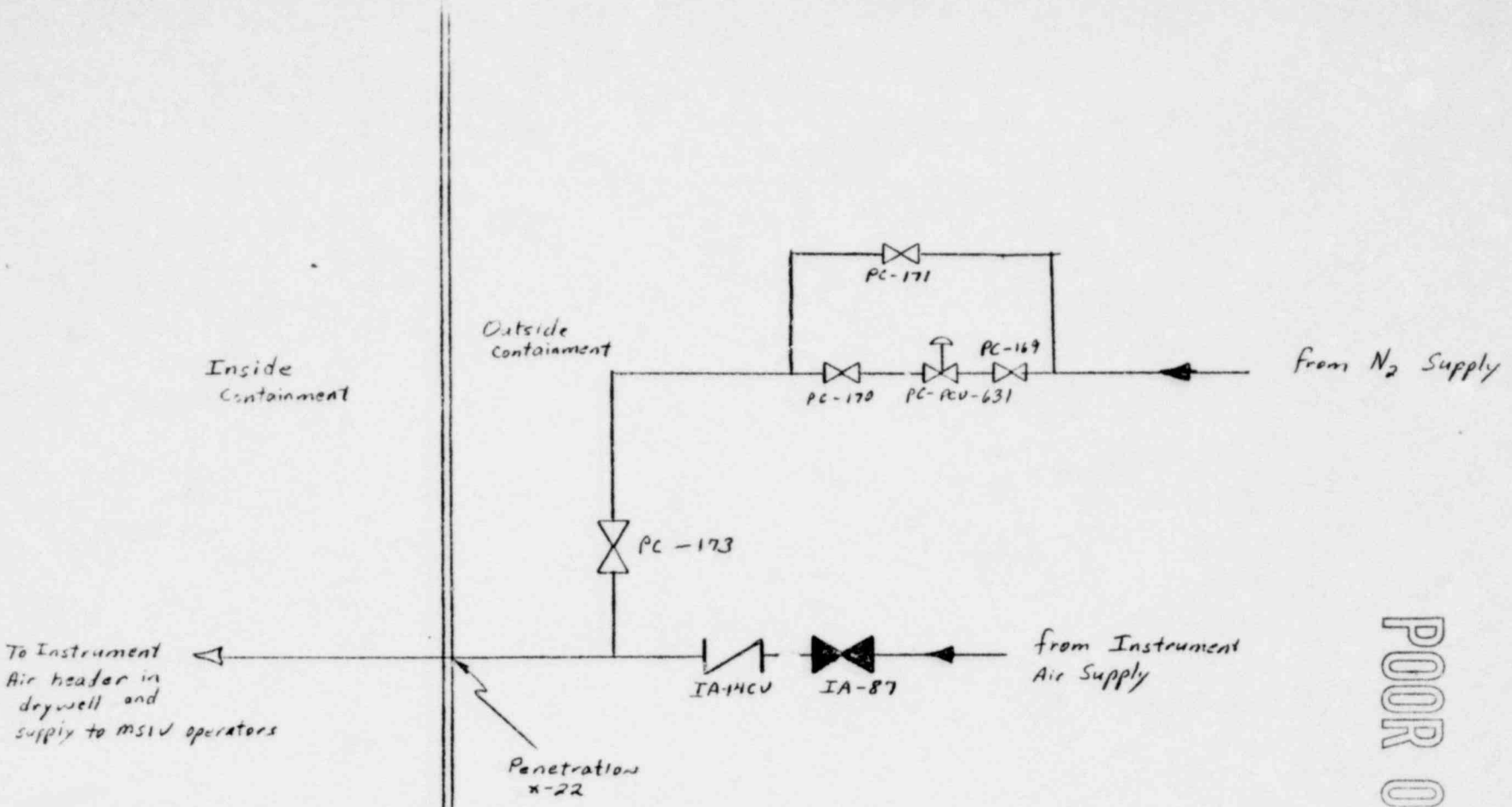


figure p

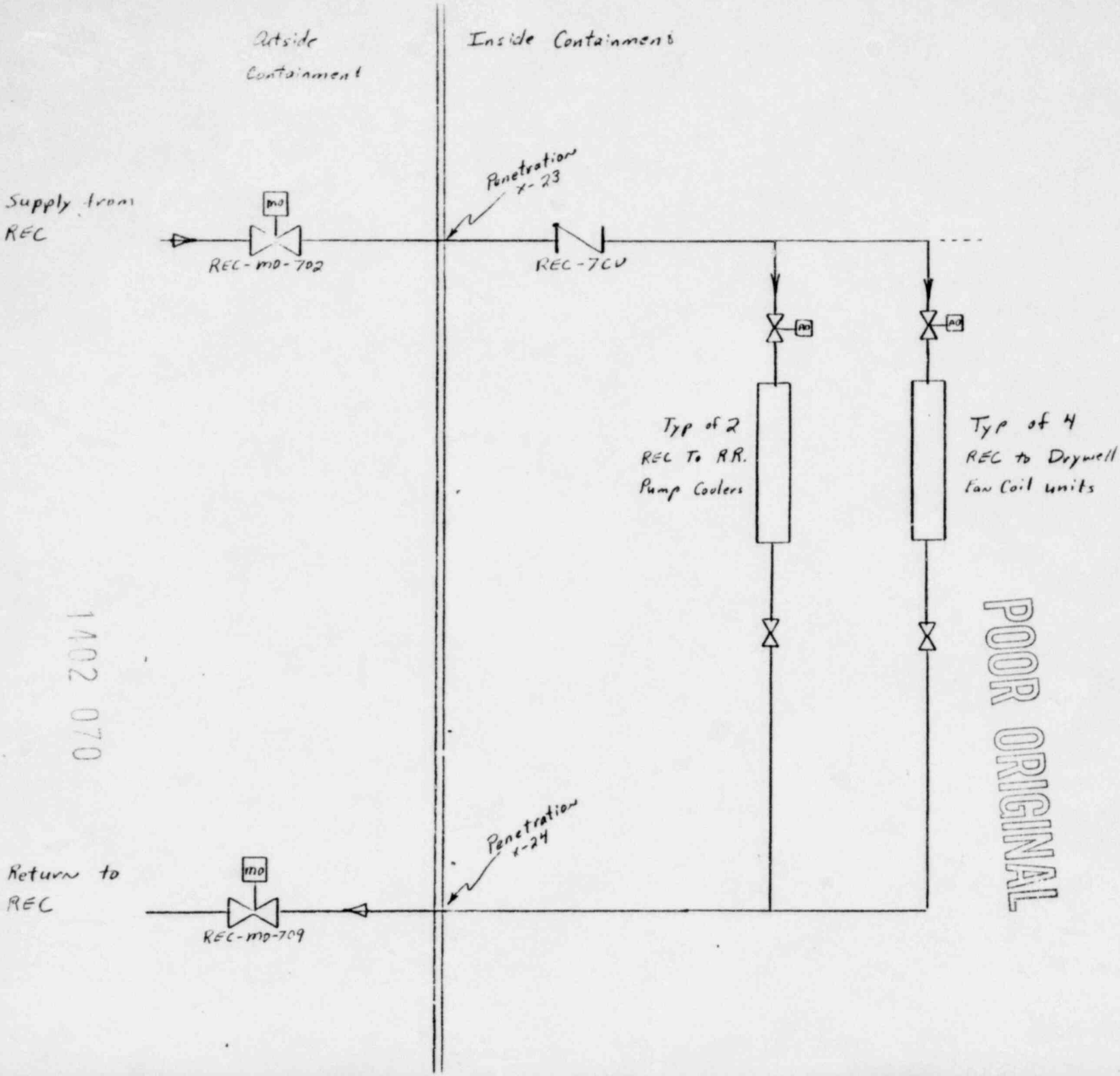


Figure Q

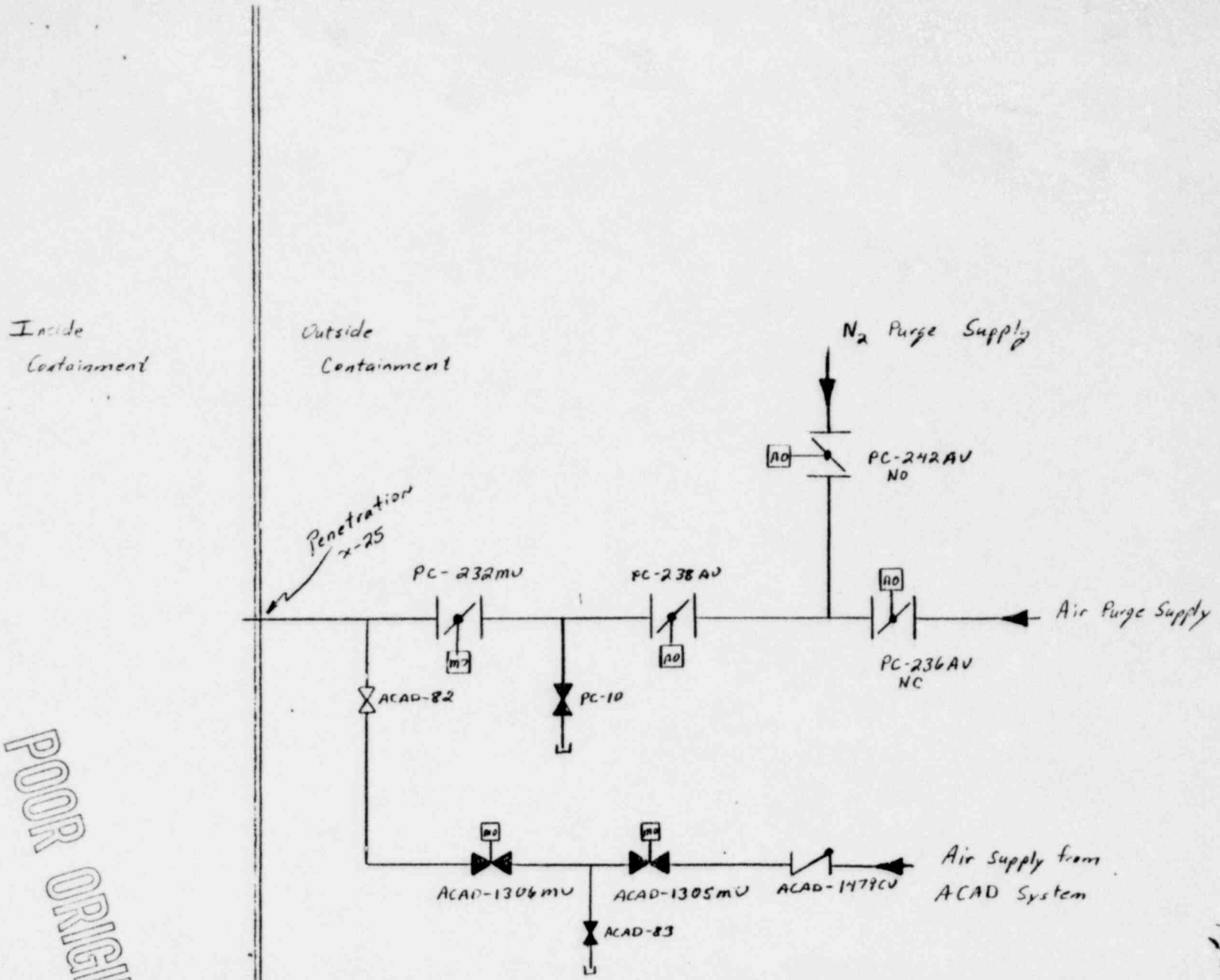


Figure R

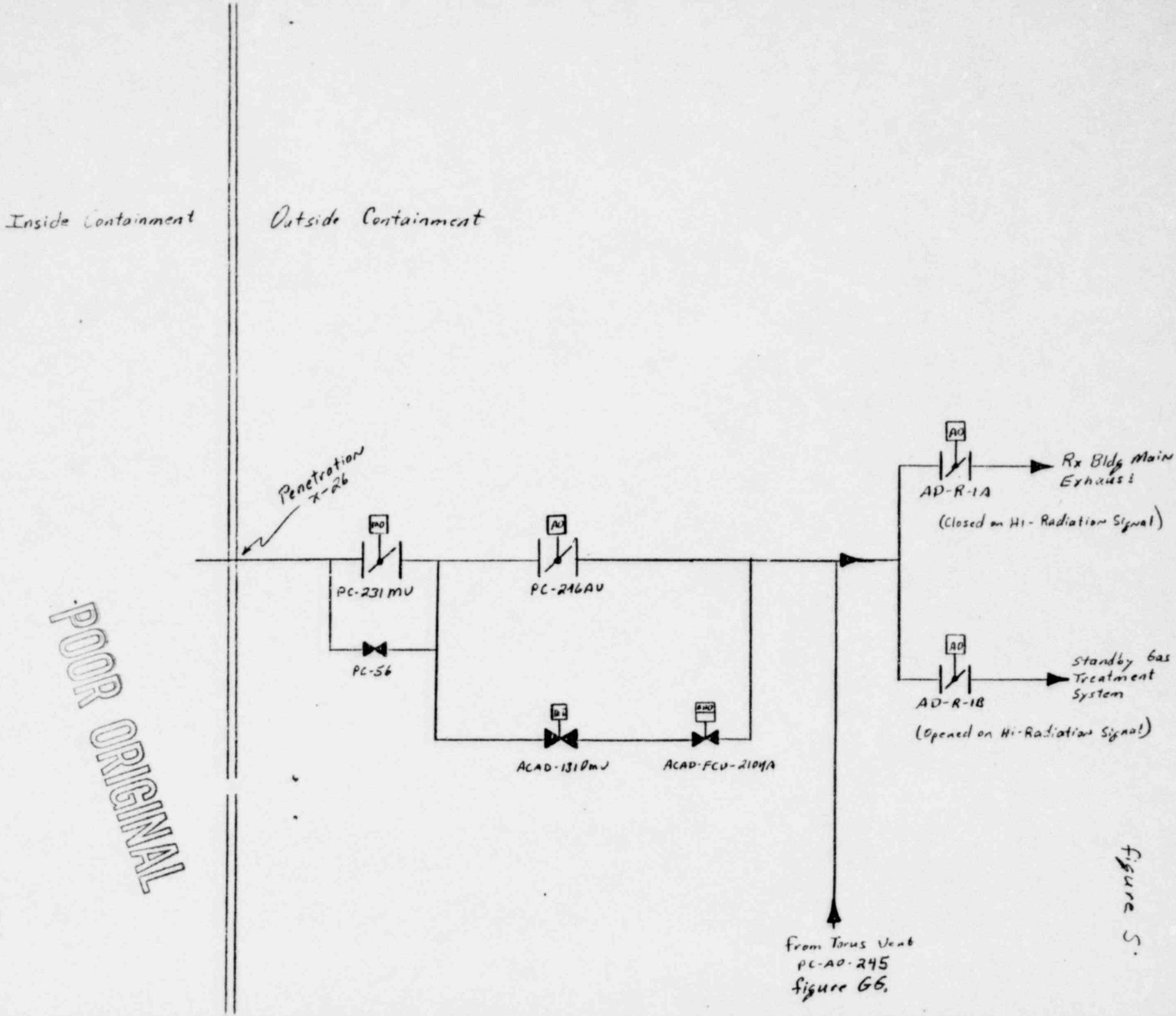
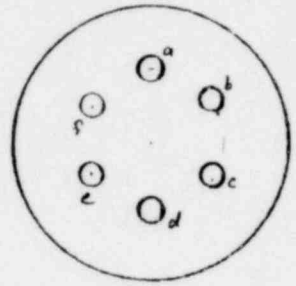


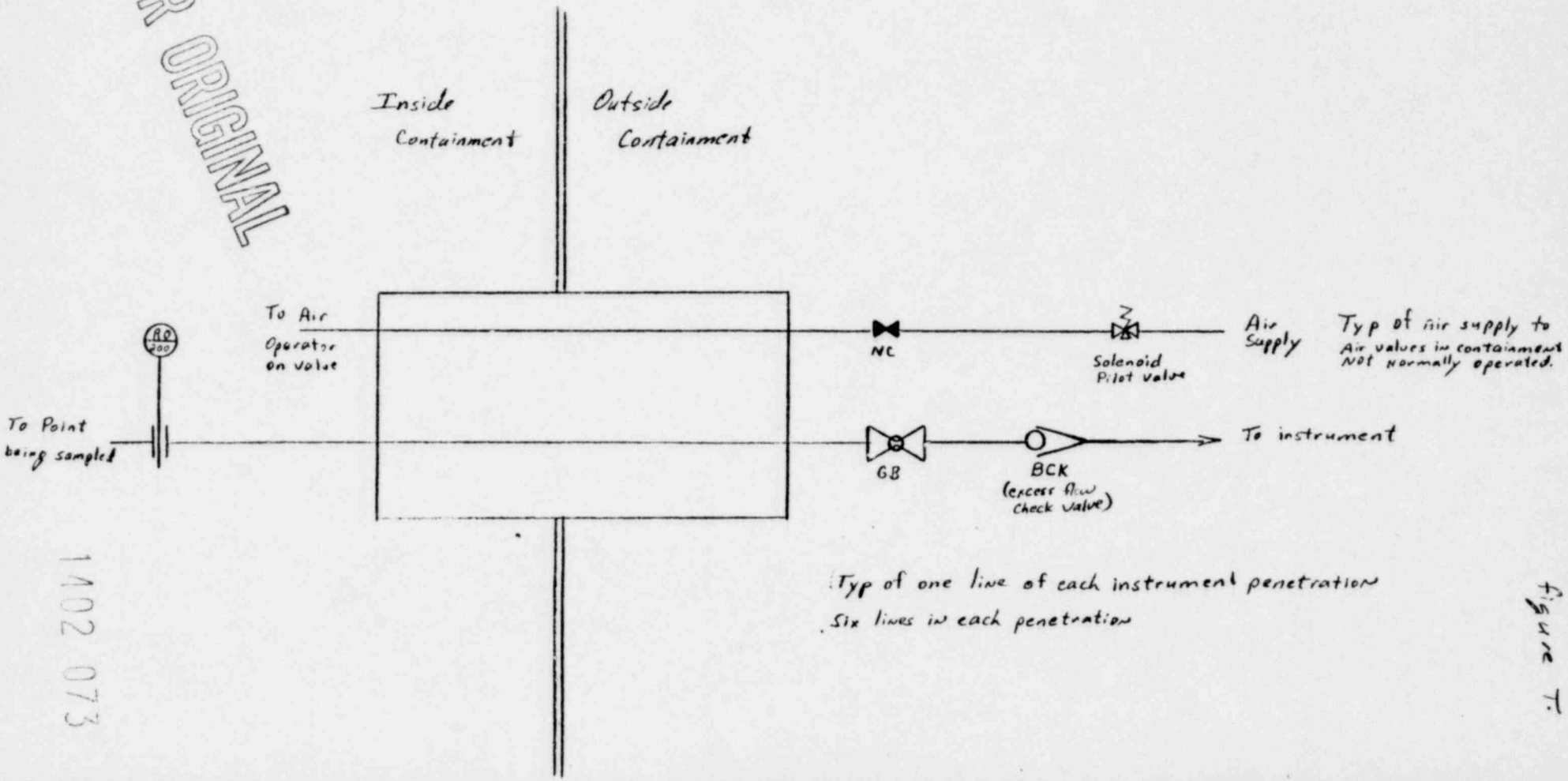
figure 66.

figure 5.



end view of penetration

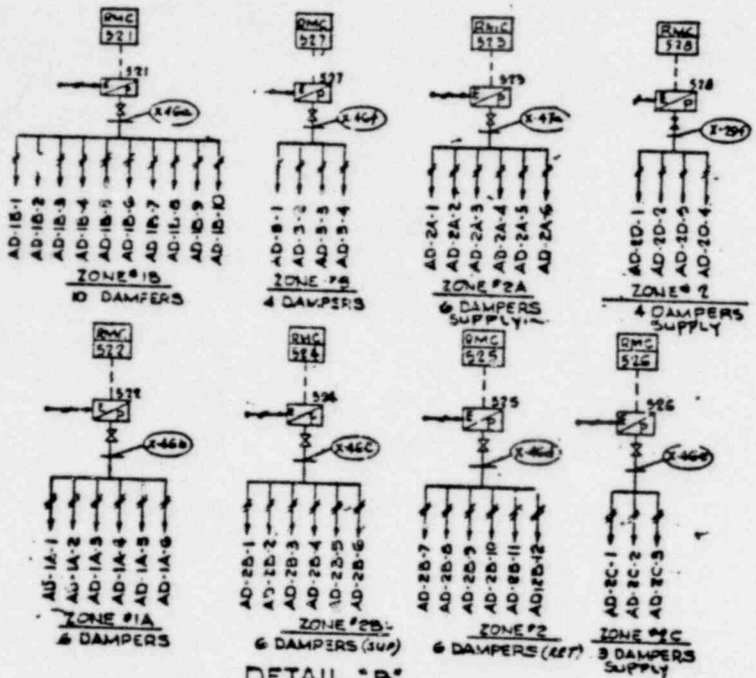
No's 27, 28, 29, 30, 31, 32, 33, 34, 40A, 40B, 40C, 40D
46, 47, 49, 50, 51, 52,



1102 073

Figure T.

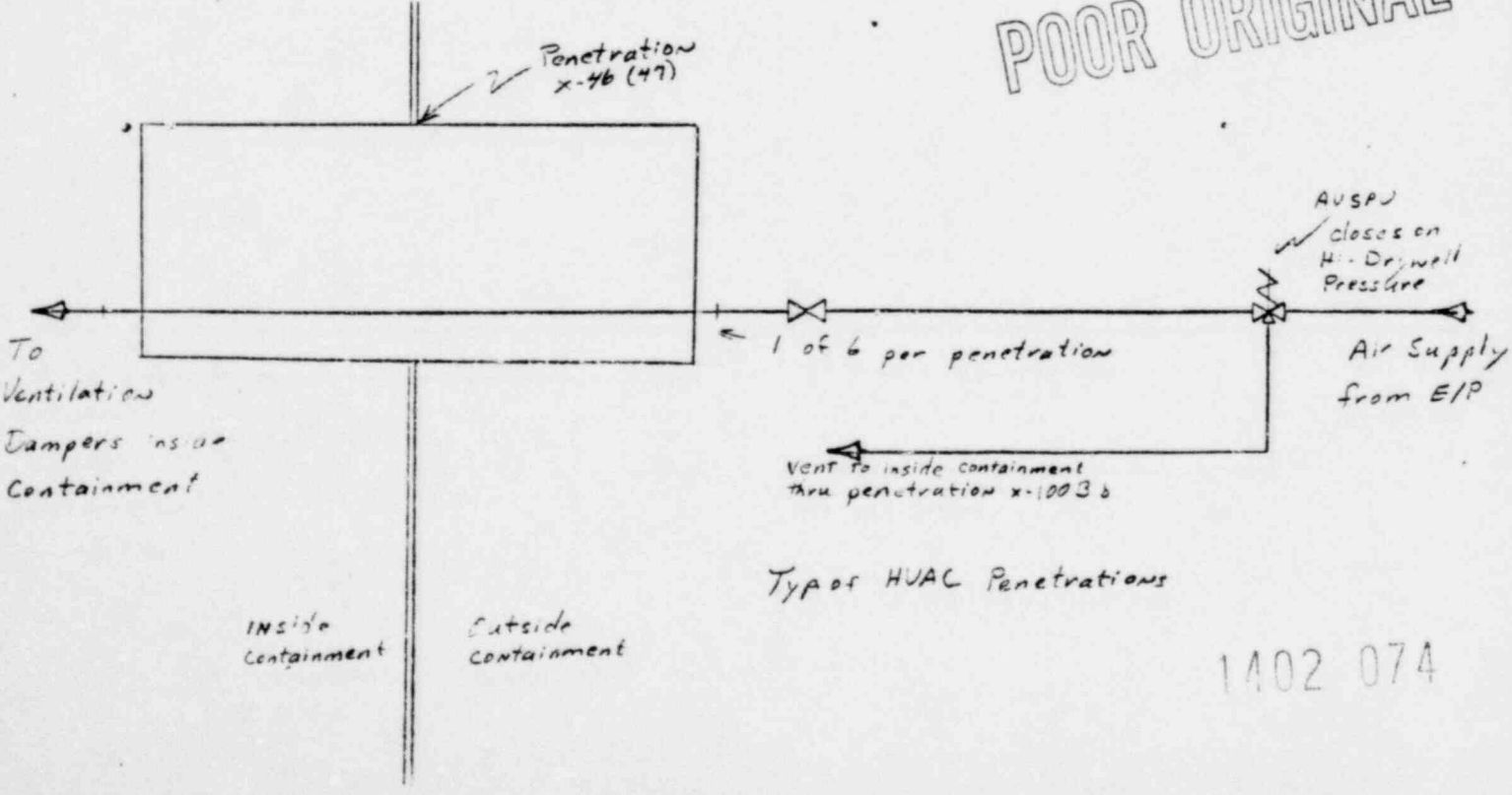
Figure 4



DETAIL "B"

AREA SUPPLY BALANCING DAMPER CONTROL SCHEMATIC

(UNIT SHUTOFF DAMPERS - SEE DETAIL 'A')



Type of HVAC Penetrations

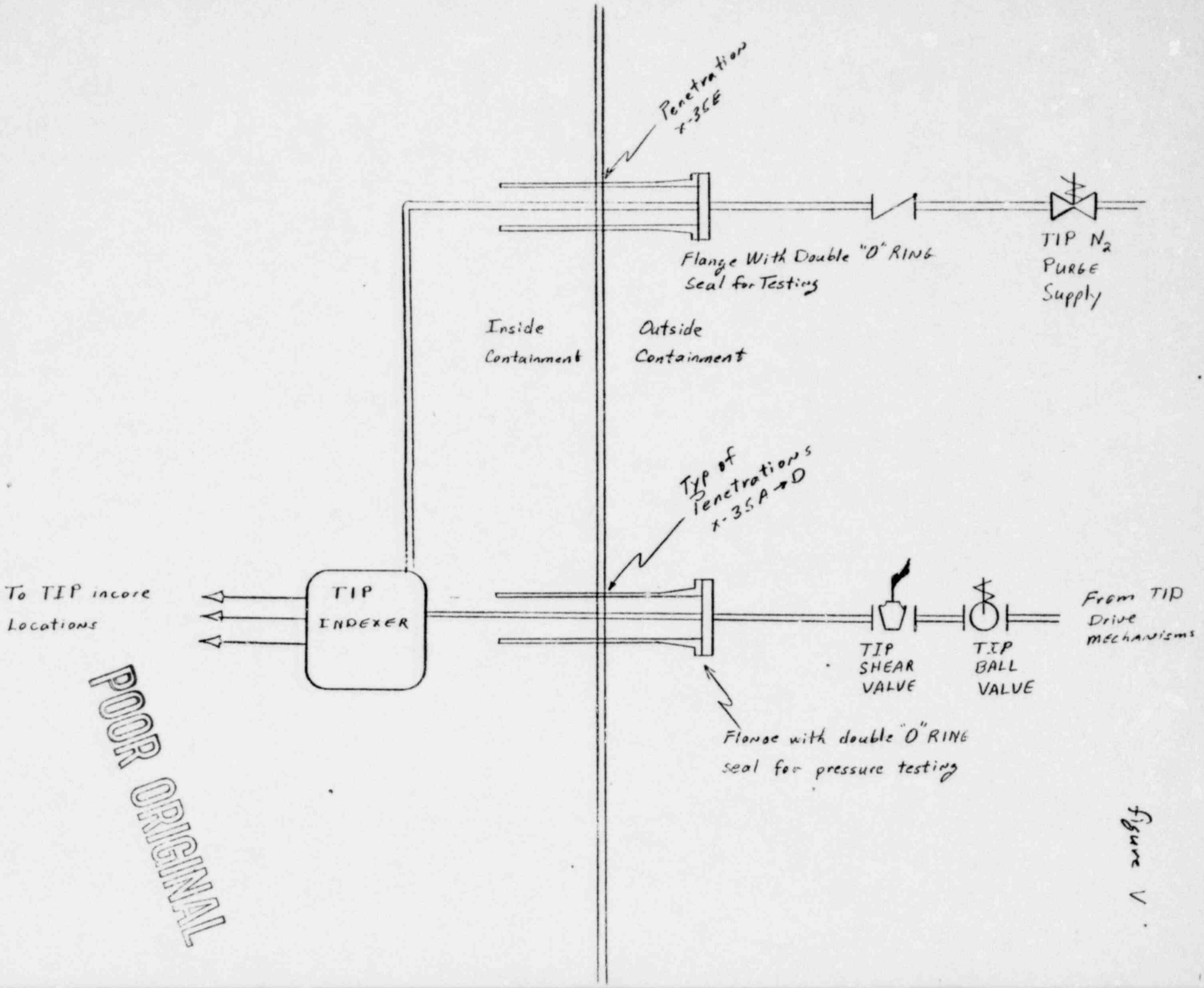
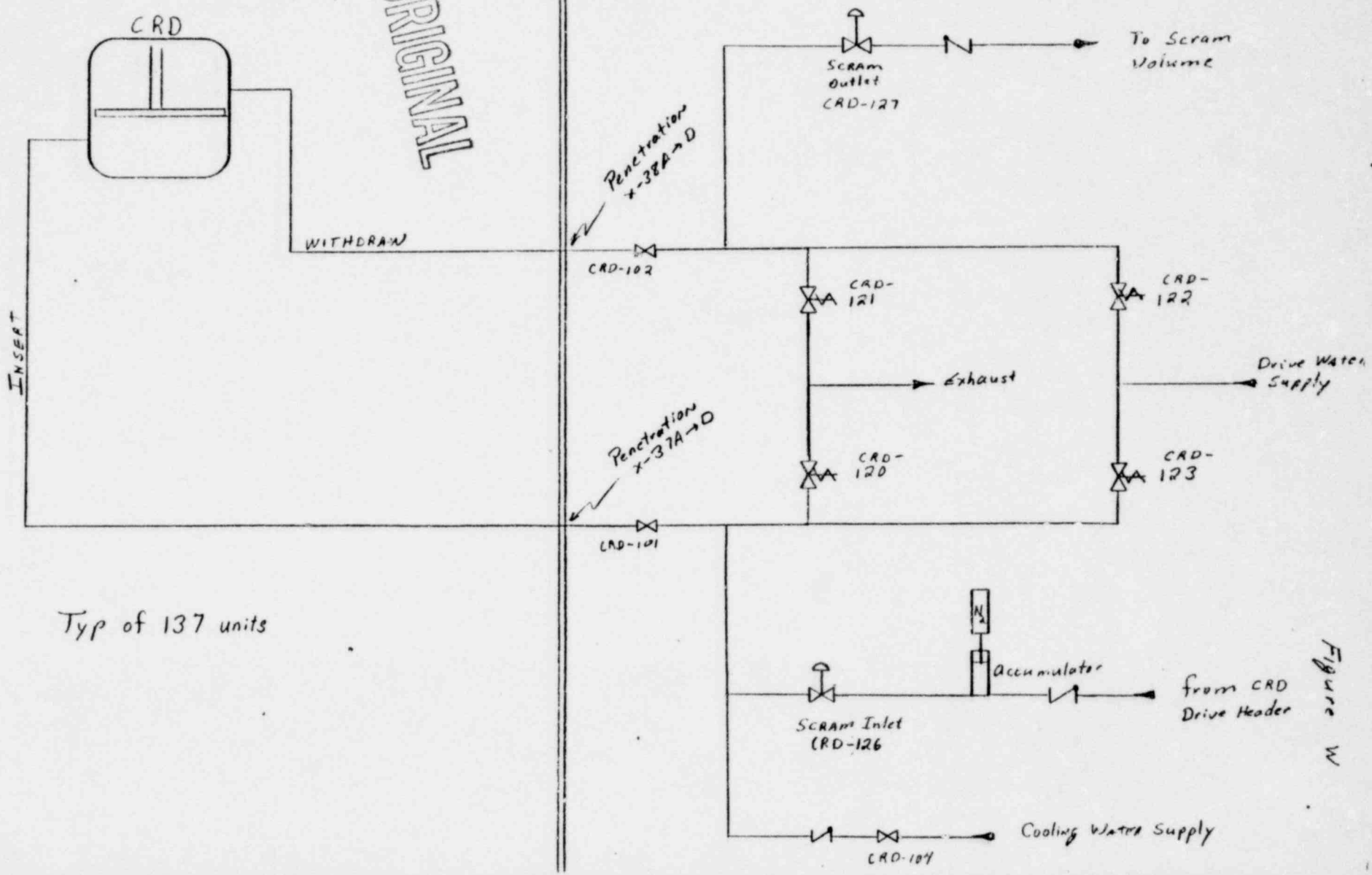


Figure V



Typ of 137 units

Figure M

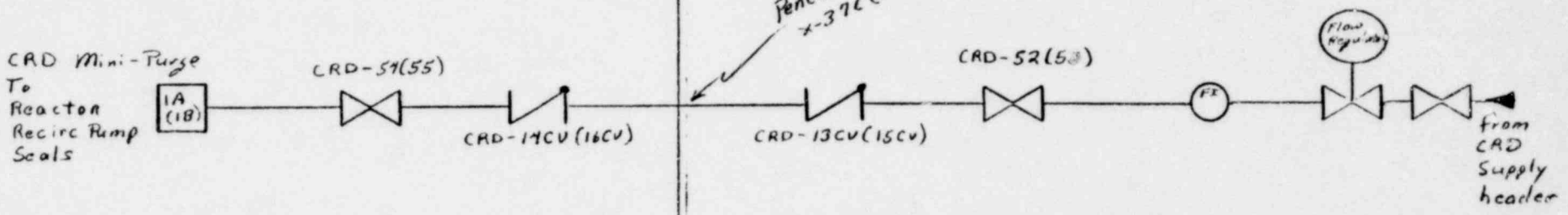


Figure X

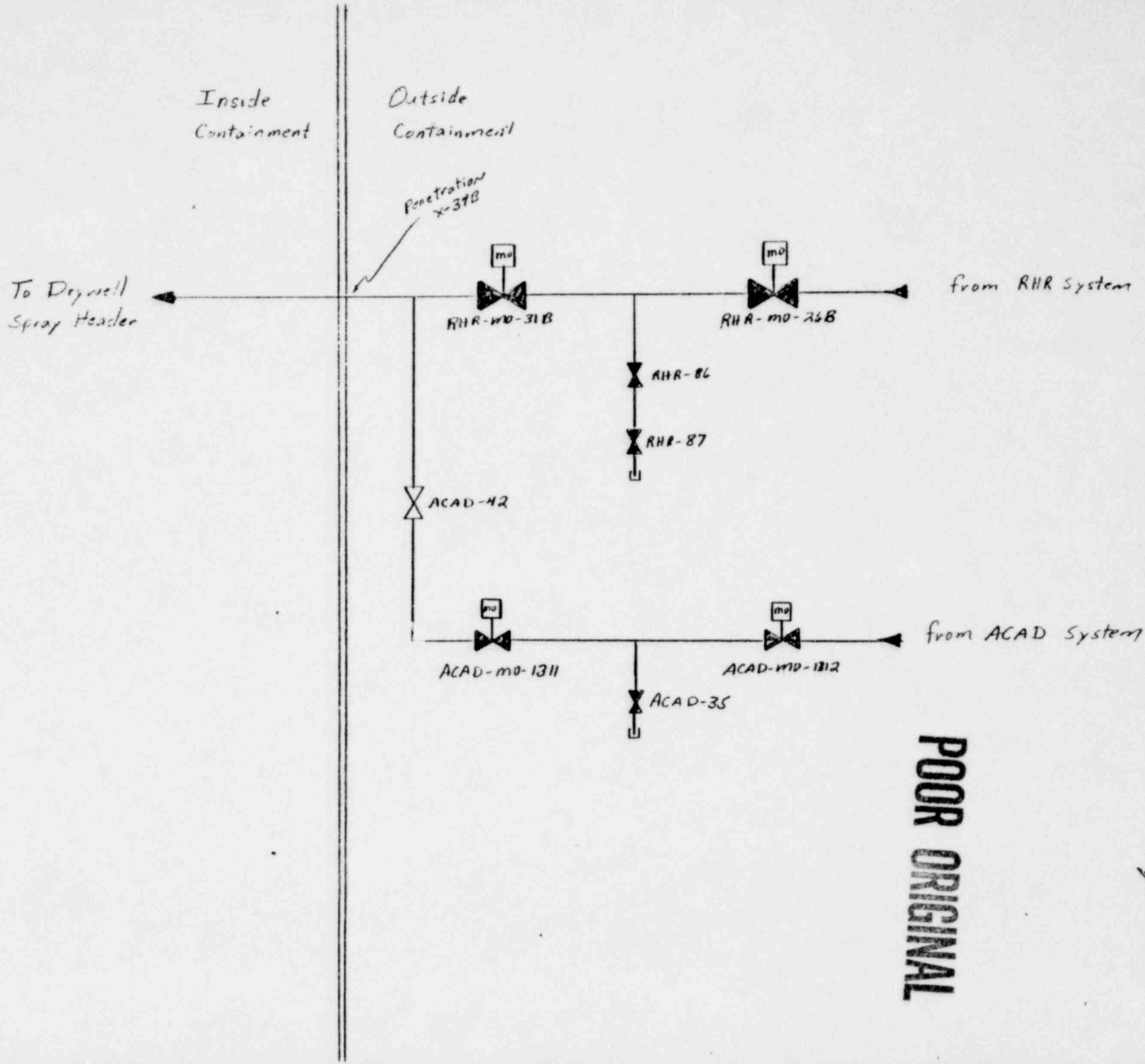
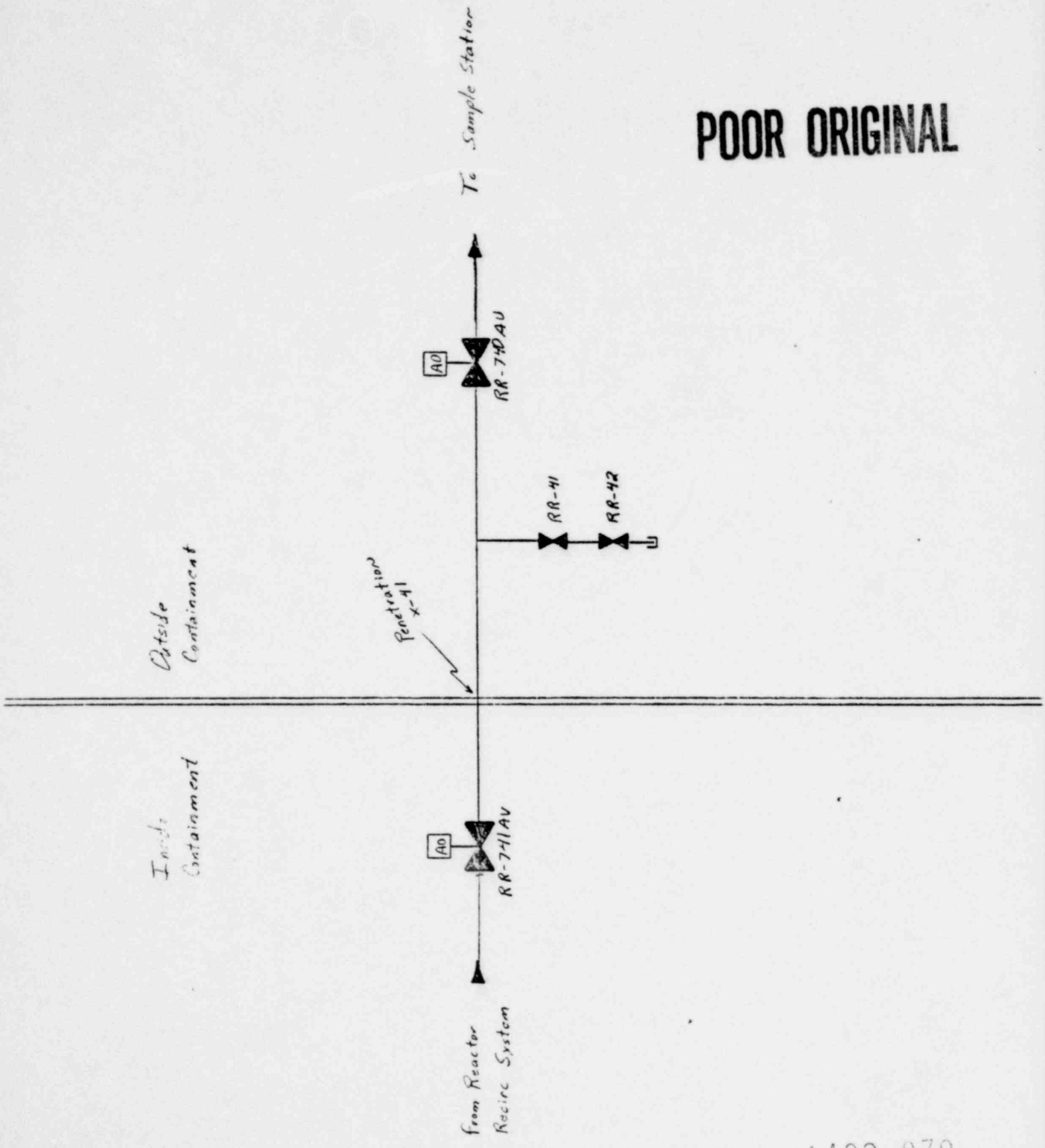


Figure 2

Figure AA



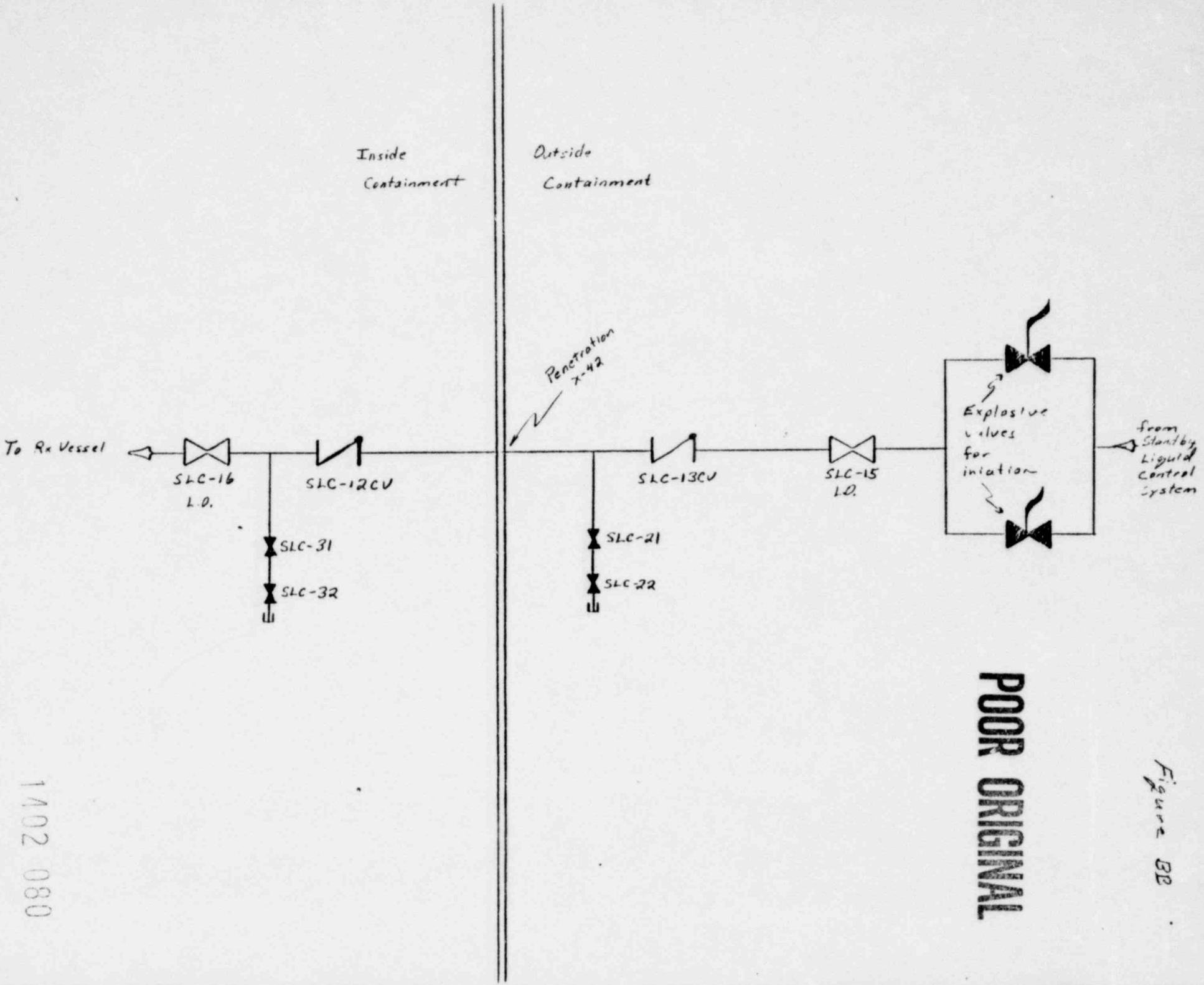
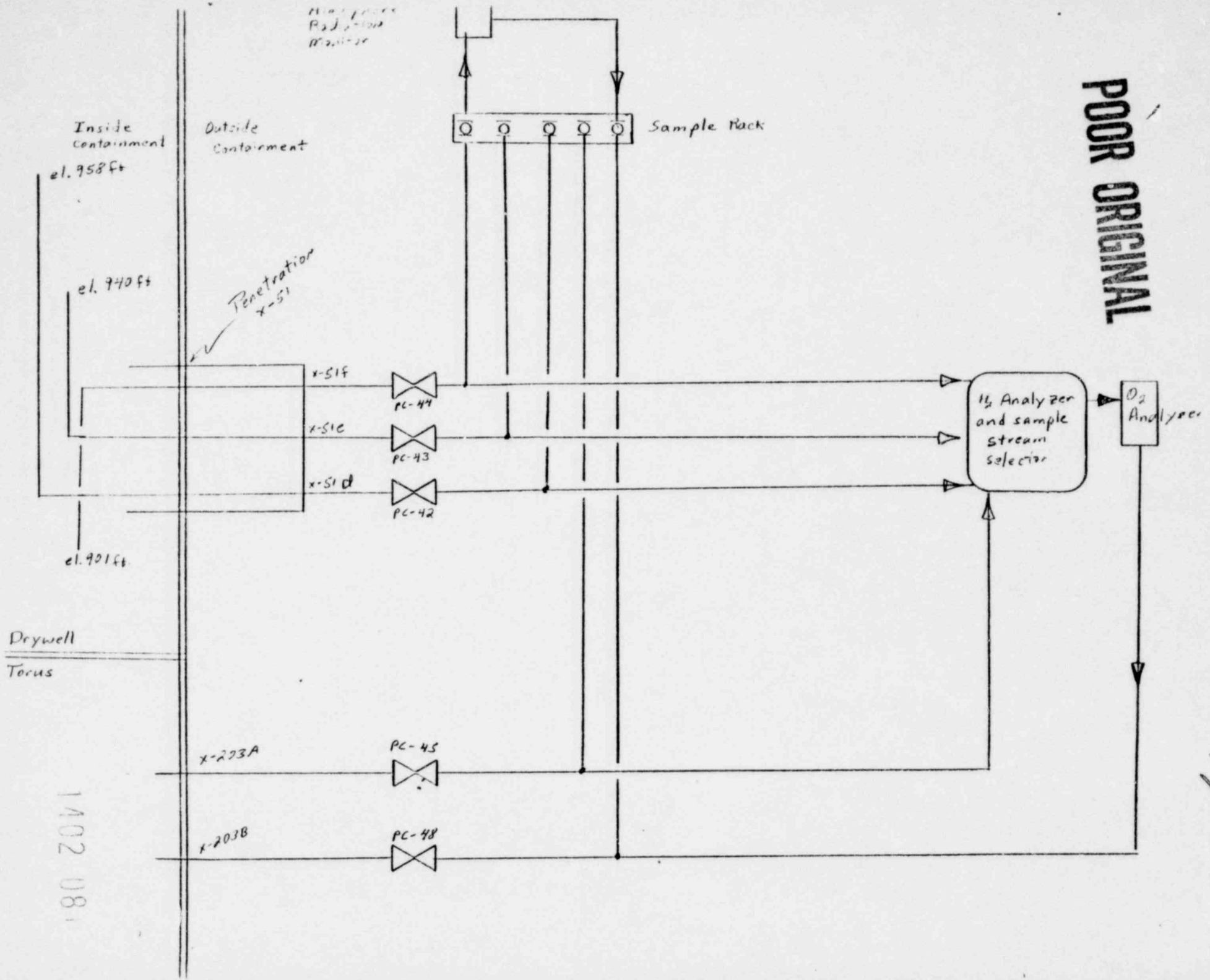


Figure B2



POOR ORIGINAL

Figure CC

1402 081

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Figure DD

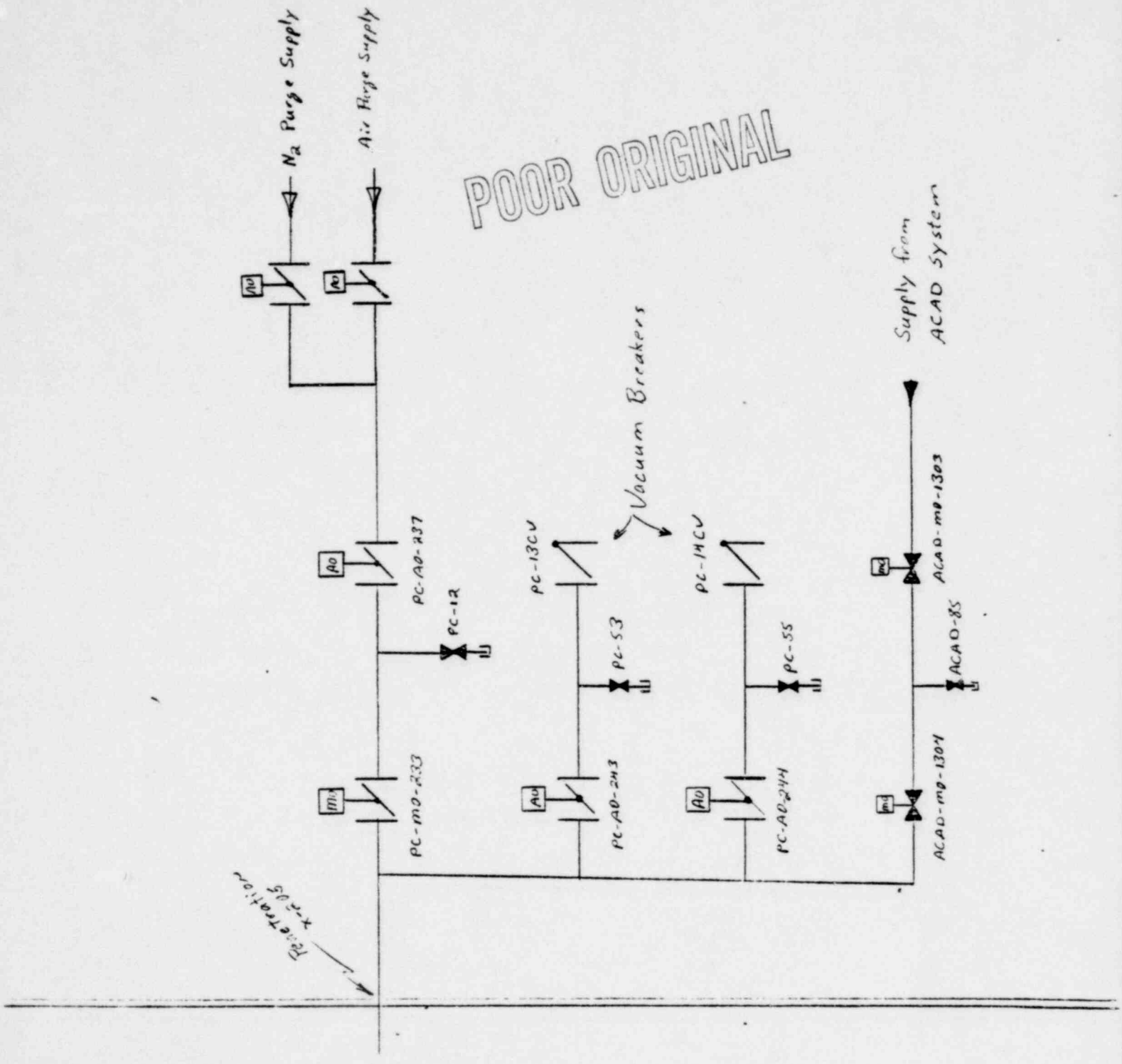

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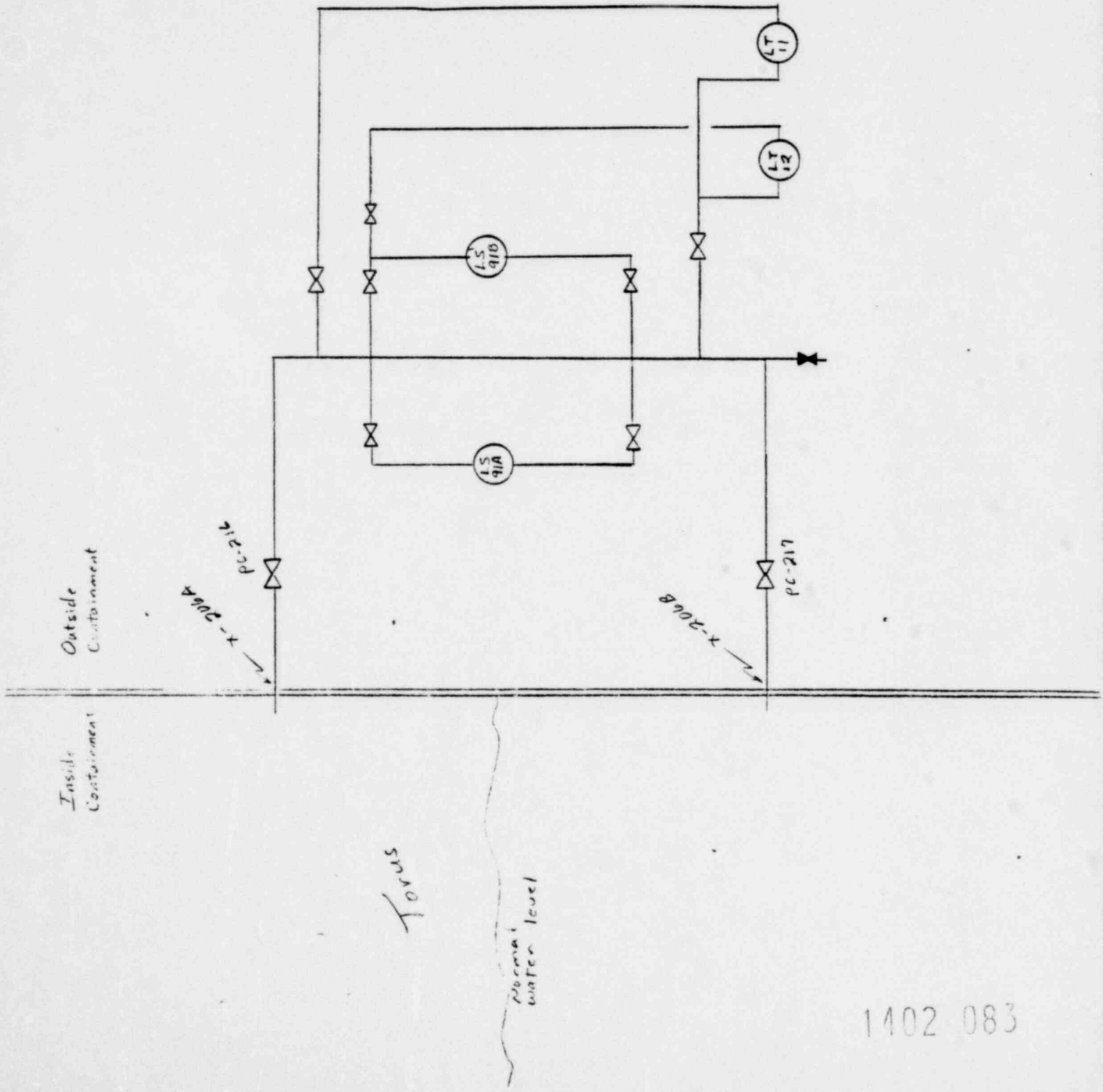
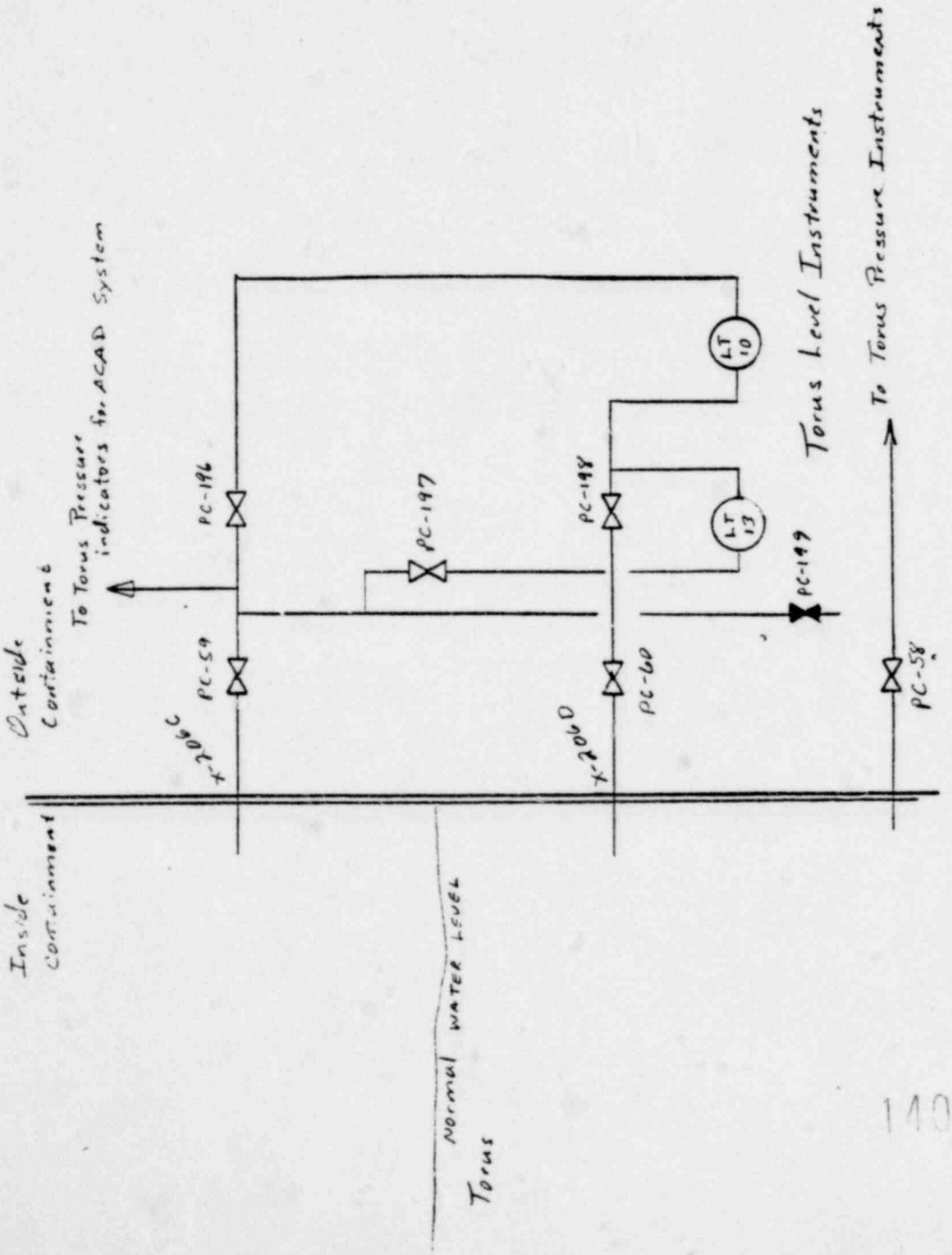
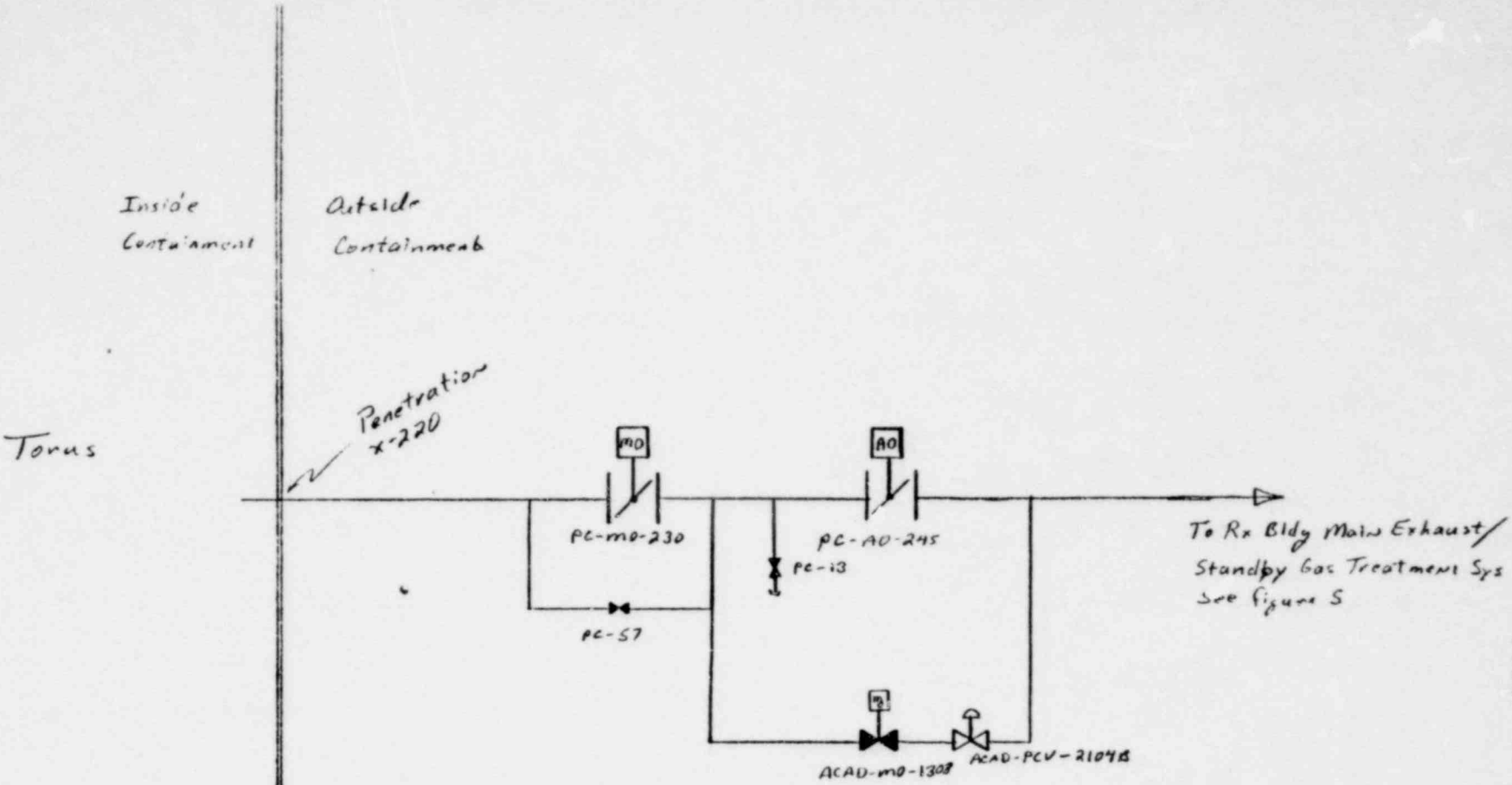
Figure EE



Plant Cooper

Figure FF



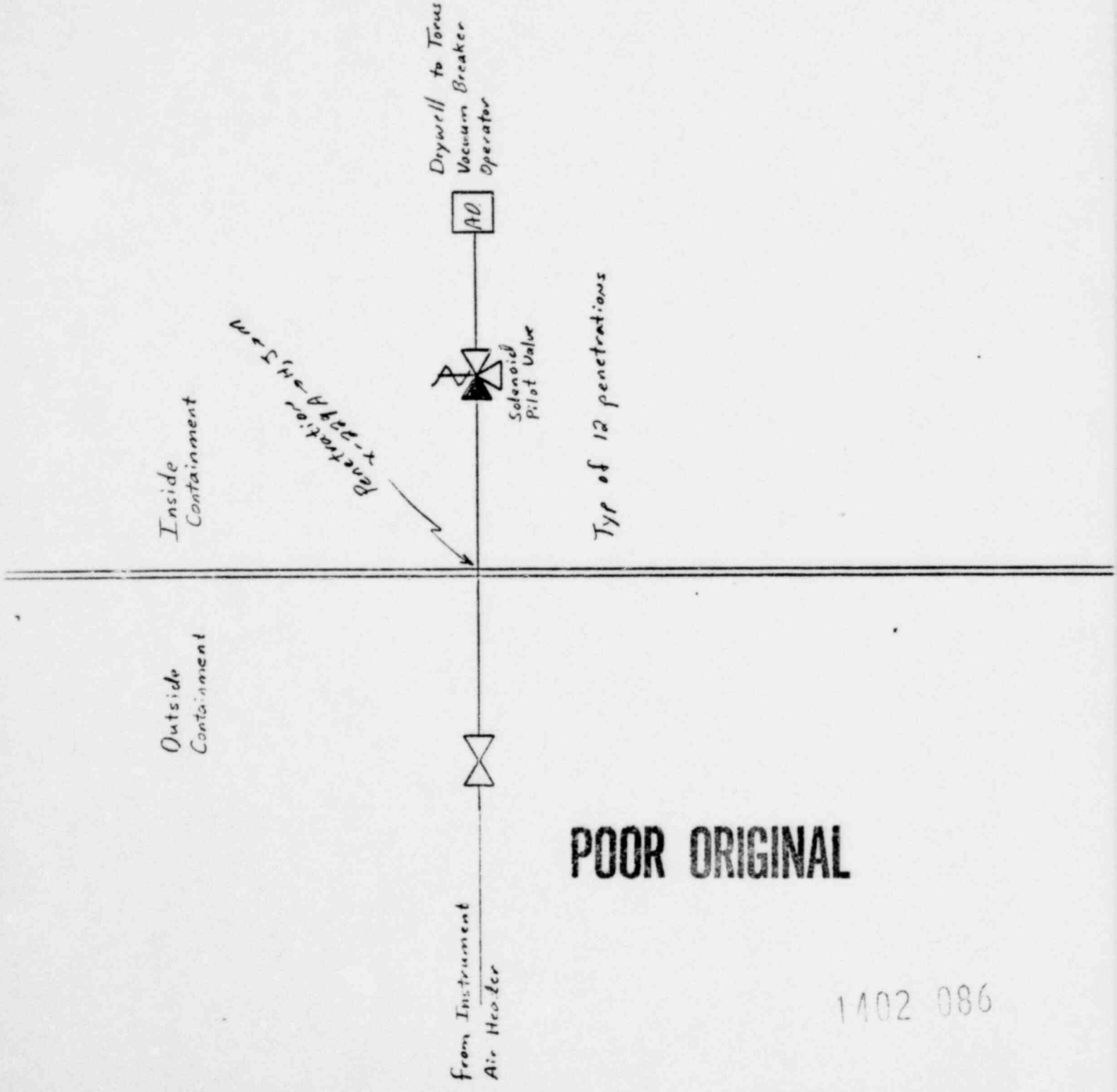


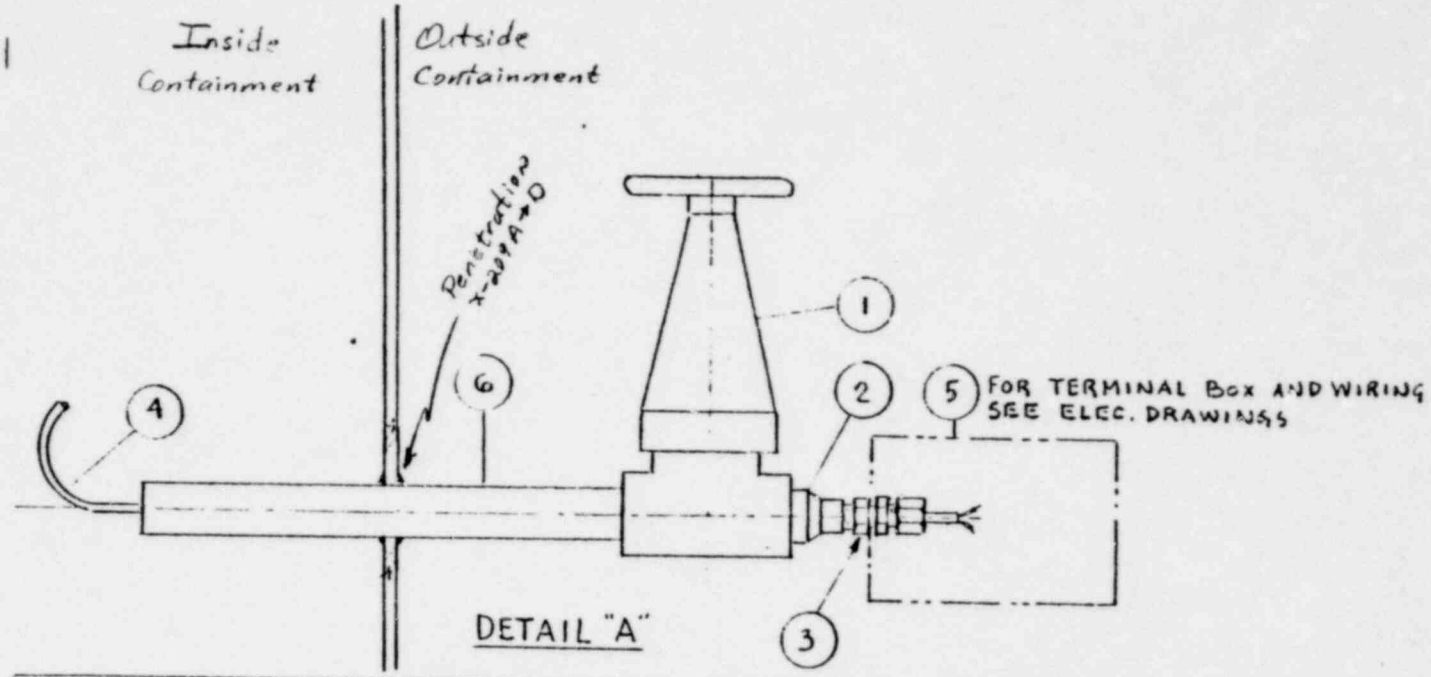
Plant Cooper

Figure 66

Plant Cooper

Figure HH





ITEM NO	DESCRIPTION
1	1"- 600# FORGED STEEL GATE VALVE SOCKET WELD ENDS
2	1" SOCKET WELD TO 1/8" FEMALE PIPE THREAD ADAPTER - CAJON OR EQUAL
3	S 200-11-2 BT 316 SS SWAGELOK THERMOCOUPLE CONNECTOR (BULKHEAD TYPE)
4	1/8" O.D. STAINLESS STEEL METAL SHEATHED DUAL ELEMENT COPPER-CONSTANTAN UNGROUNDED - LENGTH TO SUIT - THERMO ELECTRIC OR EQUAL
5	TERMINAL BOX (SEE ELEC. DWGS.)
6	1" SUPPRESSION CHAMBER PENETRATION X-209A FOR TE-20A SEE DWG. 4260 X-209B FOR TE-20B X-209C FOR TE-20C X-209D FOR TE-20D

NOTE: 1- ALL EQUIPMENT TO BE MOUNTED AND CONNECTED BY E-70-3 CONTRACTOR

2- TE-20A & C FOR AIR TEMP. — TE-20-B & D FOR WATER TEMP.

3- SENSING ELEMENTS TO BE COMPLETLY ENCLOSED BY S.S. SHEATH. COPPER SHALL NOT MAKE CONTACT WITH WATER OR SURRONDING ATMOSPHERE.

PLANT Cooper Nuclear Station

DESIGN REQUIREMENTS FOR CONTAINMENT ISOLATION BARRIERS

Question: Discuss the extent to which the quality standards and seismic design classification of the containment isolation provisions follow the recommendations of Regulatory Guides 1.26 "Quality Group Classifications and Standards for Water, - Steam, - and Radioactive-Water-Containing Components of Nuclear Power Plants" and 1.29 "Seismic Design Classification".

Response:

A. Quality Standards

The containment isolation valves and process piping included between these valves which penetrates containment constitute the isolation provisions addressed in this response. The design, fabrication, erection, inspection, and testing of the piping and valves comply with the quality standards of USAS B31.7, Class I and the applicable quality standards of the ASME Code, Section III, Class B, respectively.

An exception to this is the main steam piping which was constructed to USAS B31.1.0 since it was the applicable code in effect at the time the piping was ordered. However, by invoking additional nondestructive inspection requirements applied in compliance with applicable ASME Code and ASTM standards, the quality level was upgraded to comply with the intent of quality Group B as defined in Regulatory Guide 1.26.

For the B31.7 piping, a Code Inspector Certified USAS B31.7 NP-1 Data Report for Nuclear Piping was completed and filed for each piping system.

The containment penetrations were designed, fabricated, erected, inspected and testing in accordance with the requirements of Section III, Class B except that the process pipe included in the penetration assembly complies with USAS B31.7, Class I.

On the basis of the above, the quality standards applied to the containment isolation piping and valves comply with the intent of Group B quality standard of Regulatory Guide 1.26 which is recommended for these isolation provisions.

B. Seismic Design Classification

The containment isolation piping valves were designed to withstand the effects of a Hypothetical Maximum Earthquake (now referred to as a Safe Shutdown Earthquake - SSE). They were classified in the design as Class IS (now referred to as Seismic Category I). The components were

designed, fabricated and erected to withstand the effects of an SSE without loss of capability to perform their safety functions (i.e., to safely shutdown the reactor and maintain it in a safe shutdown condition).

The quality standards applied in the design of Class IS components utilized the codes and standards delineated in paragraph A above.

Quality assurance programs were specified and applied to the design, fabrication, erection and testing of the components. These programs comply with the intent of the applicable sections of Appendix B of 10CFR50.

PLANT Cooper Nuclear Station

PROVISIONS FOR TESTING

Question: Discuss the design provisions for testing the operability of the isolation valves.

Response:

1. All motor or air operated valves which are required to function on an isolation or system initiation are tested at least monthly to insure operability and the stroke times are checked quarterly.

2. All primary containment boundary valves have the provision for leak rate testing and are tested each refueling outage.

3. All excess flow check valves on instrument lines in use are tested each refueling outage to verify their ability to limit flow.

4. All check valves which are required to open on an initiation and are located in inaccessible areas are equipped with air operators for testing the valves. They also have a free floating disc and will open or close if required regardless of the position of the air cylinder.

PLANT Cooper Nuclear Station

CODES, STANDARDS AND GUIDES

Question: Identify the codes, standards and guides applied in the design of the containment isolation system and components.

Response:

The isolation system consists of the containment isolation valves and piping included between the valves which penetrates containment. The codes and standards applied in the design are as follows:

1. Piping - USAS B31.7 except for the main steam piping which applied USAS B31.1.0. Additional nondestructive inspection requirements were applied to the main steam piping which upgraded the quality level to comply with the intent of quality Group B of Regulatory Guide 1.26. The containment penetrations were designed to Section III, Class B.

2. Valves - The "Pressure-Temperature Ratings" given in USAS B16.5 were applied in conjunction with specified fabrication and inspection requirements utilizing ASME and ASTM specifications. Welding involked ASME IX. The inspections and testing utilized constitute compliance with the intent of the applicable requirements of ASME Section III, Class B.

PLANT Cooper Nuclear Station

NORMAL OPERATING MODES AND ISOLATION MODES

Question: Discuss the normal operating modes and containment isolation provision and procedures for lines that transfer potentially radioactive fluids out of the containment.

Response:

There are two lines which carry potentially radioactive fluids out of the containment. These lines exit through penetrations X-18 and X-19. These are from the drywell equipment drain sump and the drywell floor drain sump, respectively. The isolation valves for these lines are normally kept open and the pumps are started when it is desired to transfer fluid to the radioactive waste tanks. The isolation valves are air operated valves which fail shut. These valves are closed by a group II isolation. After the conditions which caused the isolation have been corrected, the switches for the isolation valves are first placed in the closed position. The isolation will then be reset. If there is indication of a high activity in drywell, chemistry and health physics personnel will be notified and at their request, a small amount of water will be pumped for analysis prior to placing the systems back in service. If drywell atmosphere activity is normal, the valves may be reopened.