VERMONT YANKEE NUCLEAR POWER CORPORATION

SEVENTY SEVEN GROVE STREET

RUTLAND, VERMONT 05701

B.3.2.1
WVY 79-135

REPLY TO:
ENGINEERING OFFICE
TURNPIKE ROAD
WESTBORO, MASSACHUSETTS 01581
TELEPHONE 617-366-9011

November 15, 1979

United States Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Office of Nuclear Reactor Regulation
Mr. W.F. Kane
Bulletins and Orders Task Force

References:
(a) License No. DPR-28 (Docket No. 50-271)
(b) USNRC Letter to VYNPC dated July 13, 1979
(c) Memo, T.D. Keenan to Distribution, dated July 26, 1979
(d) Memo, T.D. Keenan to BWR Owners Group, dated September 27, 1979

Dear Sir:

Subject: Long-Term Questions for B&O Task Force

In accordance with the requirements of reference (b), as clarified by references (c) and (d), our responses to these questions are attached.

As noted our work continues per requirements of NUREG-0578.

We trust that this information is satisfactory, however should you have any furter questions, please contact Mr. B.C. Slifer of this office.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORP.

R. H. Groce
Senior Engineer
Licensing

HCS/kaf

Attachment

1401 293

7911280 283

PLANT Vermont Yankee UNIT(S) --

BYPASS CAPACITY

Plant Steam Bypass Capacity, % Rated 105

PLANT Vermont Yankee

SYSTEMS AND COMPONENTS SHARED BETWEEN UNITS

PAGE ____ CONTINUED PAGE ____

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

System or Component	Shared Between Units Numbers

PLANT Vermont Yankee UNIT(S) --

PLANT-SPECIFIC SYSTEM INFORMATION

	System	General: Safety Classification	General: Seismic Category	Water Sources: Safety Classification	Water Sources: Seismic Category	Instrumentation and Control: Safety Classif.	Instrumentation and Control: Seismic Category	Frequency of System and Component Tests: System	Frequency of System and Component Tests: Component
1.	RCIC	2	1	2	1	Yes	1	Refueling	Monthly
2.	Isolation Condenser	Not Applicable							
3.	HPCS	Not Applicable							
4.	HPCI	2	1	2	1	Yes	1	Refueling	Monthly
5.	LPCS	2	1	2	1	Yes	1	Refueling	Monthly
6.	LPCI	2	1	2	1	Yes	1	Refueling	Monthly
7.	ADS	1(Disch 3)	1	NA,	NA	Yes	1	Refueling	
8.	SRV	1(Disch 3)	1	NA	NA	NA	NA	Half each refueling	
9.	RHR (including shutdown cooling, ~~steam condensing~~, suppression pool cooling, containment spray modes)	2	1	2	1	Yes		3 months	Monthly
10.	SSW	3	1	3	1	Yes		6 months	
11.	RBCCW	Non Safety Class	1	NA	no	non-safety	None	--	
12.	CRDS	2	1	Non-Safety	1	Yes		Weekly	
13.	CST (past)	Non Safety Class	1	2	1	Yes	1	Each Refueling	
14.	Main Feedwater	Non Safety Class	1	Non-Safety	No	Non-Safety		--	
15.	Recirculation Pump/Motor Cooling	Non Safety	1	NA	NA	Non-Safety	None	--	

PLANT Vermont Yankee UNIT

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

PAGE 1 CONTINUED ON PAGE 2

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	Isolation Valves: Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Room	Positions: Normal	Shutdown	Post Accident	Power Failure	Comments
7a-d	18	Main Steam	No	5	S	2-80A-D	B,C,D,P,AA	I	GB	AO	A	RM	3	A	D	O	O	C	C	
	18	Main Steam	No	5	S	2-86A-D	B,C,D,P,AA	O	GB	AO	A	RM	3	A	D	O	O	C	C	
8	3	Main Steam Drain	No	5	S/W	2-74	"	I	GT	MO	A	RM	15	AC	D	C	C	C	AI	
8	3	Main Steam Drain	No	5	S/W	2-77	"	O	GT	MO	A	RM	15	DC	D	C	C	C	AI	
9A, B	16	Feedwater	No	5	W	2-28A,B	--	I	CK	--	RF	--	--	P	N	O	C	C	C	
9A, B	16	Feedwater	No	5	W	2-27A,B	--	O	CK	--	RF	--	--	P	N	O	C	C	C	
98	4	RWCU-Return	No	15	W	12-68	A,Other	O	GB	MO	RM	A	45	AC	D	O	O	C	AI	
98	4	RWCU-Return	No	15	W	12-62	" "	O	CK		RF			P	N	O	O	C	C	
41	3/4	Sample	No	4	W	2-39	B,C,D,P,	I	SV	SO	A	RM	5	S	I	O	O	C	C	
41	3/4	Sample	No	4	W	2-40	AA	O	SV	SO	A	RM	5	S	I	O	O	C	C	
36	2½	CRD Return-Former	Cut and capped outside containment.						Cut from vessel and capped.											
38A-D	3/4	CRD with draw	No	8	W	13-121,122	--	O	SV	SO	RM	--	--	S	N	C	C	C	C	
38A-D	3/4	CRD exhaust-SCRAM	No	8	W	13-127	--	O	GB	AO	A	RM	--	S	D	C	C	C	O	
37A-D	3/4	CRD insert	No	8	W	13-125,120	--	O	SV	SO	RM	--	--	S	N	C	C	C	C	
37A-D	3/4	CRD in - SCRAM	No	8	W	13-126	--	O	GB	AO	A	RM	--	S	D	C	C	C	O	
12	20	RHR S/D Cooling Sup	Yes	10	W	10-17	F,A,U	O	GT	MO	A	RM	28	DC	D	C	O	O	AI	
12	20	RHR S/D Cooling Sup	Yes	10	W	10-18	F, A, U	I	GT	MO	A	RM	28	AC	D	C	O	O	AI	
211 A&B	4	Sup. Spray	Yes	10	W	10-88A &B	G, S	O	GB	MO	A	RM	45	AC	D	C	C	O	AI	
39 A&B	12	RHR-Cont. Spray	Yes	10	W	10-31 A&B	G, S	O	GT	MO	A	RM	70	AC	D	C	C	O	AI	
39 A&B	12	RHR-Cont. Spray	Yes	10	W	10-26 A&B	G, S	O	GT	MO	A	RM	70	AC	D	C	C	O	AI	
39 B	4	RHR to Radwaste	NO	10	W	10-57	F, A	O	GT	MO	RM	A	25	DC	D	O	O	C	AI	
39B	4	RHR to Radwaste	No	10	W	10-66	F, A	O	GT	MO	RM	A	25	AC	D	O	O	C	AI	
17	4	LHR Head Spray	No	10	W	10-33	F, A. U	O	GT	MO	A	RM	25	AC	D	C	O	C	AI	
17	4	RHR-Head Spray	No	10	W	10-32	F. A. U	I	GT	MO	A	RM	25	AC	D	C	O	C	AI	
210 A&B	12	RHR Test to Supp Pool	Yes	10	W	10-34 A&B	G, S	O	GB	MO	A	RM	120	AC	D	C	C	C	AI	
210 A&B	12	RHR-Supp Pool	Yes	10	W	10-39 A&B	G, S	O	GT	MO	A	RM	70	DC	D	C	C	C	AI	
210 A&B	8	Core Spray Test	Yes	6	W	14-26 A&B	--	O	GB	MO	RM	--	--	AC	D	C	C	C	AI	
211 A&B	12	RHR-Supp Pool	Yes	10	W	10-39 A&B	G, S	O	GT	MO	A	RM	70	DC	D	C	C	C	AI	
13 A&B	24	LPCI to Reactor	Yes	10	W	V1025 A&B	H	O	GT	MO	RM	A		AC	D	O	O	O	AI	

PLANT Vermont Yankee UNIT _____

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

PAGE 2 CONTINUED ON PAGE 3

Prim. Cont. 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 Room	Positions: Normal	Shutdown	Post Accident	Power Failure	Comments
13 A&B	24	LPCI to Reactor	Yes	10	W	V1027 A&B	H	O	GB	MO	RM	A		AC	D	C	C	O	AI	
13 A&B	24	LPCI to Reactor	Yes	10	W	V1046 A&B	--	I	CK	--	--	--		P	D	C	C	O	C	Testable Check Valve
13 B	4	RHR To Radwaste	No	10	W	V10-57	F, A	O	GT	MO	RM	A	25	DC	D	O	O	C	AI	
13 B	4	RHR to Radwaste	No	10	W	V10-66	F, A	O	GT	MO	RM	A	25	AC	D	O	O	C	AI	
224	20	RHR from Supp.	Yes	10	W	10-13 AO	--	O	GT	MO	RM	--	--	AC	D	O	O	O	AI	
218	18	Supp Ch Exhaust	Yes	12	A	SB16-19-7B	F, A, Z	O	B		RM	A	10	AO	D	C	C	C	C	
218	3	Sup Ch Exh Bypass	Yes	12	A	SB16-19-6B	F, A, Z	O	B		RM	A	10	AO	D	C	C	C	C	
218	1	CAD air to SGT	Yes	17	A	VG 9B	F, A, Z	O	SV	SO	RM	A		AC	D	C	C	C	C	
218	1	CAD air to SGT	Yes	17	A	VG-22B	F, A, Z	O	GB	MO	RM	A		AC	D	C	C	C	C	
147	1	Air to PC A/C	No	3	A	V7296A	F, A, Z	O	SV	SO	A	RM	20	AC	D	O	O	C	C	
147	1	Air to PC A/C	No	3	A	V7296B	F, A, Z	O	SV	SO	A	RM	20	AC	D	O	O	C	C	
50A	3/4	Cont. Air Sample-Supp	No	4	A	V10975B-1,2	F, A, Z	O	SV	SO	RM	A	5	AC	D	O	O	C	C	
50B	3/4	Cont. Air Sample-Supp	No	4	A	V10975C-1,2	F, A, Z	O	SV	SO	RM	A	5	AC	D	O	O	C	C	
50C	3/4	Cont. Air Sample-Supp	No	4	A	V10975D-1,2	F, A, Z	O	SV	SO	RM	A	5	AC	D	O	O	C	C	
50A-C	3/4	CAD & RAD MON	No	4,17	A	VG23, 26	--	O	SV	SO	RM	A	--	AC	D	C	C	O	C	
220																				
220	3/4	Cont. Air Sample-Supp	No	4	A	V10975A 1,2	F, A, Z	O	SV	SO	RM	A	5	AC	D	O	O	C	C	
220	3/4	Cont. Air Sample-Supp	No	4	A	V10975A 3,4	F, A, Z	O	SV	SO	RM	A	5	AC	D	O	O	C	C	
209A		PT-16-19-36	Yes	12	A	AC100	--	O	GT	--	--	--	--	H	N	O	O	O	AI	
209D	1	CAD Return	Yes	17	A	VG-24, 25	--	O	SV	SO	RM	A	--	AC	D	O	O	O	C	
209D	1	CAD Return	Yes	8	A	VG-33, 34	--	O	SV	SO	RM	A	--	AC	D	O	O	O	C	
27A,B	1	Core Plate d/p	No	16	W	2-24, 26	--	O	GB	--	--	--	--	H	N	O	O	O	AI	
27C, D	1	Core Spray Flow	Yes	6	W	14-840 A&B		O	GB	--	--	--	--	H	N	O	O	O	AI	
27C, D	1	Core Spray Flow	Yes	6	W	SL31 A&B		Excess flow check.												
27E, F	3/4	HPCI Flow Inst	Yes	7	S	23-35A, B		O	GB	--	--	--	--	H	N	O	O	O	AI	
27E, F	3/4	HPCI Flow Inst	Yes	7	S	SL37A, B		Excess flow check.												
42	1½	Standby Liquid Cont	Yes	9	W	V11-16	--	O	CK	--	RF	--	--	P	N	C	C	C	C	
42	1½	Standby Liquid Cont.	Yes	9	W	V11-17	--	I	CK	--	RF	--	--	P	N	C	C	C	C	
14	4	Reactor Water Clean Up-S	Yes	15	W	V12-15	A,Others	I	GT	MO	RM	A	25	AC	D	O	O	C	AI	Closes on high temp for leak detection

PLANT Vermont Yankee UNIT

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

PAGE 3 CONTINUED ON PAGE 4

Prim. Cont. Penetration Number	Line Size, In.	System	Is System an Engineered Safety Function	Figure	Process Fluid	Valve Number	Isolation Valves: Isolation Signal Code(s)	Location	Type	Actuator	Primary Actuation Mode	Secondary Actuation Mode	Full Closure Time, sec.	Power Source	Position Indication in Control Room	Positions: Normal	Shutdown	Post Accident	Power Failure	Comments
14	4	Reactor Water Clean Up-S	Yes	15	W	V12-18	A,Others	O	GT	MO	RM	A	25	DC	D	O	O	C	AI	
10	3	RCIC-Steam Supp	Yes	11	S	V13-15	K	I	GT	MO	A	RM	20	AC	D	O	O	O	AI	
10	3	RCIC Steam Supp	Yes	11	S	V13-16	K	O	GT	MO	A	RM	20	DC	D	O	O	O	AI	
212	8	RCIC p. disch	Yes	11	S	V13-20	--	O	GT	--	RM	--	--	DC	D	O	O	O	C	
212	8	RCIC P. disch	Yes	11	S	V13-21	--	O	GT	--	RM	--		DC	D	C	C	O	C	
223	2	Cond vac disch to sup	Yes	11	S	V13-SSC-10	--		SCV	--	RF	--		P	N	C	C	O	C	
227	6	RCIC Suct fm Supp	Yes	11	W	V13-41	--	O	GT	MO	RM	--		DC	O	C	C	C	AI	
227	6	RCIC Suct fm sup	Yes	11	W	V13-39	--	O	GT	MO	RM	--		DC	D	C	C	C	AI	
16 A&B	8	Core Spray to Reactor	Yes	6	W	V14-11 A&B	--	O	GT	MO	A	RM		AC	D	O	O	O	AI	
16 A&B	8	Core Spray to Reactor	Yes	6	W	V14-12 A&B	--	O	GT	MO	A	RM		AC	D	C	C	O	AI	
16 A&B	8	Core Spray to Reactor	Yes	6	W	V14-14 A&B	--	I	GT	MO	RF	--		P	D	O	O	O	C	
226	12	Core Spray Suction	Yes	6	W	V14-7A,B	--	O	GT	MO	RM			AC	D	O	O	O	AI	
19	3	Drywell Equ Dr.	No	14	W	V20-94	A, F	O	GT	AO	A	RM	20	A	D	C	C	C	C	
19	3	Drywell Equ Dr.	No	14	W	V20-95	A, F	O	GT	AO	A	RM	20	A	D	C	C	C	C	
18	3	Drywell Floor Dr	No	14	W	V20-82	A, F	O	GT	AO	A	RM	20	A	D	C	C	C	C	
18	3	Drywell Floor Dr	No	14	W	V20-83	A, F	O	GT	AO	A	RM	20	A	D	C	C	C	C	
11	10	HPCI Steam Sup	Yes	7	S	V23-15	L1	I	GT	MO	A	RM	17	AC	D	O	O	O	AI	
11	10	HPCI Steam Sup	Yes	7	S	V23-16	L1	O	GT	MO	A	RM	17	DC	D	O	O	O	AI	
221	18	HPCI Exhaust	Yes	7	S	V23-65	--	O	CK	--	RF	--	--	P	N	C	C	O	C	
221	18	HPCI Exhaust	Yes	7	S	V23-12	--	O	SCV	--	RF	--	--	P	N	C	C	O	C	
225	16	HPCI Suction	Yes	7	W	V23-58	--	O	GT	MO	RM	A		DC	D	C	C	O	AI	
35	.280	TIP Tube	No		TIP	--	--	O	XV	--	RM	--	NA	DC	D	O	O	O	AI	
35	.280	TIP Tube	No		TIP	--	F	O	BL	SO	F .	RM	NA	AC	D	O	C	C		
30 A-D	1	Instrument Sensing	Yes	5	W	V2-72-A-H	--	O	GB	hand	--	--	--	H	N	O	O	O	AI	
30 E,F	1	Recirc press	No	5	W	V2-304 A&B	SL305A,B	O	GB	--	--	--	--	H	N	O	O	O	AI	Excess flow check
34 A-D	1	Steam Flow Meas.	Yes	5	W	V2-SL-73A-H	--	O	CK	flow	--	--	--	P	N	O	O	O	AI	Excess flow check
34 E,F	1	Recirc d/p A, B	No	5	W	V2-98 A&B	SL97A&B	O	GB	--	--	--	--	H	N	O	O	O	AI	Excess flow check
21	2	Ser Air to DW	No	3	A	V72-33	--	O	GB	hand	--	--	--	H	N	C	C	C	AI	changed?

PLANT Vermont Yankee UNIT

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

PAGE 4 CONTINUED ON PAGE 5

Prim. Cont. 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 Room	Positions: Normal	Shutdown	Post Accident	Power Failure	Comments
21	2	Ser Air to DW	No	3	A	V72-37A	--	O	CK	--	RF	--	--	P	N	C	C	C	C	Changed?
22	2	Inst Air to DW	No	3	A	V72-39C	--	O	CK		RF	--	--	P	N	O	O	O	C	
22	2	Inst. Air to DW	No	3	A	V72-90D	--	O	GB		--	--		H	N	O	O	O	AI	
23	8	RBCCW in	No	14	W	V70-113	--	O	CK	--	RF	--	--	P	N	O	O	C	C	
24	8	RBCCW out	No	14	W	V70-117	--	O	GB	MO	RM	--		AC	D	O	O	C	AI	
48	1½	Service water	No	13	W	--	--	O/I	CK/CB/CAP		Capped hose connection with stop valve.									
205	20	Vac Brkr sec cont to sup	Yes	12	A	SB-16-19-11	A&B	--	O	B	--	A	RM		D	D	C	C	C	AI
205	20	VacBrkr sec cont to sup	Yes	12	A	SB-16-19-11	A&B	--	O	CK	--	RF	--	--	P	N	C	C	C	AI
205	18	Supp purge inlet	Yes	12	A	SB-16-19-10	F,A,Z		O	B		RM	A		A	D	C	O	C	C
205	6	Supp make-up	Yes	12	A	SB-16-19-23	F,A,Z		O	B		RM	A	10	A	D	C	O	C	C
205	1	Inst Air to supp ch	No	12	A	V16-70-22A	F,A,Z		O	SV	SO	RM	A		AC	D	C	C	C	C
205	1	Inst Air to supp ch	No	12	A	V16-20-20	F,A,Z.		O	SV	SO	RM	A		AC	D	O	O	C	C
205	1	CAD Air to Supp ch	Yes	17	A	NG12A&B	F,A,Z		O	SV	SO	RM	A		AC	D	C	C	O	C
205	1	CAD Air to Supp Ch	Yes	17	A	NG11A&B	F,A,Z		O	SV	SO	RM	A		AC	D	C	C	O	C
25	18	D.W. Purge & vent out	Yes	12	A	SB-16-19-7A	F,A,Z		O	B	AO	RM	A	10	AC	D	C	C	C	C
25	3	D.W. purge vent out by p	Yes	12	A	SB-16-19-6A	F,A,Z		O	B	AO	RM	A	10	AC	D	C	C	C	C
25	1	CAD Exhaust	Yes	17	A	VG 9A	F,A,Z		O	SV	SO	A	RM		AC	D	C	C	C	C
25	1	CAD Exhaust	Yes	17	A	VG22A	F,A,Z		O	GB	MO	A	RM		AC	D	C	C	C	C
25	8	DWSC ex to SGT	No	12	A	SB16-19-6	F,A,Z		O	B	AO	A	RM	10	AC	D	C	C	C	C
25	18	DWSC ex to RTF-5	No	12	A	SB16-19-7	F,A,Z		O	B	AO	A	RM	10	AC	D	C	C	C	C
26	18	DW Purge Inlet	Yes	12	A	SB-16-19-8	F,A,Z		O	B	AO	RM	A	10	AC	D	C	C	C	C
26	18	DW & Sup purge in	Yes	12	A	SB-16-19-9	F,A,Z		O	B	AO	RM	A	10	AC	D	C	C	C	C
26	1	DW inst Air In	Yes	12	A	16-20-22B	F,A,Z		O	SV	SO	RM	A	NA	AC	D	C	C	C	C
26	2	DW Inst Air	No	12	A	V16-19-51	--		O	CK	--	RF	--	--	P	--	C	C	C	C
26	2	DW Inst Air	No	12	A	V16-19-52	--		O	CK	--	RF	--	--	P	--	C	C	C	C
28A		R Vessel Level Inst	Yes	16	W	2-18A,29A	SL19A,29A		Gate and excess flow check.											
28B		R Vessel Level Inst	Yes	16	W	2-16A, SL-17A			Gate and excess flow check.											

PLANT Vermont Yankee UNIT _____

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

PAGE 5 CONTINUED ON PAGE 6

Prim. Cont. 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 Room	Positions: Normal	Shutdown	Post Accident	Power Failure	Comments
28C		R Vessel Level Inst	Yes	16	W	2-14A,	SL-15A	Gate and excess flow check.												
28D		R Vessel Level Inst.	Yes	16	W	2-12A	SL-13A	Gate and excess flow check.												
28E		R Vessel Level Inst	Yes	16	W	2-10	SL-11	Gate and excess flow check.												
28F	1	Head Leakage	No	5	W	2-22	SL-23	O	GB	--	--	--	--	H	N					
29A		R Vessel Level Inst	Yes	16	W	2-18-B	SL-19B	Globe and excess flow check.												
29B		R Vessel Level Inst	Yes	16	W	2-16B	SL-17B	Globe and excess flow check.												
29C		R Vessel Level Inst	Yes	16	W	2-14B	SL-15B	Globe and excess flow check.												
29D		R Vessel Level Inst	Yes	16	W	2-12B	SL-13B	Globe and excess flow check.												
31 A&B	1	Recirc pump d/p	No	5	W	2-61A&B	SL-62 A&B	Globe and excess flow check.												
31 C&D	1	Recirc flow	No	5	W	2-63 A,B	SL-64 A,B	Globe and excess flow check.												
31 E	½	Seal Leak det.	No	2	W	2-9A	SL 2-2-7A	Globe and excess flow check.												
31F	½	Seal Leak det.	No	2	W	2-10A	SL 2-2-8A	Globe and excess flow check.												
32 A,B	1	Recirc pump d/p	No	5	W	2-61C,D	SL 62-C,D	Globe and excess flow check.												
32 C,D	1	Recirc flow	No	5	W	2-63C,D	SL 64-C,D	Globe and excess flow check.												
32 E	½	Recirc seal leak det	No	2	W	2-2-9B	SC 2-2-7B	Globe and excess flow check.												
32F	½	Recirc seal leak det	No	2	W	2-2-10B	SL2-2-8B	Globe and excess flow check.												
34A	1	CRD press. cont.	No	16	W			O	GB					H						
34 B,C	3/4	HPCI flow inst	Yes	7	S	23-35 C,D	SL 37C,D	Globe and excess flow check.												
34 E,F	3/4	RCIC flow inst	No	11	S	54C,D	SL55C,D	Globe and excess flow check.												
40 A,B	1	RHR Inst	Yes	10	W	53 B,D	60B,D	Globes,												
40 C,D	1	Protection Sys	Yes	10	W	53 A,C	60 A,C	Globes,												
40?A-F	1	Jet Pump Inst.	No	16	W	2-22-	Globe Valves			SL-2-23-	Excess flow checks									
40?A-F	1	Jet Pump Inst.	No	16	W	2-30-				SL-2-31-										
40?A-F	1	Jet Pump Inst.	No	16	W	2-20-				SL-2-21-										
40?A-F	1	Jet Pump Inst.	No.	16	W	2-32				SL-2-33										
50?,B	3/4	RCIC Flow Inst.	No	11	S	V54A, B, SL 55C,D.	Globes, excess flow checks													
50?-F		PS-2-71A-D RV Bellows	No	5	S	MS90A-D	Gate Valve													
51B	1	RWD open ind P.S.	Yes	5	S	2-300-B	SL 301B	Globe & excess flow check.												
51D	1	RWC open ind P.S.	Yes	5	S	2-300 D	SL 301 D	Globe & excess flow check.												

PLANT Vermont Yankee UNIT _____

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

PAGE 6 CONTINUED ON PAGE 7

Prim. Cont. 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 Room	Positions: Normal	Shutdown	Post Accident	Power Failure	Comments
52F	1	RWB open ind P.S.	Yes	5	S	2-300 F	SL 301 F		Globe & excess flow check.											
52H	1	RWB open ind P.S.	Yes	5	S	2-300 H	SL 301 H		Globe & excess flow check.											
52		PT 1-156-3	No	12	A	AC-1														
52E	½	Mercury Man & d/p	No	12	A	AC 50, AC 49	Globes													
206 A,B		LT 16-19-38A torus level	No	12	W	V300 A,B	Gates													
213 A,B		Torus Drains	Yes	12	W	LC-20-400 A,B														
216	1	Cont Air Sample Return	No	4	A	109-76 A&B	F,A,Z	O	SV	SO	RM	A	5	AC	D	C	C	O	C	
217	½	Mercury man	No	12	A	AC-25, AC-39		O	GB	--	--	--	--	H	N	O	O	O	AI	

Continues on page 7-final page]

PLANT Vermont Yankee UNIT ____

PRIMARY CONTAINMENT ISOLATION SYSTEM DATA

PAGE 7 CONTINUED ON PAGE FINAL

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

Isolation Valve Positions

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

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

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 for Isolation	Set Point (units)
A	Reactor Vessel Low Level (1st)	127.0 in above fuel
B	Reactor Vessel Low Level (2)	-44.5 in. (82.5 in. above fuel)
C	High Radiation-Main Steam Line	Greater than 3 times normal level
D	Line Break-Main Steam Line	>212°F
F	High Drywell Pressure	2 psig
G	Reactor Low Water Level or High Drywell Pressure initiate CS, HPCI, RHR	as listed
K	Line Break in RCIC Steam to Turbine (high Temp. High Flow Low Pressure	>212°F 180 in. H_2O 50 psig
L	Line Break in HPCI Steam to Turbine (High Temp. High Flow, Low Pressure	212°F 180 in. H_2O 100 psig
P	Low Main Steam Line Pressure at inlet to Main Turbine	850 psig
Z	High Radiation, Reactor Bldg. Ventilation Exhaust	Greater than 14 mr/hr
AA	Low Condenser Vacuum	Less than 12" Hg,
U	High Vessel Pressure-Close RHR S/D Cooling Valves, High Drywell Pressure Close Cont. Spray Valves	130 psig 2.3 psig
S		

1401 303

FIGURE NO.	DRAWING #	TITLE
1	G191159, SH 3	RCW Cooling Water
2	G191159, SH 5	Recirc. Pump Cooling Water
3	G191160, SH 2	Service & Instrument Air
4	G191165	Sampling System, SH 2
5	G191167	Nuclear Boiler
6	G191168	Core Spray
7	G191169, SH 1	HPCI
8	G191170	CRD
9	G191171	SLC
10	G191172	RHR
11	G191174, SH11	RCIC
12	G191175	Primary Containment, PCAC
13	G191176	C&DWT
14	G191177, SH 1	R.W.
15	G191178, SH 1	RWCU
16	G191267	Nuclear Boiler Instrumentation
17	VY-E-75-002-3	CAD System

PLANT Vermont Yankee UNIT(S) --

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: The containment isolation system was designed to withstand a certain design basis earthquake. This is described in detail in the VY FSAR Volume IV, Appendix A and C. Tests that were done to verify the operability of components under earthquake conditions are also described in Appendix C.

The Quality Assurance Program followed is described in detail in Appendix D to the FSAR.

PLANT Vermont Yankee UNIT(S) --

CODES, STANDARDS, AND GUIDES

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

Response: The Drywell, Wetwell and attached piping were built to ASME Section III Class B standards, including code cases 1177 and 1330. Details of Penetration Design are given in General Electric Specification 22A1385, Rev. 1.

Electrical components were designed to meet IEEE Standard 279. Design bases are further described in Section 7.3.3 of the FSAR.

PLANT _____ UNIT(S)____

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: This question has essentially been answered by the response to I&E Bulletin 79-08, in letters B.4.2.1 of April 27, 1979 and B.4.1.1 of August 9, 1979.

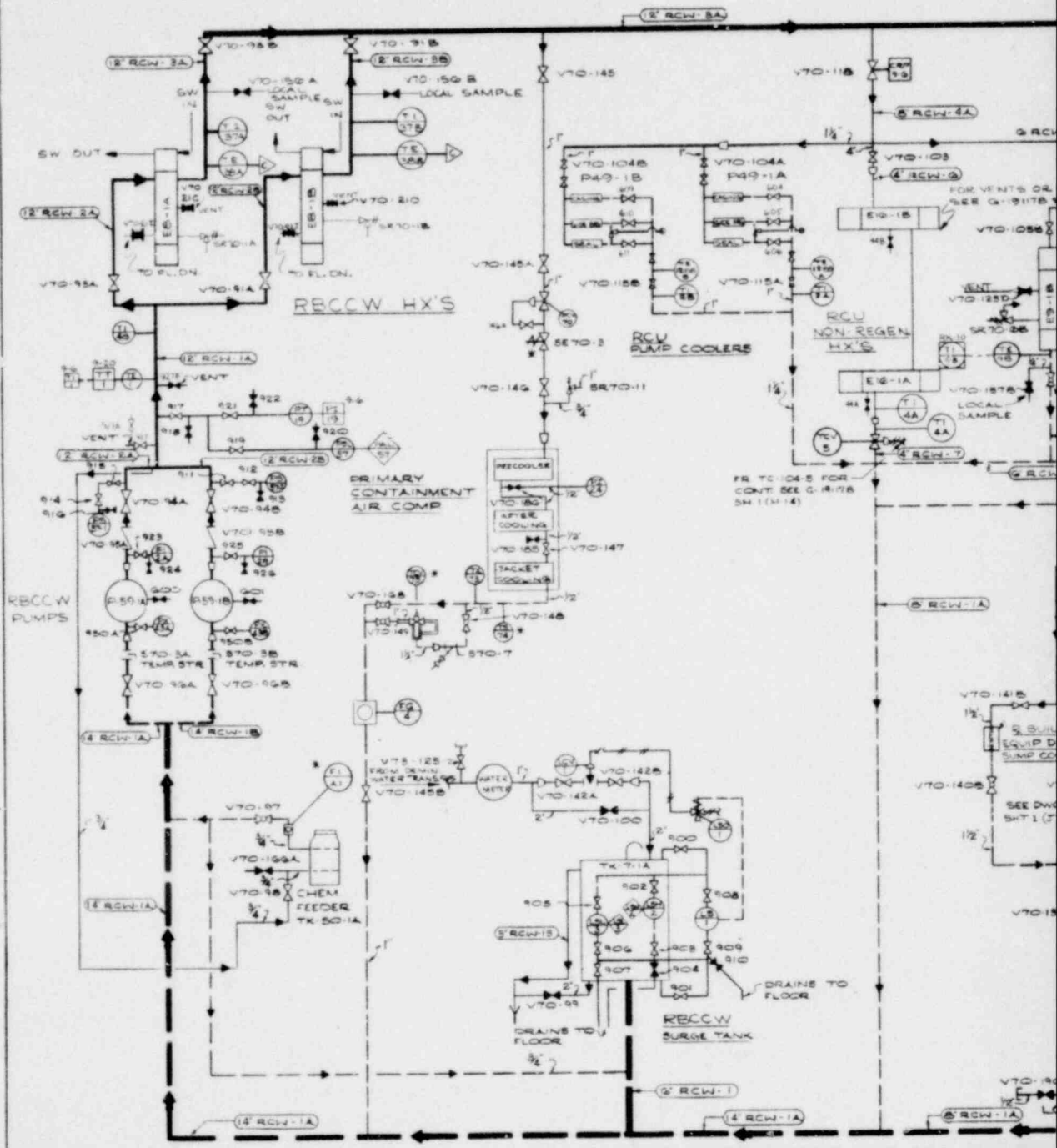
In summary, all systems except Emergency Core Cooling Systems and Main Steam Isolation Valves and Drains, and the sample line, isolate automatically on either low reactor vessel water level, or high drywell pressure. The MSIVS, drains, and sample line isolate on a low-low water level in the reactor vessel. All systems taking water or gasses out of the containment isolate on various other functions, as detailed in the table.

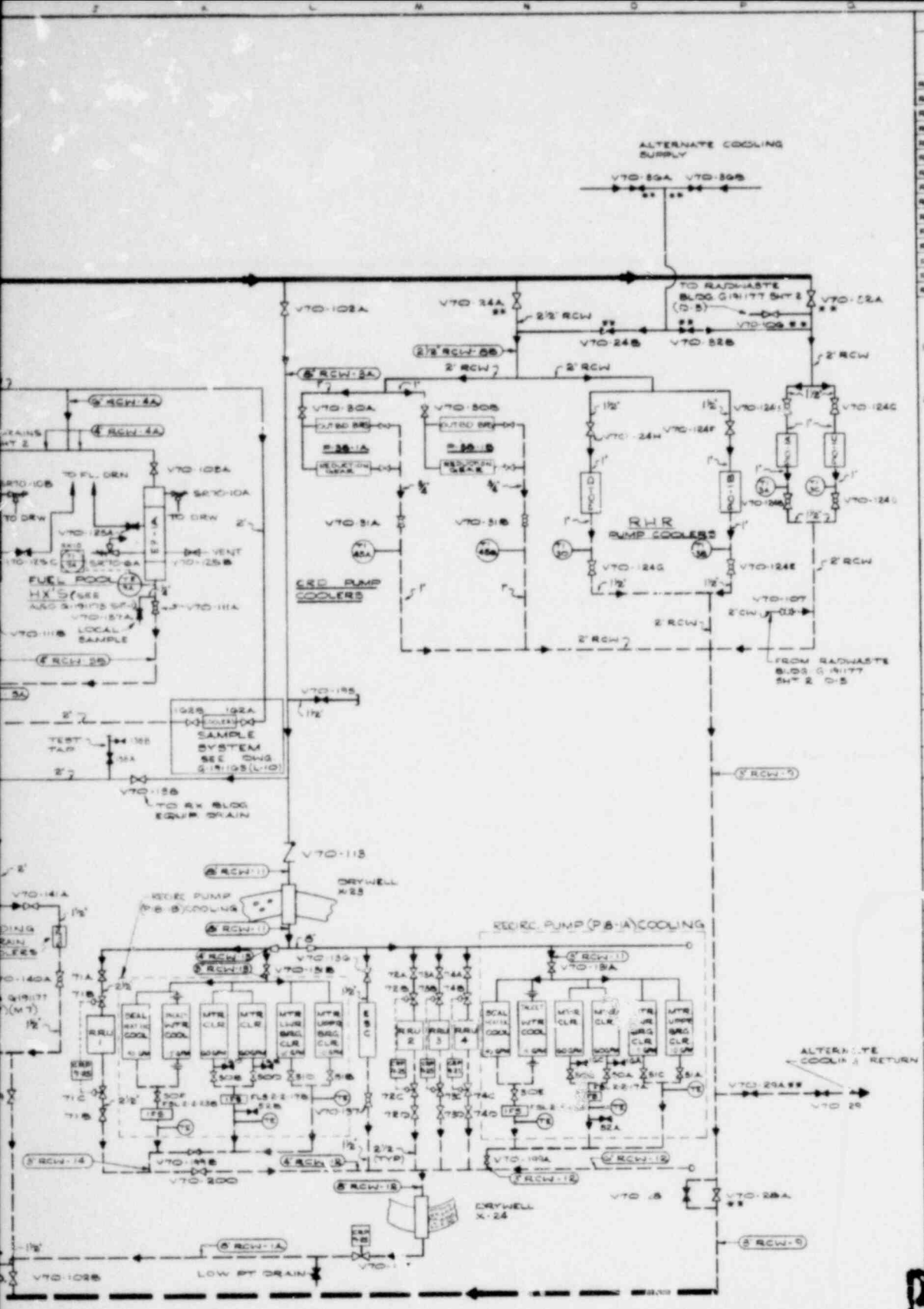
The Emergency Core Cooling Systems may transfer water out of the containment and back in again. Any leakage of water from these systems would be collected by Reactor Building equipment and floor drain sumps and transferred to the Radwaste Building via the Equipment and Floor Drain System. The Radwaste Building ventilation exhaust is monitored. Radwaste areas are monitored for high radiation. Reactor Building air exhaust is monitored. In a post-accident situation Reactor Building Exhaust would be via the standby Gas Treatment System, which processes the air and is monitored.

The remaining systems that transfer radioactivity from the containment are the RHR drain and Containment Atmosphere Dilution System. They discharge via Radwaste and Standby Gas Treatment, respectively.

Upon reset of Containment Isolation signal, valves can automatically reopen. This will be modified under steps to implement NUREG-0578. The entire containment isolation design will be reviewed also. Until the design is changed, Operating Procedures have been changed to require monitoring of Radiation Monitoring Systems before and after reset of Containment Isolation Signals.

A lengthy description is given in the VY FSAR Section 7.3.





PIPING LINE LIST

LINE NO	LINE SIZES	PIPE CH.	PIPE MAT'L	DESIGN PRESS PSIG	DESIGN TEMP °F	ENGR'G SPEC NO.
RCW-1	12	STD	CS	150	150	1-9
RCW-1A,B	8, 14					
RCW-2A,B	18"					
RCW-3A,B	8, 12					
RCW-4A,B	4, 6, 8					
RCW-5A,B	4, 6					
RCW-6	4"					
RCW-7	4"					
RCW-8A,B	2½, 3"					
RCW-9	2½, 3"					
RCW-10	3"					
RCW-11	3 & 4					
RCW-12	14 & 6					
RCW-13	3 &					
RCW-14	3					

NOTES:

1. INSTRUMENT NUMBERS TO BE PREFILED BY IOA. ACTUAL TAGGING TO BE TCV-04-21. ALL LOCAL GRAB SAMPLES WILL GO TO NEAREST FLOOR DRAIN.
2. SYSTEM DESIGNATION 'X' PLANT ID 'RCCW'

LEGEND:

- COOLING WATER SUPPLY
- COOLING WATER RETURN
- VALVE NORMALLY CLOSED
- ** DENOTES VALVES TO BE OPERATED FOR ALTERNATE COOLING SYSTEM
- * BY OTHERS
- BALL JOINT
- VALVE NORMALLY OPEN

REFERENCE DRAWINGS

FLOW DIAG - SAMPLING SYS - SH 2	G-191195
FLOW DIAG CIRC WTR & MISC SYS	G-191199
FLOW DIAG - FIRE PROTECTION SYS	G-191193
YARD PIPING PLAN - SH 1	G-191280
FIRE WATER PIPING PLAN	G-191196
REACTOR BUILDING SERVICE & COOLING WATER PIPING PLANS	G-191194
TURBINE & LDNG SERVICE & COOLING WATER PIPING PLANS	G-191192
PIPING & INSTRUMENT SYMBOLS	G-191159
VALVE & SPECIALTY LIST	G-191157
LIST OF DRAWINGS	A-191134

POOR ORIGINAL

1401 309

NO	DATE	REVISION	BY	CK	APPROVED
3		SEN UPDATE	RJM	FJU	
2	2/8/77	FIELD CHANGES	HSM	RJM	
1	4/4/76	FIELD CHANGES & GENERAL UPDATE	RJM		

TESTA, ABBOTT & DICKSON, INC.
MANCHESTER, N.H.

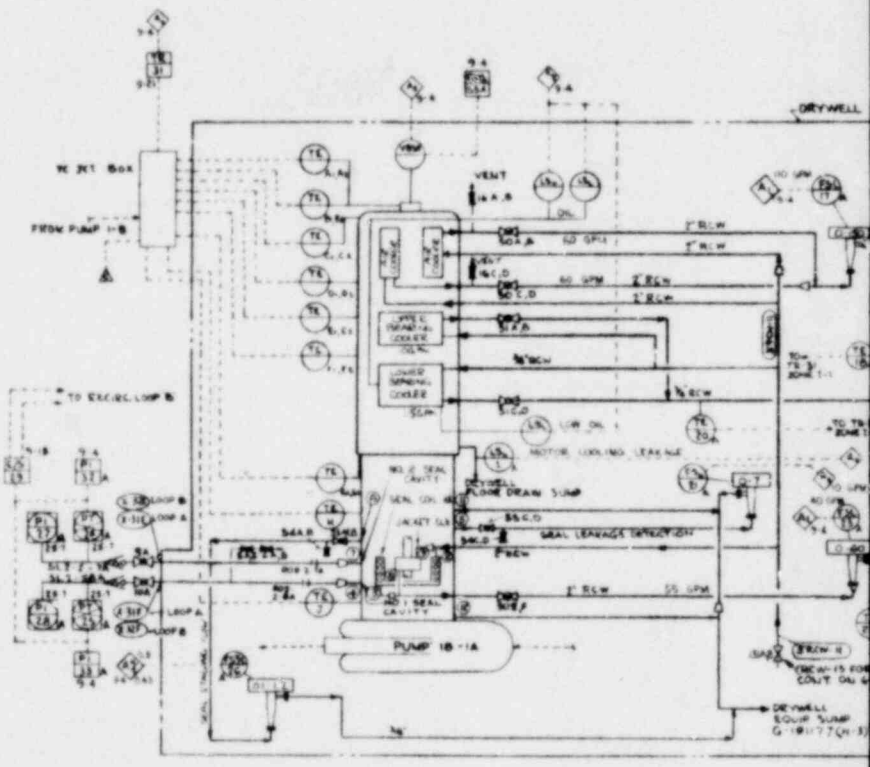
VERMONT YANKEE NUCLEAR POWER CORP
VERMONT YANKEE NUCLEAR POWER STATION
VERNON, VT

FLOW DIAGRAM
RCW
COOLING WATER SYSTEM

Dwg No. G-191159 REDRAWN 1974

POOR ORIGINAL

G-191159
SHEET #5



1401 310

FLOW DIAGRAM - RECIRCULATION PUMP COOLING WATER

NOTES:
1. SEE REF DWG G-191167 NUCLEAR BOILER FLOW DIAGRAM
2. EQUIPMENT, VALVES AND INSTRUMENTS FOR PUMP 1B ARE TO BE SUFFIXED WITH THE LETTER 'B' EXCEPT AS SHOWN
3. ALL RECIRCULATION PUMPS INSTRUMENTS ARE TO BE PREFIXED WITH SYSTEM NO 2-2. ALL RECIRCULATION VALVES ARE PREFIXED BY PLANT DESIGNATION - RCW
4. PRESSURE INSTRUMENTS IMPULSE PIPING FOR RECIRC PUMP 1B WILL EXIT PRIMARY CONTAINMENT THROUGH PENETRATIONS X-32E & X-32F
5. THERMOCOUPLES 1 THRU 7, 8, 20 (EE TO BE WIRED OUT THROUGH DRYWELL TO T/C JUNCTION BOX
6. WHERE THERMOCOUPLES ARE DESIGNATED TE/A1 A2 ETC, TE/A2 IS A SPARE ELEMENT.
7. FOR INSTRUMENTS WITHOUT RACK NUMBERS SEE INSTRUMENTATION INSTALLATION DETAILS FOR MOUNTING.
8. FOR LOCATION AND IDENTIFICATION OF INSTRUMENTS SEE INSTRUMENT LIST B-191260
9. ALL RECIRCULACATION PUMP COOLING VALVES ARE PREFIXED RCW
10. RACK 25-7 LOCATED AT RHR SW B PUMP ROOM

LIST OF PUMP & MOTOR THERMOCOUPLES
TE/A1,A2 — THRUST BEARING UPPER PADS
TE/B1,B2 — THRUST BEARING LOWER PADS
TE/1,2,E — UPPER GUIDE BEARING
TE/3,D — MOTOR WINDING 'A'
TE/4,E — MOTOR WINDING 'B'
TE/5,F — MOTOR WINDING 'C'
TE/6,G — LOWER GUIDE BEARING
TE/7 —— NO 2 SEAL CAVITY
TE/8 —— NO 1 SEAL CAVITY
TE/9 — MOTOR COOLING WATER
TE/10 — MOTOR BEARING COOLING WTR
TE/EE — SEAL CAVITY COOLING WATER

CONNECTIONS
1" THE SEAL COIL HEAT EXCHANGER INLET
1" SEAL COIL HEAT EXCHANGER OUTLET
1/2" NO 1 SEAL CAVITY PRESSURE
3/4" SEAL LEAKAGE DETECTION-FS-21
3/4" SEAL STAGING FLOW-FS-26
1/2" NO 2 SEAL CAVITY PRESSURE
1" JACKET COOLER INLET
1" JACKET COOLER OUTLET
1" SEAL LEAKAGE DRAIN
1 1/2 SEAL LEAKAGE DRAIN

THERMOCOUPLES RECORDED

TE/A1	TE/6
TE/B1	TE/7
TE/C	TE/8
TE/D	TE/9
TE/E	TE/10
TE/F	TE/EE

FLOW INDICATORS
FS-21 — AIR COOLER FLOW
FS-21 — SEAL LEAKAGE DETECTION
FS-23 — JACKET COOLING & SEAL COIL HEAT EXCHANGER
FS-26 — SEAL STAGING FLOW

1401 311

REV NO	DESCRIPTION	BY	CHKD	APVD	DATE
1	CORRECTIVE UPDATE	T.A.B.	J.F.B.	L.S.H.	7-1-74

YANKEE ATOMIC ELECTRIC COMPANY
20 TURNPIKE ROAD WESTBORO, MASSACHUSETTS
NUCLEAR SERVICES DIVISION

VERMONT YANKEE NUCLEAR POWER CORPORATION
VERMONT YANKEE NUCLEAR POWER STATION
VERNON, VERMONT

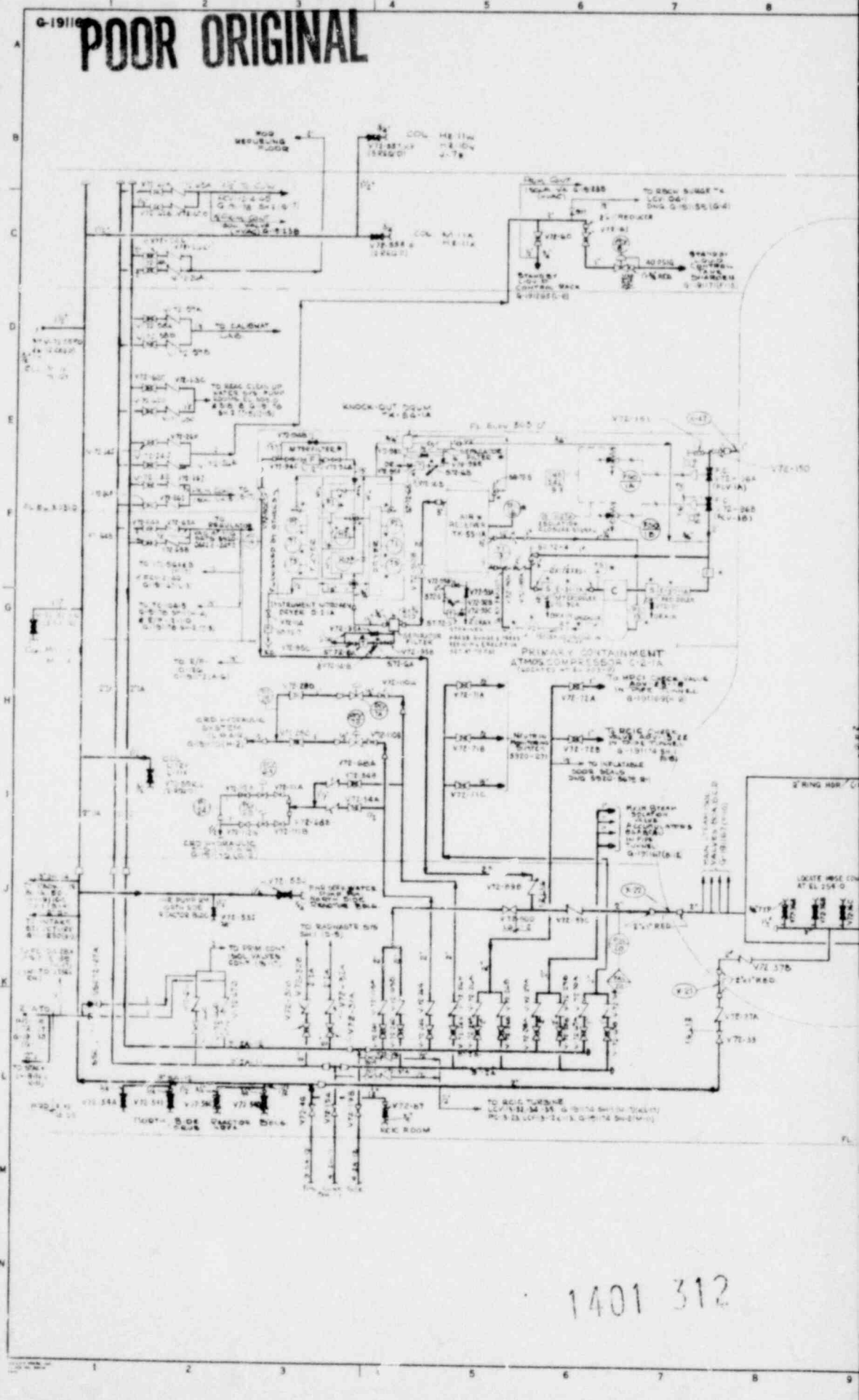
FLOW DIAGRAM
RECIRCULATING PUMP COOLING WATER

DRAWN BY	DATE	CHECKED BY	DATE	ENG APPROVAL	DATE	APPROVAL	DATE
P.H.R.	7/1/74	T.E.L.	7/8/74	R.P.M.	7/8/74		

G-191159 SHEET 5

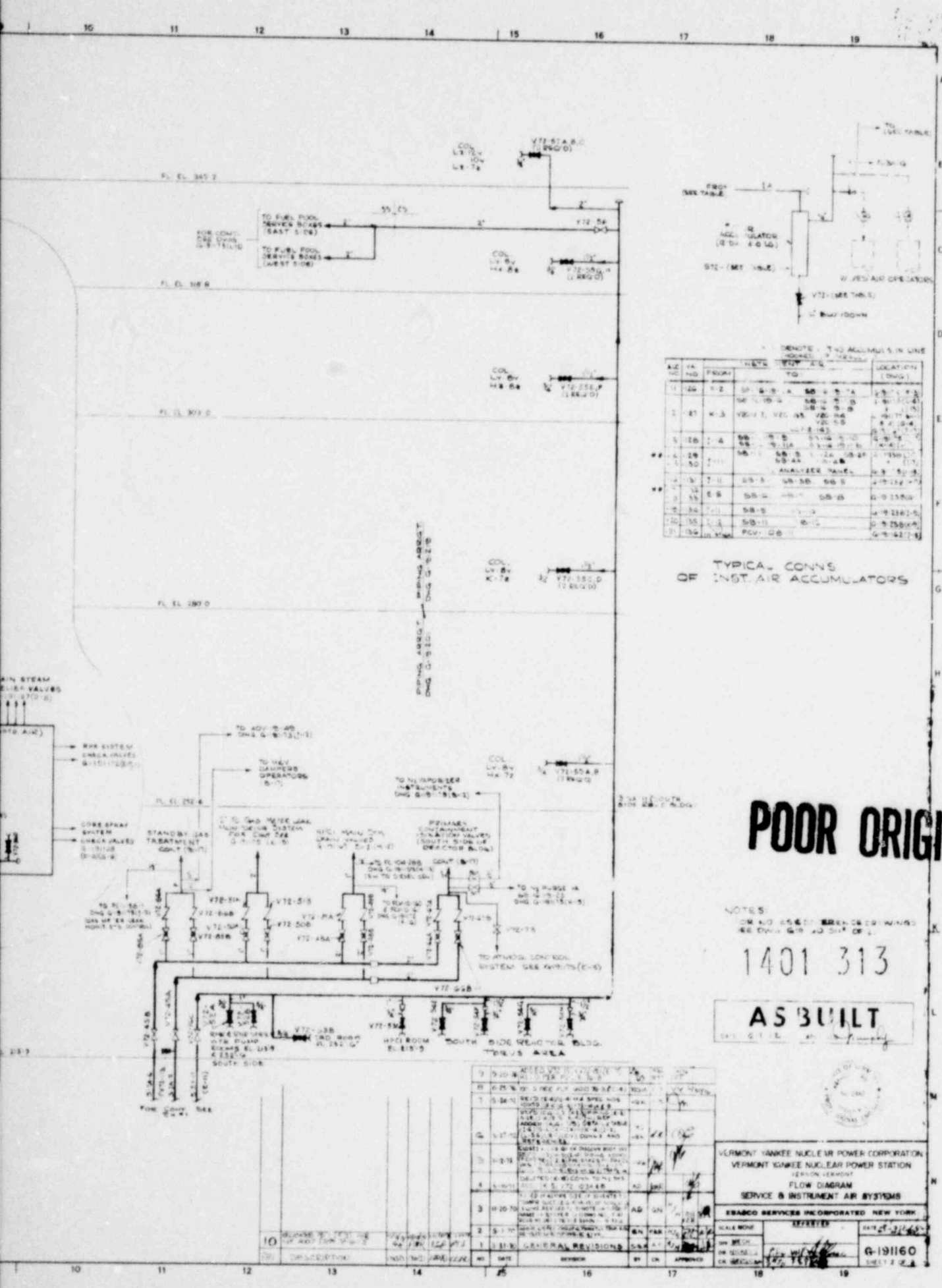
G-191160 Sh. 2

POOR ORIGINAL

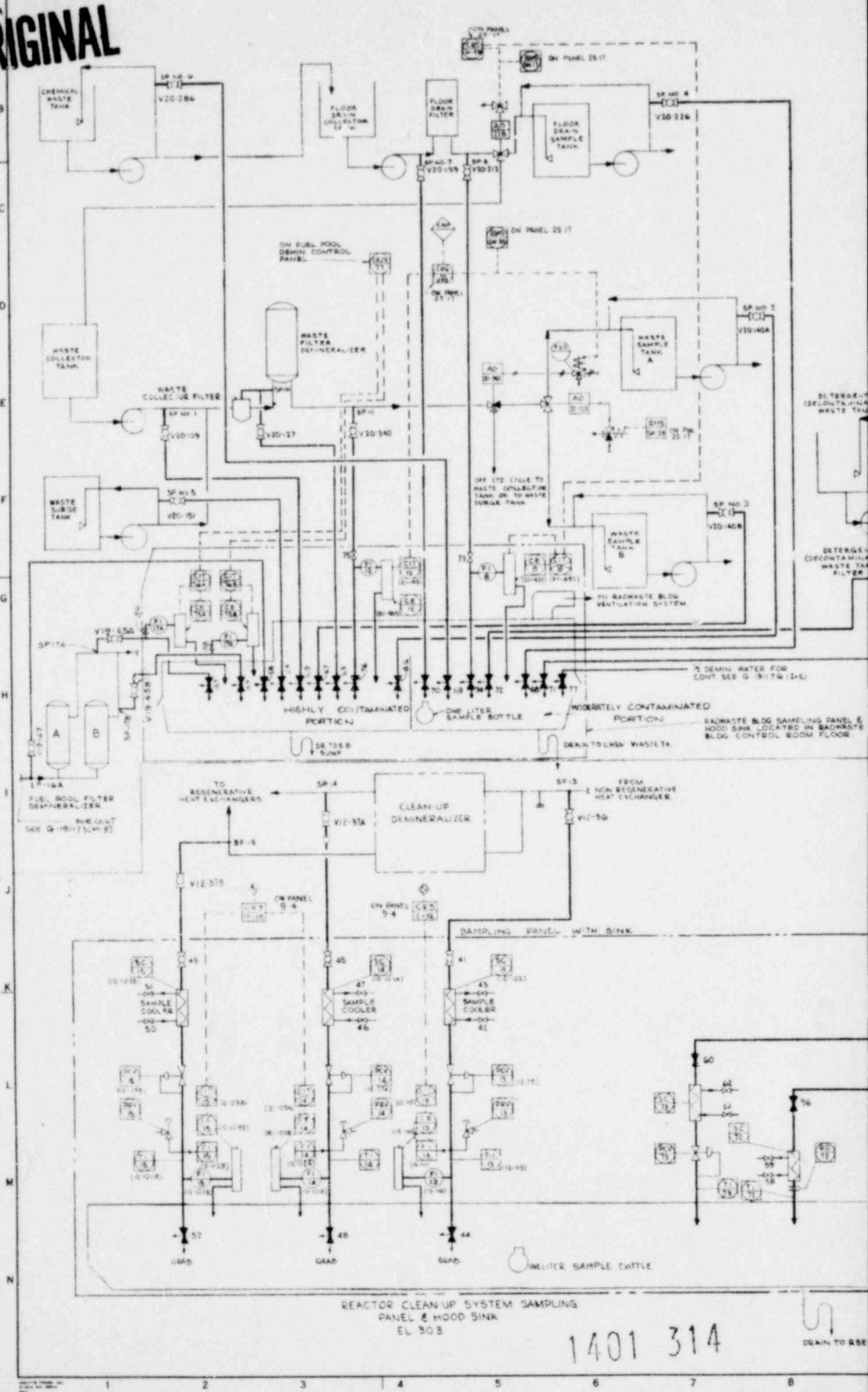


PLAN HOLD

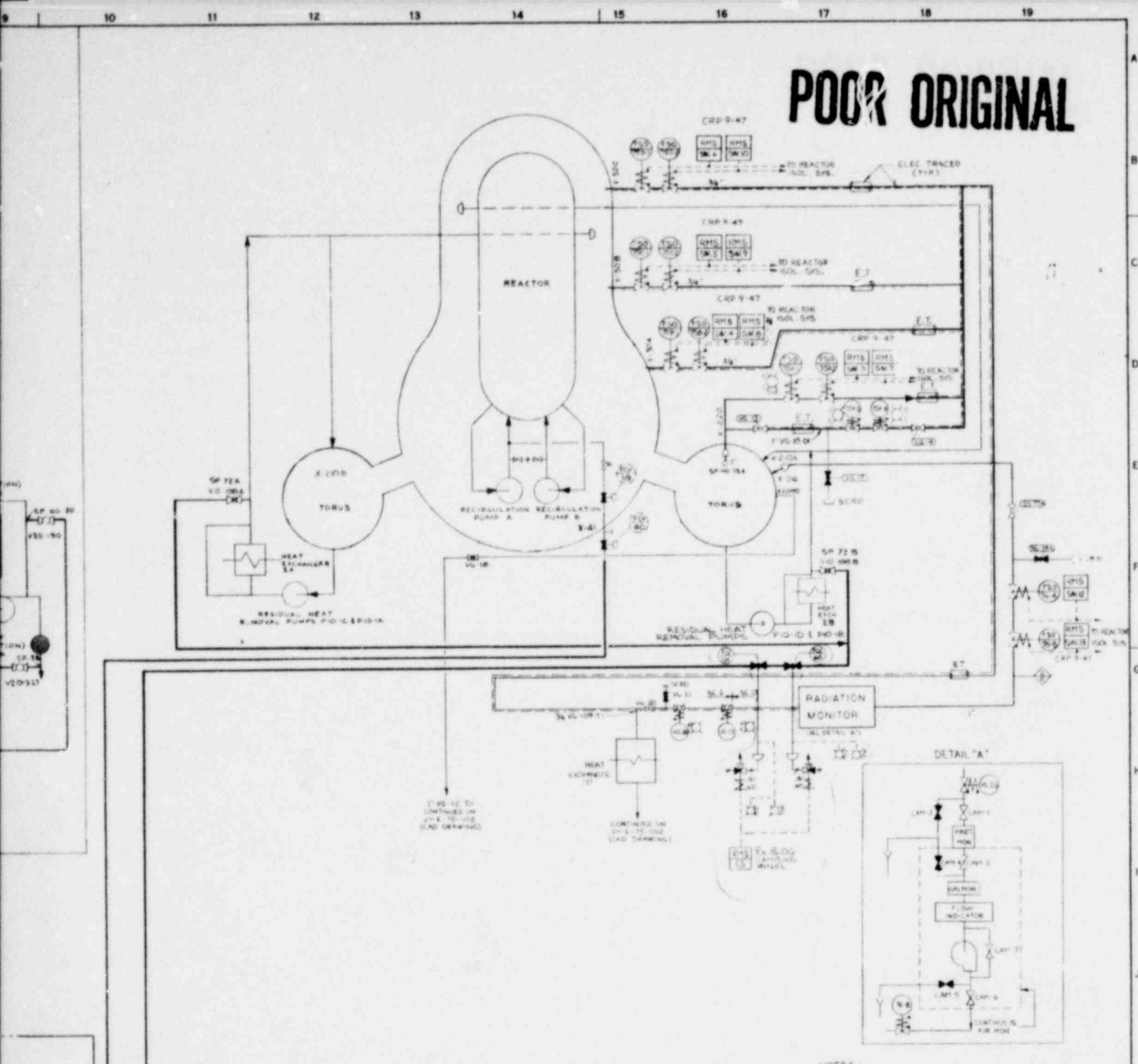
1401 312


TYPICAL CONNS OF INST. AIR ACCUMULATORS
AS BUILT
1401 313
POOR ORIGINAL
VERMONT YANKEE NUCLEAR POWER CORPORATION
VERMONT YANKEE NUCLEAR POWER STATION
FLOW DIAGRAM
SERVICE & INSTRUMENT AIR SYSTEMS
G-191160

G-191165



1401 314



NOTES:
1. FOR ALL NOTES AND REFERENCE DWGS SEE G-191164
2. ALL ITEMS MARKED "SAFETY CLASS 2 AND DESIGNATED VG ARE TO BE REQUIREMENTS OF ANSI B 31.1
3. THE HYDROGEN ANALYZER IS A UNIT PACKAGE SUPPLIED BY TELPHI INC. DWG NO 017220

1401 315

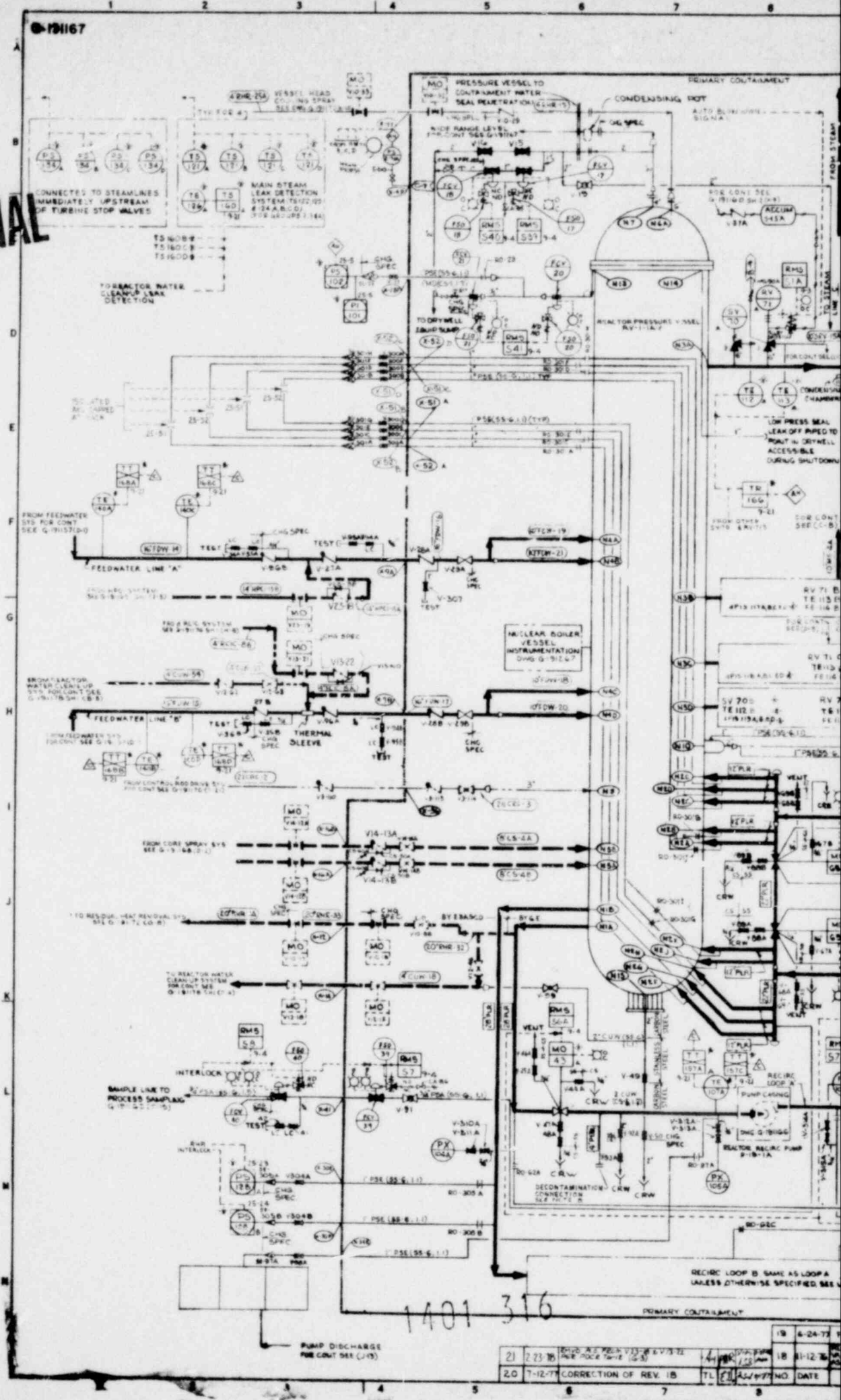
AS BUILT
DATE 12-12-73 APPROVED

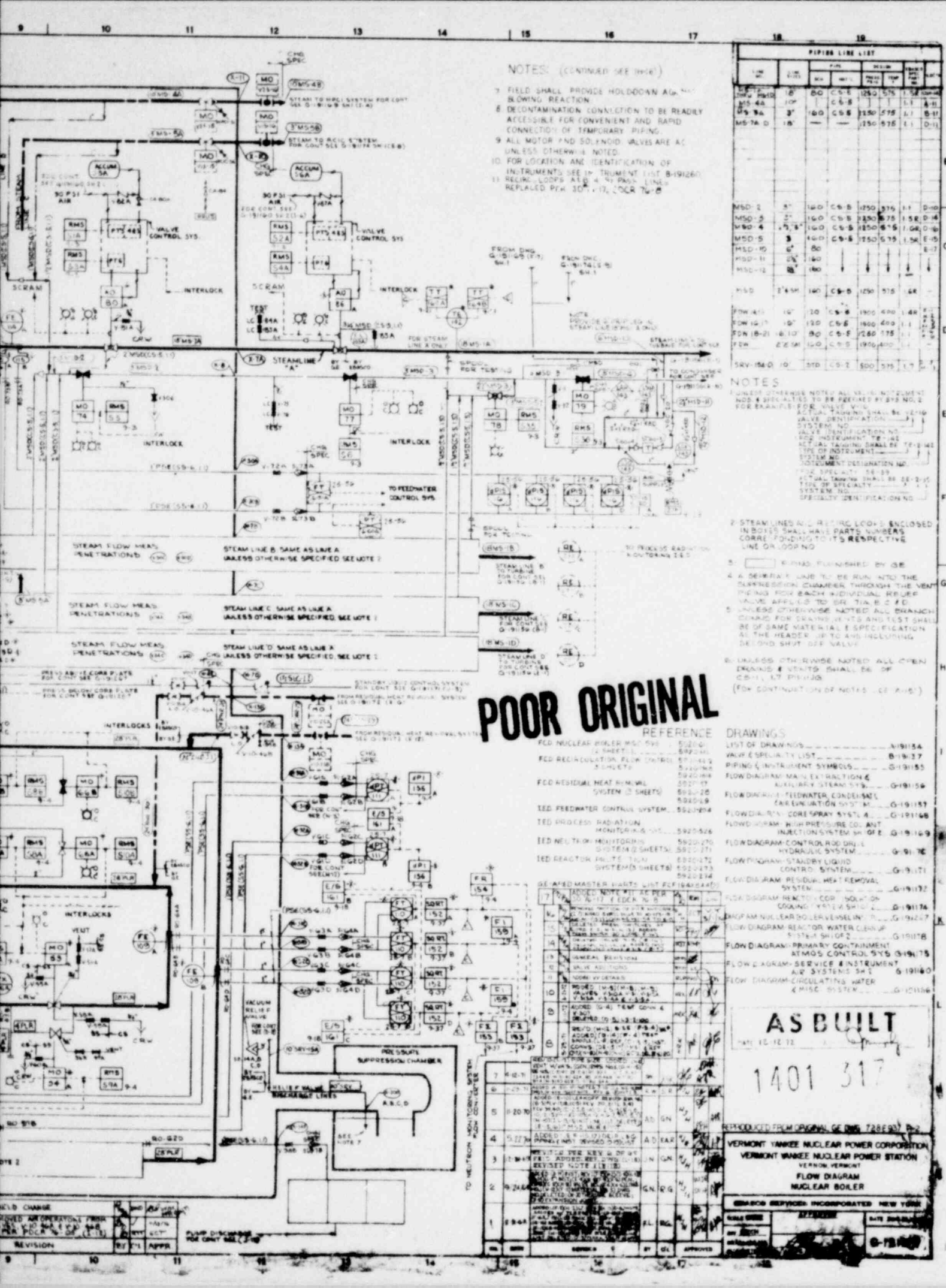
NO.	DATE	REVISION	BY	CK.	APPROVED
14	11-26-79	CORRECTIVE UPDATE	WJS	BWR	AS NOTED
13	6-9-77	UPDATE	RDM	FMK	
12	4-25-77	REVISED TO CONFORM TO AS BUILT CONDITIONS	RDM	FJS	
11	2-15-77	ADDED INSTRUMENTATION FOR PEN. FOR ISOLATION SYSTEM	RDM	RTT	
10	1-31-77	REVISED AS PER EDCR 76-7	RDM	RTT	
9	1-28-77	REVISED AS PER EDCR 74-18	RDM	RTT	

NO.	DATE	REVISION	BY	CK.	APPROVED
B	6-1-76	REVISED LAB SAMPLING SUB-SYSTEM TO AS BUILT	RTT	CCT	
7	10-17-75	REVISED SEC. 1 AND RECIR. TO AS BUILT CONDITIONS OF LAB SAMPLING SUB-SYSTEM	RTT	CCT	
6	10-15-72	ADDED VY DETAILS	WJF	RJG	
5	6-9-72	REVISED TO CONFORM TO AS BUILT CONDITIONS	RDM	RJG	
4	9-20-70	ADDED [illegible]	AD	GJN	
3	5-12-70	ADDED [illegible] TO CONT PIPING	GJN	TAR	
2	3-3-70	REVISED INSTRUMENT VALVES [illegible]	S.A.		
1	9-25-69	GENERAL REVISION			

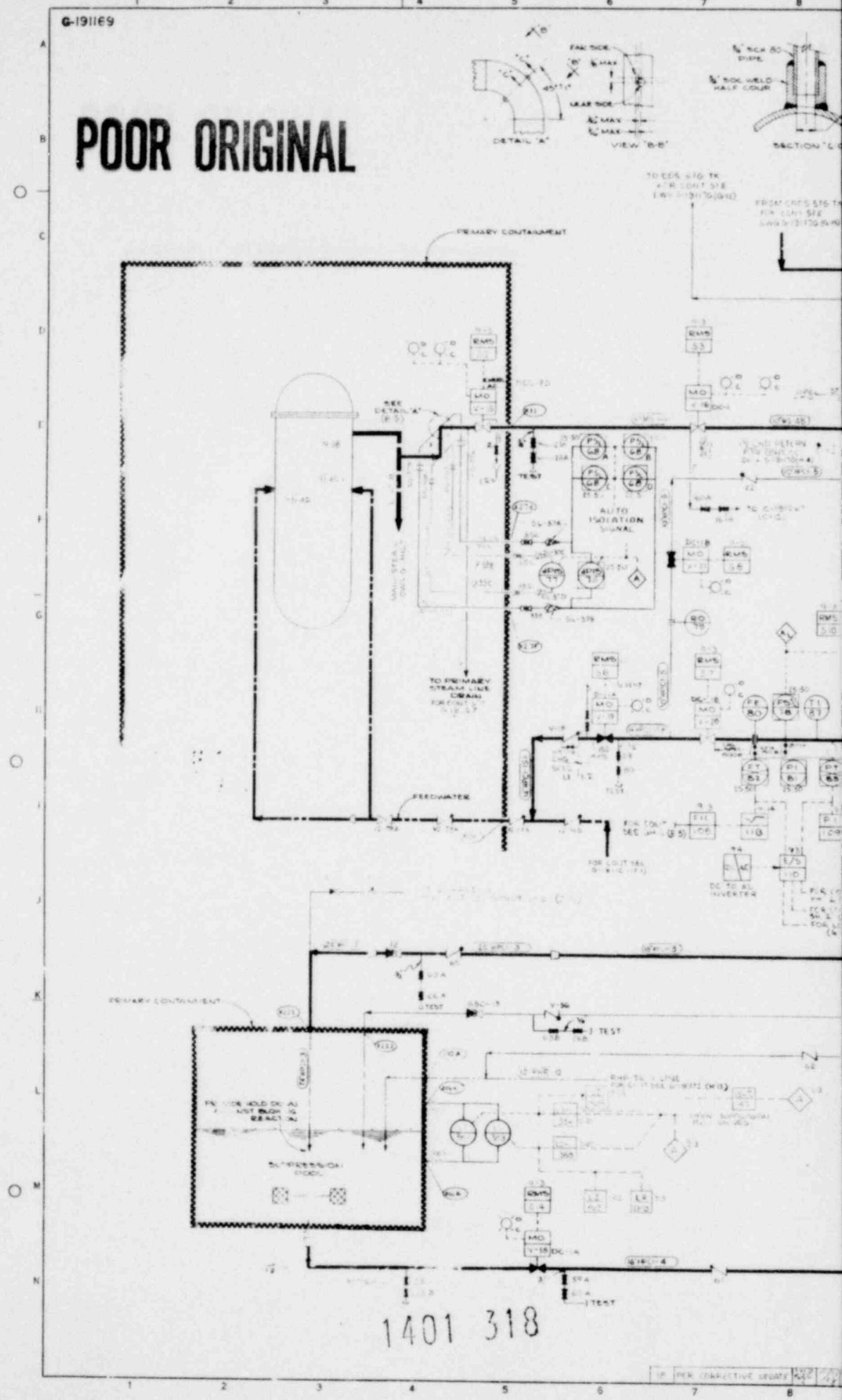
VERMONT YANKEE NUCLEAR POWER CORPORATION
VERNON, VERMONT
VERMONT YANKEE NUCLEAR POWER STATION
FLOW DIAGRAM
SAMPLING SYSTEM – SHEET 2
ERABCO SERVICES INCORPORATED NEW YORK

SCALE NONE	APPROVED	DATE 2/12/69
DRN. MEGH.		G-191165
DES. [illegible]		
CK'D. [illegible]		





POOR ORIGINAL



POOR ORIGINAL

1401 318

NOTES: CONTINUED SEE (1-18)

1. ALL INSTRUMENTATION IS POWERED FROM STATION BATTERY VIA VITAL A.C. SYSTEM.
2. FOR LOCATION AND IDENTIFICATION OF INSTRUMENTS SEE INSTRUMENT LIST B-191260.
3. ● DESIGNATES ITEM SUPPLIED BY GE/APED
4. ★ DENOTES BODY VALVE.

PIPING LINE LIST

LINE NO.	PIPE SIZES	PIPING MATL SPEC	WELDING MATL SPEC	DESIGN PRESS PSIG	DESIGN TEMP °F	SEISMIC CAT.	INSUL.
HPCI-1	14, 16	STD	C-S-1	50	175	1	2
HPCI-2	14	80	C-S-5	1250	575	1	2
HPC-3	16, 20, 24	STD	C-S-1	150	350	1	2
HPCI-4	16	STD	C-S-1	150	175	1	2
HPC-5	10	120	C-S-5	900	400	1	2
HPC-6	4	80	C-S-5	250	575	1	2
HPCI-7	4	STD	C-S-1	150			2
HPC-8	2	80	C-S-2	500			2
HPC-9	2		C-S-1	150			2
HPCI-10	2		C-S-1	150			2
HPCI-11	2		C-S-1	150			2
HPC-12	2, 4	STD	C-S-1	150			2
HPC-13	1	STD	C-S-1	150			2
HPC-14A	16	STD	C-S-1	150	350	1	2
HPC-14B	16	STD	C-S-1	150	350	1	2
HPC-15A	14	120	C-S-5	900	400	1	2
HPC-15B	14	120	C-S-5	900	400	1	2
HPC-16	2	80	C-S-1	150	350	1	2
HPC-17	2	80	C-S-1	150	200	1	2
HPCI-18	10	100	C-S-5	1250	175	1	2
HPCI	1 & SM	80	C-S-5	—	175		
HPC	1 & SM	80	C-S-1	—	175		
VS-4A	10	80	C-S-5	150	575		2
VS-4B	10	80	C-S-5	150	575	1	2
VS	1 & SM	80	C-S-5	150	575		
	4	80	C-S-5	50	175		2
	10	120	C-S-5	50	175		2
VSD	1 & SM	80	C-S-5	150	575		
	1 & SM	80	C-S-5	150	575		

NOTES:

UNLESS OTHERWISE NOTED ALL VALVES, INSTRUMENT NUMBERS AND SPECIALTIES TO BE PREFIXED BY SYSTEM NUMBER 23.

FOR CONTINUATION OF NOTES SEE (1-A)

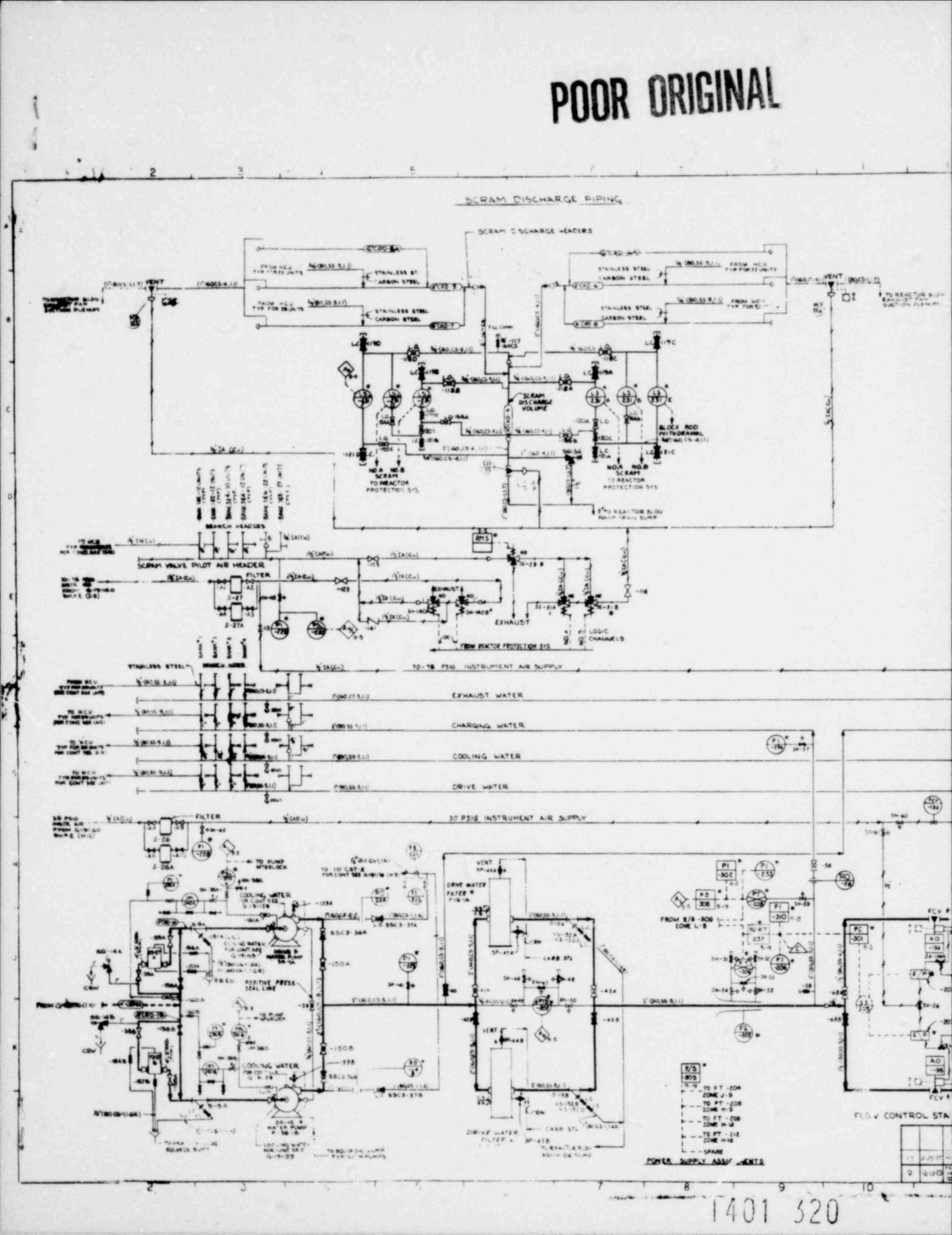
REFERENCE DRAWINGS

LIST OF DRAWINGS
VALVE & SUPP. ALTS. LIST
PIPING & INSTRUMENT SYMBOLS
FLOW DIAGRAM CONT. RATE & TEMP.
WATER TREATMENT SYSTEM
REACTOR HIGH PRESSURE COOLANT INJECTION SYSTEM PIPING PLAN
INJECTION SYSTEM PIPING SECTIONS
FLOW DIAGRAM NUCLEAR BOILER
FLOW DIAGRAM RESIDUAL HEAT REMOVAL
FLOW DIAGRAM CORE SPRAY SYSTEM
FLOW DIAGRAM CONTROL ROD DRIVE HYDRAULIC SYSTEM
FLOW DIAGRAM STANDBY LIQUID CONTROL SYSTEM
FLOW DIAGRAM REACTOR CORE ISOLATION COOLING SYSTEM
FLOW DIAGRAM CLEANUP SYSTEM
FLOW DIAGRAM FUEL POOL COOLING AND CLEANUP SYSTEM
FLOW DIAGRAM REACTOR WATER SAMPLING SYSTEM
FLOW DIAGRAM CONTAINMENT ATMOSPHERE DILUTION SYSTEM
FLOW DIAGRAM CONTAINMENT ATMOSPHERE MONITORING SYSTEM
FLOW DIAGRAM PRIMARY CONTAINMENT ISOLATION VALVE SYSTEM
FLOW DIAGRAM REACTOR RECIRCULATION SYSTEM
FLOW DIAGRAM STANDBY GAS TREATMENT SYSTEM
FLOW DIAGRAM CONTROL ROD DRIVE HYDRAULIC SYSTEM
FLOW DIAGRAM REACTOR CORE ISOLATION COOLING SYSTEM
FLOW DIAGRAM CLEANUP SYSTEM
FLOW DIAGRAM FUEL POOL COOLING AND CLEANUP SYSTEM
FLOW DIAGRAM REACTOR WATER SAMPLING SYSTEM
FLOW DIAGRAM CONTAINMENT ATMOSPHERE DILUTION SYSTEM
FLOW DIAGRAM CONTAINMENT ATMOSPHERE MONITORING SYSTEM
FLOW DIAGRAM PRIMARY CONTAINMENT ISOLATION VALVE SYSTEM
FLOW DIAGRAM REACTOR RECIRCULATION SYSTEM
FLOW DIAGRAM STANDBY GAS TREATMENT SYSTEM

REPRODUCED AT THE NATIONAL ARCHIVES

VERMONT YANKEE NUCLEAR POWER CORPORATION
VERMONT YANKEE NUCLEAR POWER STATION
VERNON, VERMONT
FLOW DIAGRAM
HIGH PRESSURE COOLANT INJECTION SYSTEM
EBASCO SERVICES INCORPORATED NEW YORK
APPROVED
DATE DEC. 27 19 7
G-191169
SHEET 1 OF 2

1401 319



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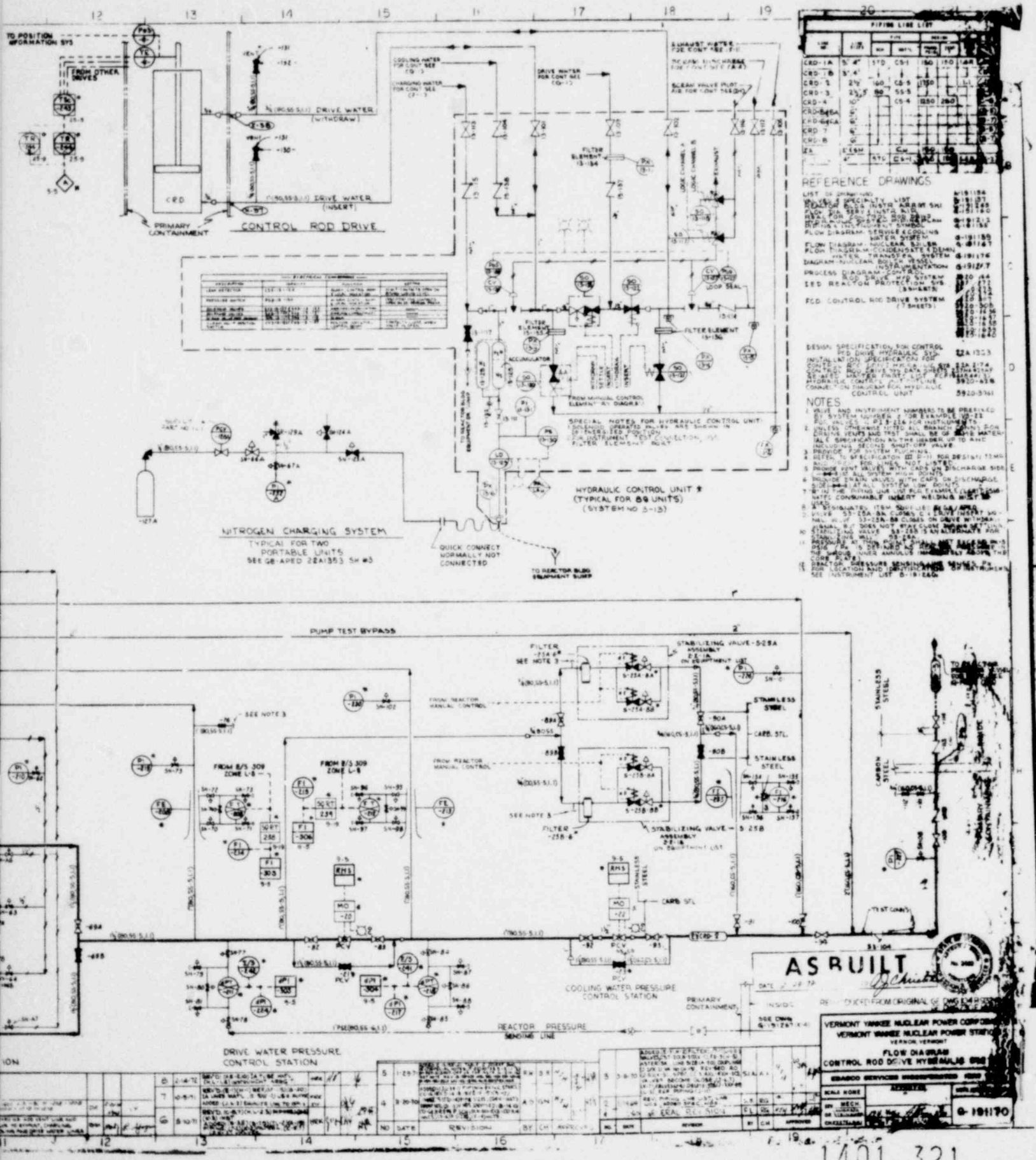
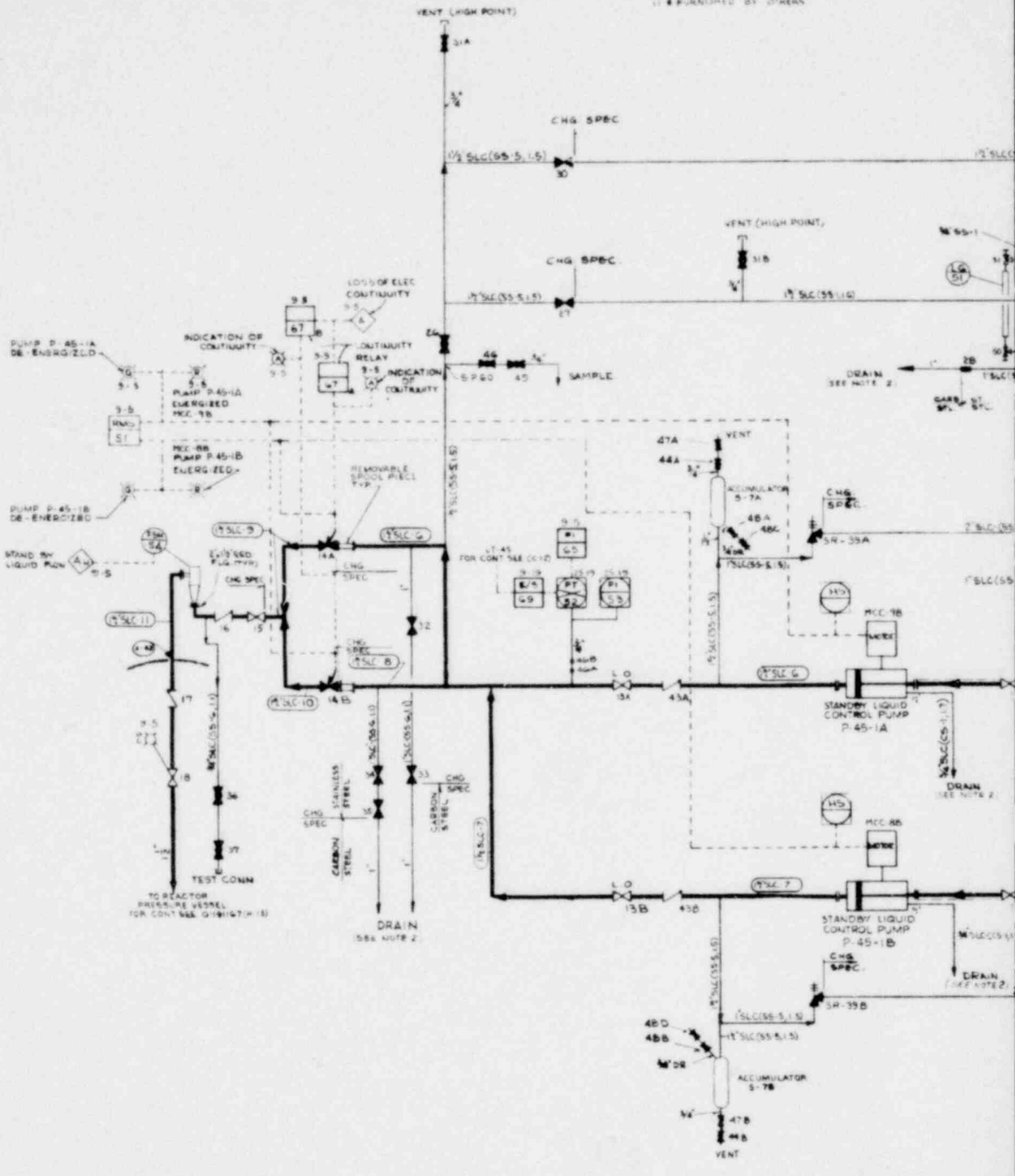
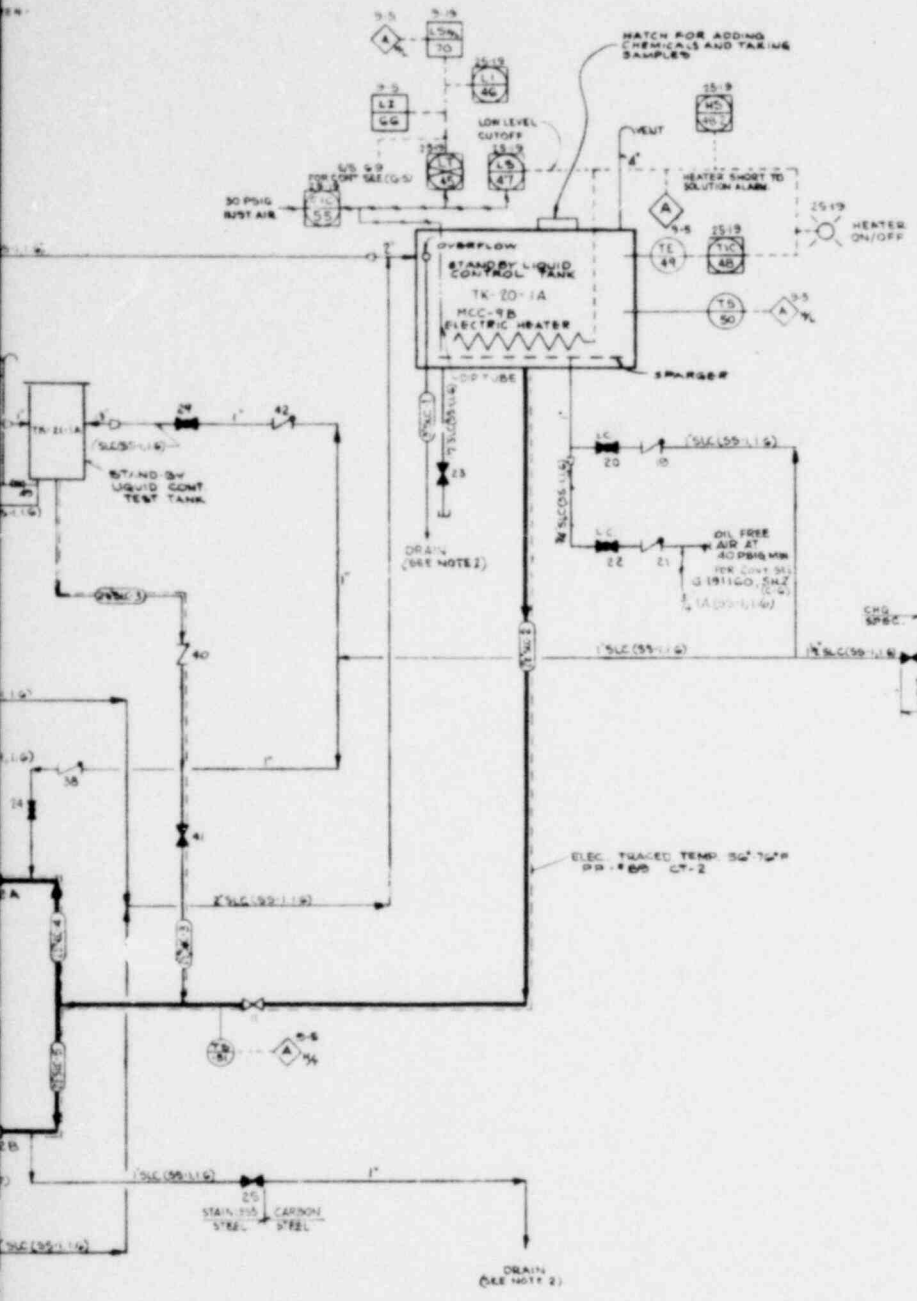




1401 322



PIPING LINE LIST

LINE NO.	LINE CLASS	PIPE INCH	PIPE MATL	DESIGN PRESS PSIG	DESIGN TEMP °F		
SLC-1	S	40S	SS-1	150	150	1.7	[illegible]
SLC-2,5	2½	40S	SS-1	150	150	1.6	[illegible]
SLC-6,7,8	1½	80	SS-5	1500	150	1.5	[illegible]
SLC-9,10	1½	80	SS-5	1500	150	1.1	[illegible]
SLC-11	1½	80	SS-6	1275	575	1.1	[illegible]
SLC-1	2" & SML	80	SS-1	150	150	—	—
SLC-	2" & SML	80	SS-5	1500	150	—	—
SLC-	1½ & SML	80	SS-6	1275	575	—	—
SLC-	2" & SML	80	CS-1	—	—	—	—

NOTES:

1 UNLESS OTHERWISE NOTED ALL VALVES INSTRUMENT NUMBERS ETC. FACILITIES TO BE PREFIXED BY SYSTEM NUMBER 11
FOR EXAMPLE: FOR VALVE V-25
PLANT ID – SLC V11-25
VALVE IDENTIFICATION
SYSTEM NO.
VALVE IDENTIFICATION NO.
FOR INSTRUMENT OF 52
ACTUAL TAGGING SHALL BE P11-52
TYPE OF INSTRUMENT
SYSTEM NO.
INSTRUMENT DESIGNATION NO.
FOR SPECIALTY SR-39B
PLANT ID – SLC SR-11-39B
TYPE OF SPECIALTY
SYSTEM NO.
SPECIALTY IDENTIFICATION NO.

2 DRAINS TO BE MANIFOLDED AND ROUTED TO A COLLECTION AREA FOR REMOVAL BY MEANS OF CONTAINERS (I.E. 55 GAL. DRUMS)

3 UNLESS OTHERWISE NOTED ALL OPEN DRAINS EVENTS SHALL BE OF CS-1, 17 PIPING

4 UNLESS OTHERWISE NOTED ALL BRANCH CONNS FOR DRAINS, VENTS AND TEST SHALL BE OF SAME MATERIAL & SPECIFICATION AS THE HEADER UP TO AND INCLUDING SECOND SHUT OFF VALVE

5 EXPLOSIVE VALVES ARE DOUBLE SQUIB ACTUATED SHEAR PLUGS. IN ORDER TO SERVICE THESE VALVES AFTER FIRING, IT IS NECESSARY TO REMOVE A SIX INCH STAINLESS STEEL PIPE IMMEDIATELY UPSTREAM OF THE RESPECTIVE VALVE. EACH EXPLOSIVE VALVE IS FURNISHED WITH A MATING SOCKET WELDING TYPE FLANGE FOR SOCKET WELDING TO THE 6" SPOOL PIECE.

(FOR CONTINUATION OF NOTES SEE (A-9))

REFERENCE DRAWINGS:

LIST OF DRAWINGS	A-191154
VALVE AND SPECIALTY LIST	B-191157
PIPING AND INSTRUMENT SYMBOLS	G-191155
FLOW DIAGRAM-CONDENSATE MAKE-UP SYST.	G-191161
FLOW DIAGRAM – NUCLEAR BOILER	G-191167
REACTOR STANDBY LIQUID CONTROL PIPING	G-191280
FLOW DIAGRAM-CONDENSATE DEMIN WATER TRANSFER SYSTEM	G-91176
FLOW DIAGRAM SERVICE & INSTRUMENT AIR SYSTEM	G-191180
PRIMARY CONTAINMENT NOZZLE CLOSURE ASSEMBLIES	G-191174
FCD STAND-BY LIQUID CONTROL SYSTEM	5920-40
PROCESS DIAGRAM STAND-BY LIQUID CONTROL SYSTEM	5920-117
GE-APED MASTER PARTS LIST	PCF 194×844(1)

AS BUILT
DATE 12-12-72 APPROVED

STATE OF VERMONT No. 2460 REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	BY	CK	APPROVED
9	5-16-77	REVISED VALVE NOMENCLATURE	KMP	RES	
8	10-6-72	ADDED VY DETAILS	KLP	PJG	
7	3-23-72	REVISED (E-G) (J-G) (L-G) ADDED (H-2) (K-2) METERS WITH ALARM FSK-56	KRK		
6	10-6-71	ADDED (C-2) (H-5) VALVES (V-75-41) (V-75-42) (V-75-43) (V-75-44) (V-75-45) (V-75-46) (V-75-47) (V-75-48) (V-75-49) (V-75-50) (V-75-51) (V-75-52) (V-75-53) (V-75-54) (V-75-55) (V-75-56) (V-75-57) (V-75-58) (V-75-59) (V-75-60) (V-75-61) (V-75-62) (V-75-63) (V-75-64) (V-75-65) (V-75-66) (V-75-67) (V-75-68) (V-75-69) (V-75-70) (V-75-71) (V-75-72) (V-75-73) (V-75-74) (V-75-75) (V-75-76) (V-75-77) (V-75-78) (V-75-79) (V-75-80) (V-75-81) (V-75-82) (V-75-83) (V-75-84) (V-75-85) (V-75-86) (V-75-87) (V-75-88) (V-75-89) (V-75-90) (V-75-91) (V-75-92) (V-75-93) (V-75-94) (V-75-95) (V-75-96) (V-75-97) (V-75-98) (V-75-99) (V-75-100) (V-75-101) (V-75-102) (V-75-103) (V-75-104) (V-75-105) (V-75-106) (V-75-107) (V-75-108) (V-75-109) (V-75-110) (V-75-111) (V-75-112) (V-75-113) (V-75-114) (V-75-115) (V-75-116) (V-75-117) (V-75-118) (V-75-119) (V-75-120) (V-75-121) (V-75-122) (V-75-123) (V-75-124) (V-75-125) (V-75-126) (V-75-127) (V-75-128) (V-75-129) (V-75-130) (V-75-131) (V-75-132) (V-75-133) 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(V-75-862) (V-75-863) (V-75-864) (V-75-865) (V-75-866) (V-75-867) (V-75-868) (V-75-869) (V-75-870) (V-75-871) (V-75-872) (V-75-873) (V-75-874) (V-75-875) (V-75-876) (V-75-877) (V-75-878) (V-75-879) (V-75-880) (V-75-881) (V-75-882) (V-75-883) (V-75-884) (V-75-885) (V-75-886) (V-75-887) (V-75-888) (V-75-889) (V-75-890) (V-75-891) (V-75-892) (V-75-893) (V-75-894) (V-75-895) (V-75-896) (V-75-897) (V-75-898) (V-75-899) (V-75-900) (V-75-901) (V-75-902) (V-75-903) (V-75-904) (V-75-905) (V-75-906) (V-75-907) (V-75-908) (V-75-909) (V-75-910) (V-75-911) (V-75-912) (V-75-913) (V-75-914) (V-75-915) (V-75-916) (V-75-917) (V-75-918) (V-75-919) (V-75-920) (V-75-921) (V-75-922) (V-75-923) (V-75-924) (V-75-925) (V-75-926) (V-75-927) (V-75-928) (V-75-929) (V-75-930) (V-75-931) (V-75-932) (V-75-933) (V-75-934) (V-75-935) (V-75-936) (V-75-937) (V-75-938) (V-75-939) (V-75-940) (V-75-941) (V-75-942) (V-75-943) (V-75-944) (V-75-945) (V-75-946) (V-75-947) (V-75-948) (V-75-949) (V-75-950) (V-75-951) (V-75-952) (V-75-953) (V-75-954) (V-75-955) (V-75-956) (V-75-957) (V-75-958) (V-75-959) (V-75-960) (V-75-961) (V-75-962) (V-75-963) (V-75-964) (V-75-965) (V-75-966) (V-75-967) (V-75-968) (V-75-969) (V-75-970) (V-75-971) (V-75-972) (V-75-973) (V-75-974) (V-75-975) (V-75-976) (V-75-977) (V-75-978) (V-75-979) (V-75-980) (V-75-981) (V-75-982) (V-75-983) (V-75-984) (V-75-985) (V-75-986) (V-75-987) (V-75-988) (V-75-989) (V-75-990) (V-75-991) (V-75-992) (V-75-993) (V-75-994) (V-75-995) (V-75-996) (V-75-997) (V-75-998) (V-75-999) (V-75-1000)
5	1-28-71	ADDED (A-7) (J-8) NOTES 4, 7, 8 & 9 ADDED NOTE (K-1) (L-1) (M-1)	R.W.	B.R.	
4	8-20-70	ADDED (F-7) (M-10) (G-8) ADDED NOTE 6 ADDED (K-2) (L-2) (M-2)	A.D.	GN	
3	7-9-69	REV. AS PER C.O. #2 REV. & ADDED NOTE 5	A.B.	WWL	
2	3-6-69	REVISED VALVE & PIPING LINE LIST ADDED NOTE 4	R.L.	R.G.	
1	7-1-68	GENERAL REVISION	R.L.	S.R.	

VERMONT YANKEE NUCLEAR POWER CORPORATION
VERMONT YANKEE NUCLEAR POWER STATION
VERNON, VERMONT
FLOW DIAGRAM
STANDBY LIQUID CONTROL SYSTEM

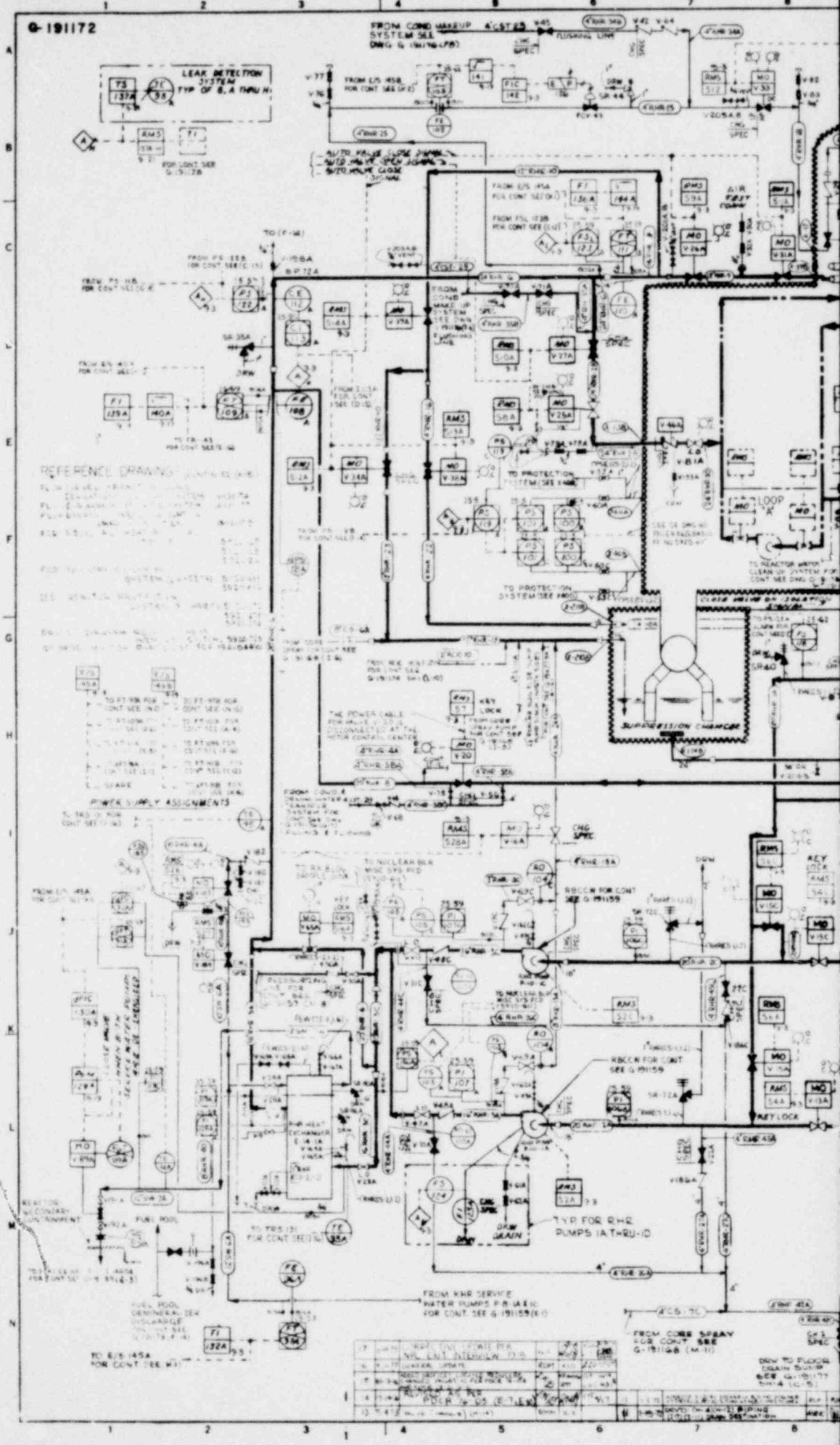
EBASCO SERVICES INCORPORATED NEW YORK

SCALE NONE APPROVED

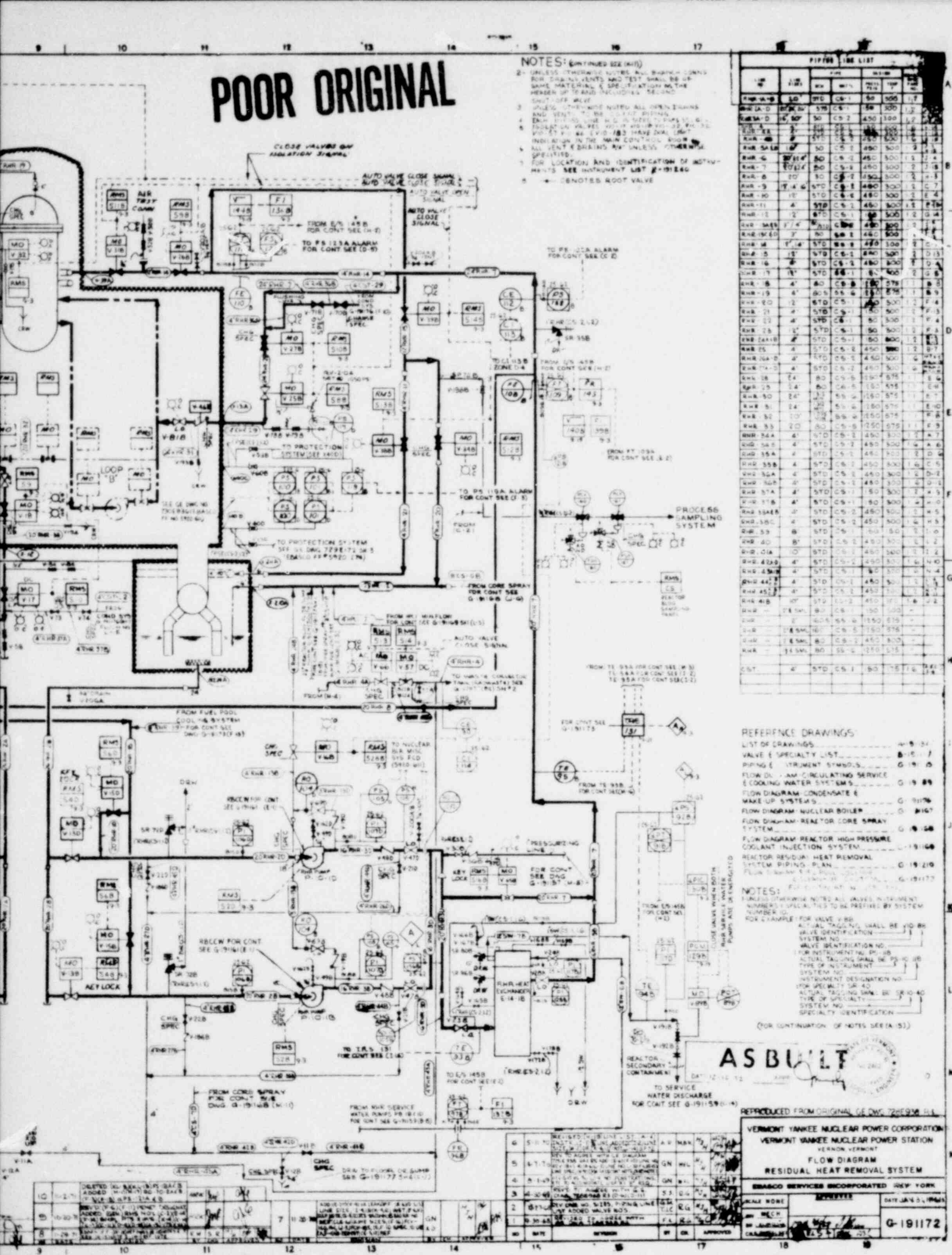
G-191171

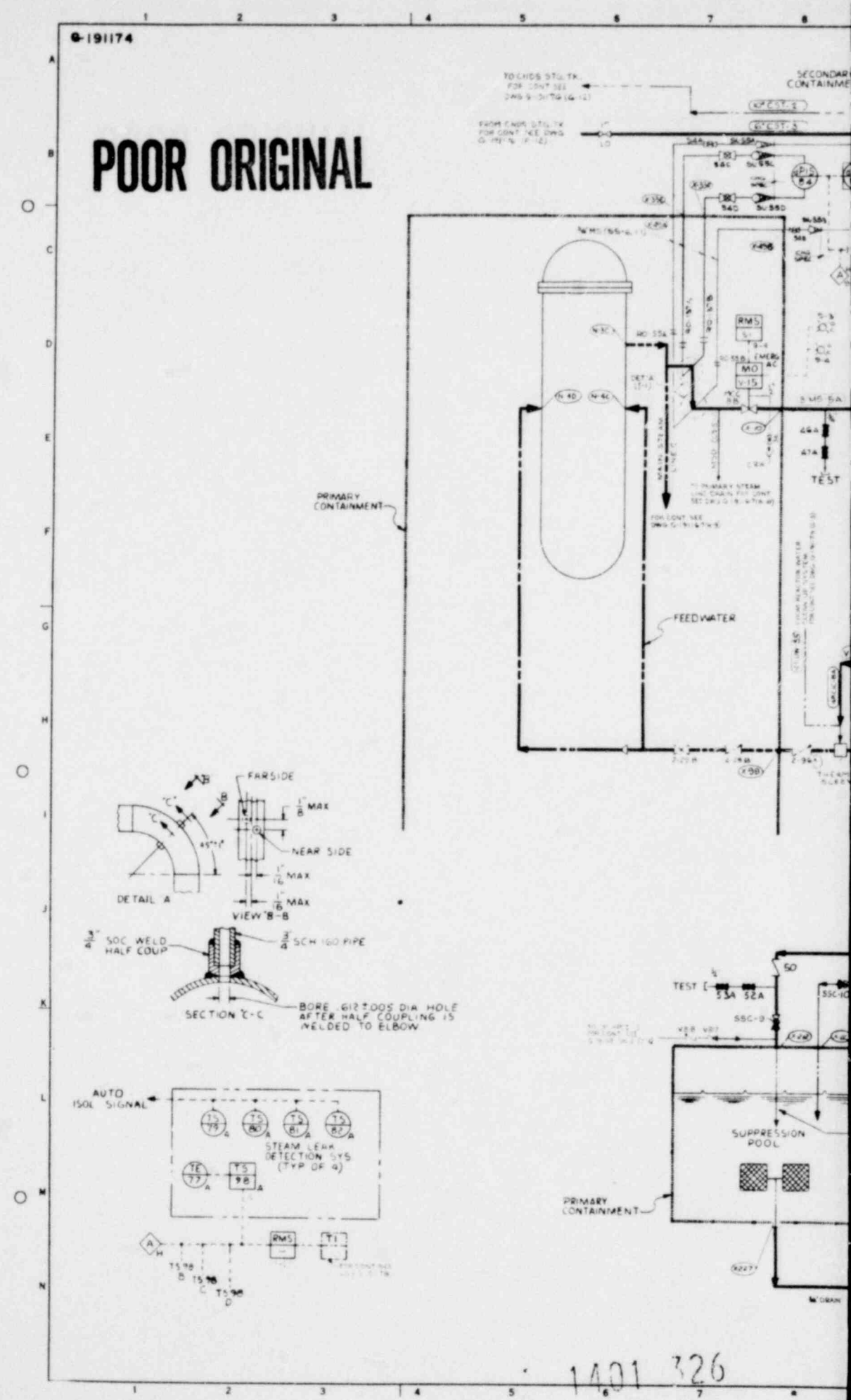
1401 323

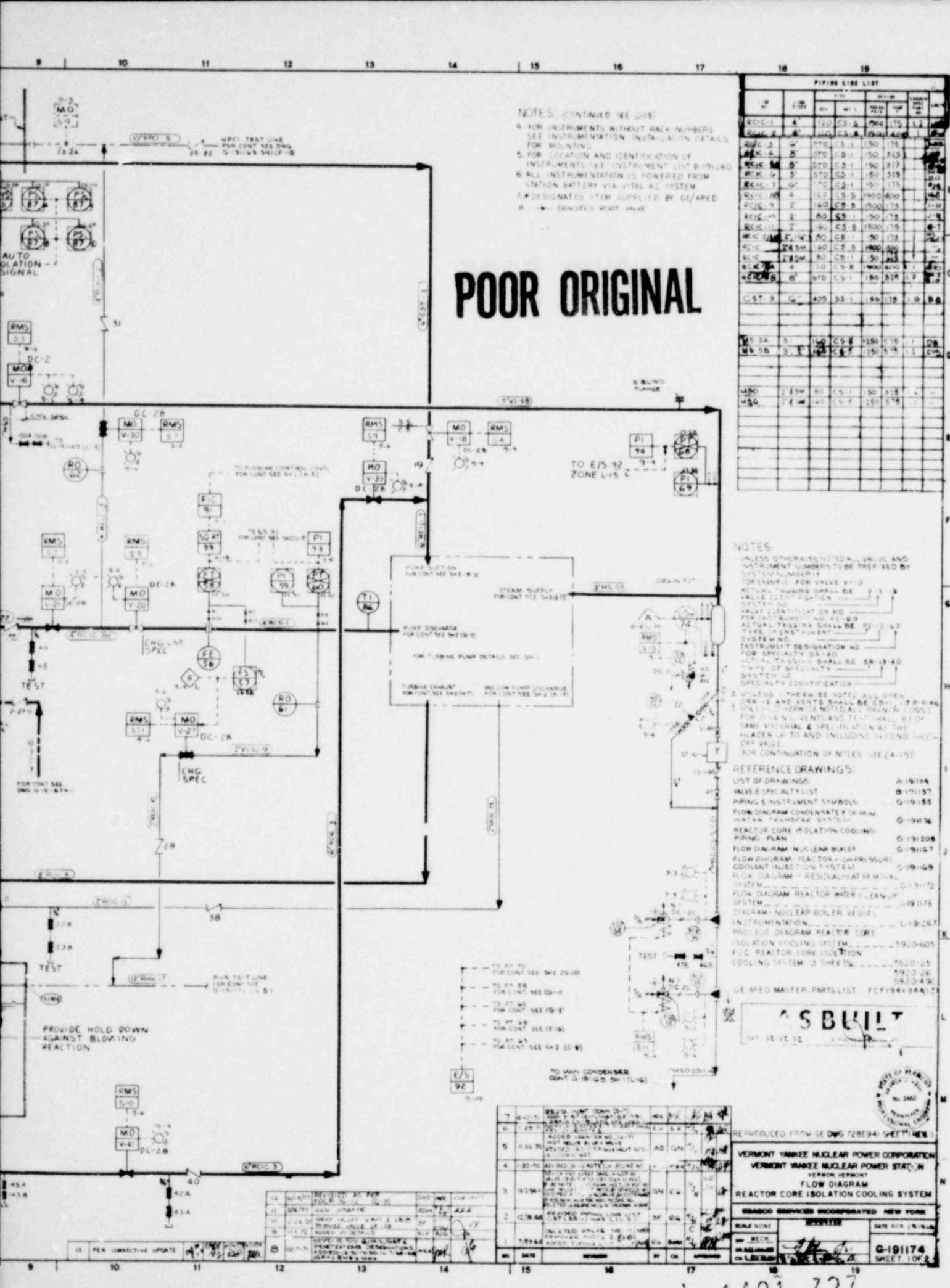
POOR ORIGINAL



1401 324

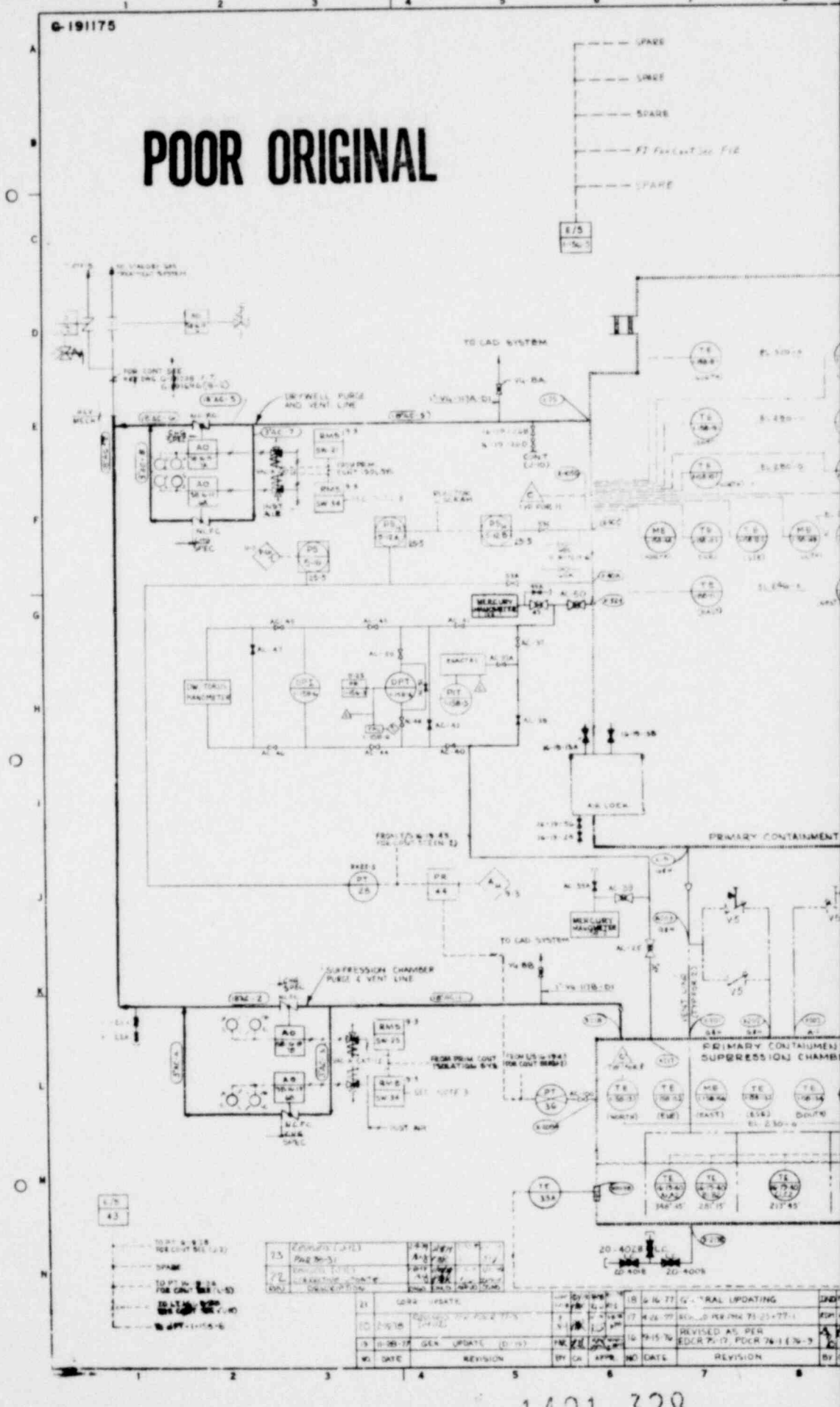


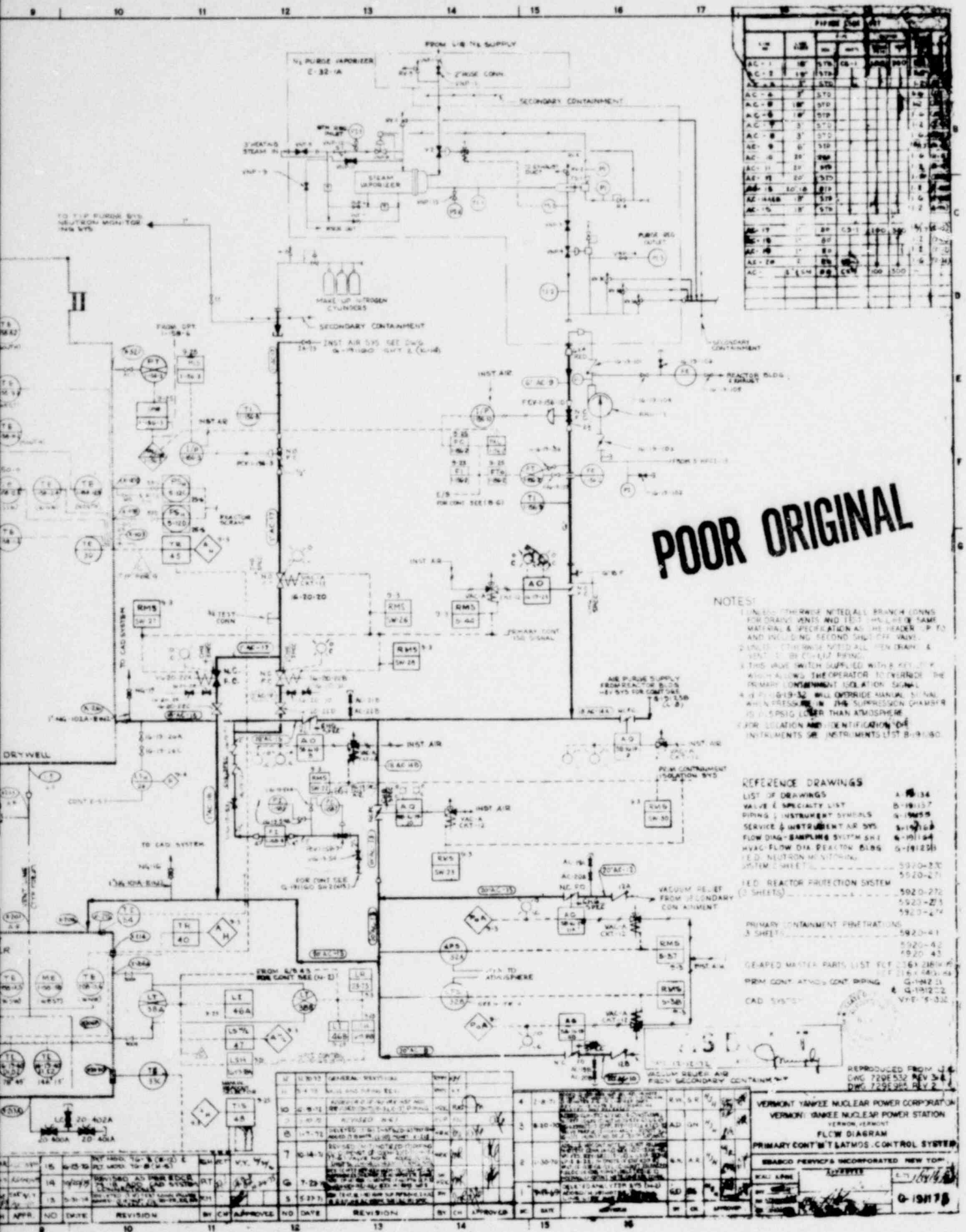




1401 327

G-191175





POOR ORIGINAL

NOTES:

1. UNLESS OTHERWISE NOTED ALL BRANCH CONNS FOR DRAIN VENTS AND TEST INSTR ARE SAME MATERIAL & SPECIFICATION AS THE HEADER UP TO AND INCLUDING SECOND SHUT OFF VALVE.
2. UNLESS OTHERWISE NOTED ALL VENT DRAIN & TEST LINES ARE CLASS 1 PIPING.
3. THIS VALVE WITH SUPPLIED WITH A KEY LOCK WHICH ALLOWS THE OPERATOR TO OVERRIDE THE PRIMARY CONTAINMENT ISOLATION SIGNAL.
4. G-19-32 WILL OVERRIDE MANUAL SIGNAL WHEN PRESSURE IN THE SUPPRESSION CHAMBER IS 1.5 PSIG LESS THAN ATMOSPHERE.
5. FOR LOCATION AND IDENTIFICATION OF INSTRUMENTS SEE INSTRUMENTS LIST B-191180.

REFERENCE DRAWINGS

LIST OF DRAWINGS	A-191134
VALVE & SPECIALTY LIST	B-191157
PIPING & INSTRUMENT SYMBOLS	G-19055
SERVICE & INSTRUMENT AIR SYS	G-191168
FLOW DIAG - SAMPLING SYSTEM SHT	G-191164
HVAC FLOW DIA REACTOR BLDG	G-191235
T.E.D. NEUTRON MONITORING SYSTEM (3 SHEETS)	5920-330, 5520-471
T.E.D. REACTOR PROTECTION SYSTEM (3 SHEETS)	5920-272, 5923-273, 5920-474
PRIMARY CONTAINMENT PENETRATIONS (3 SHEETS)	5920-41, 5920-42, 5920-43
GEARED MASTER PARTS LIST FOR 216X ZIRCALOY (3 SHEETS)	G-1942 (3)
PRIM CONT ATMOS CONT PIPING	G-191212
CAD SYSTEM	VYE-5-332

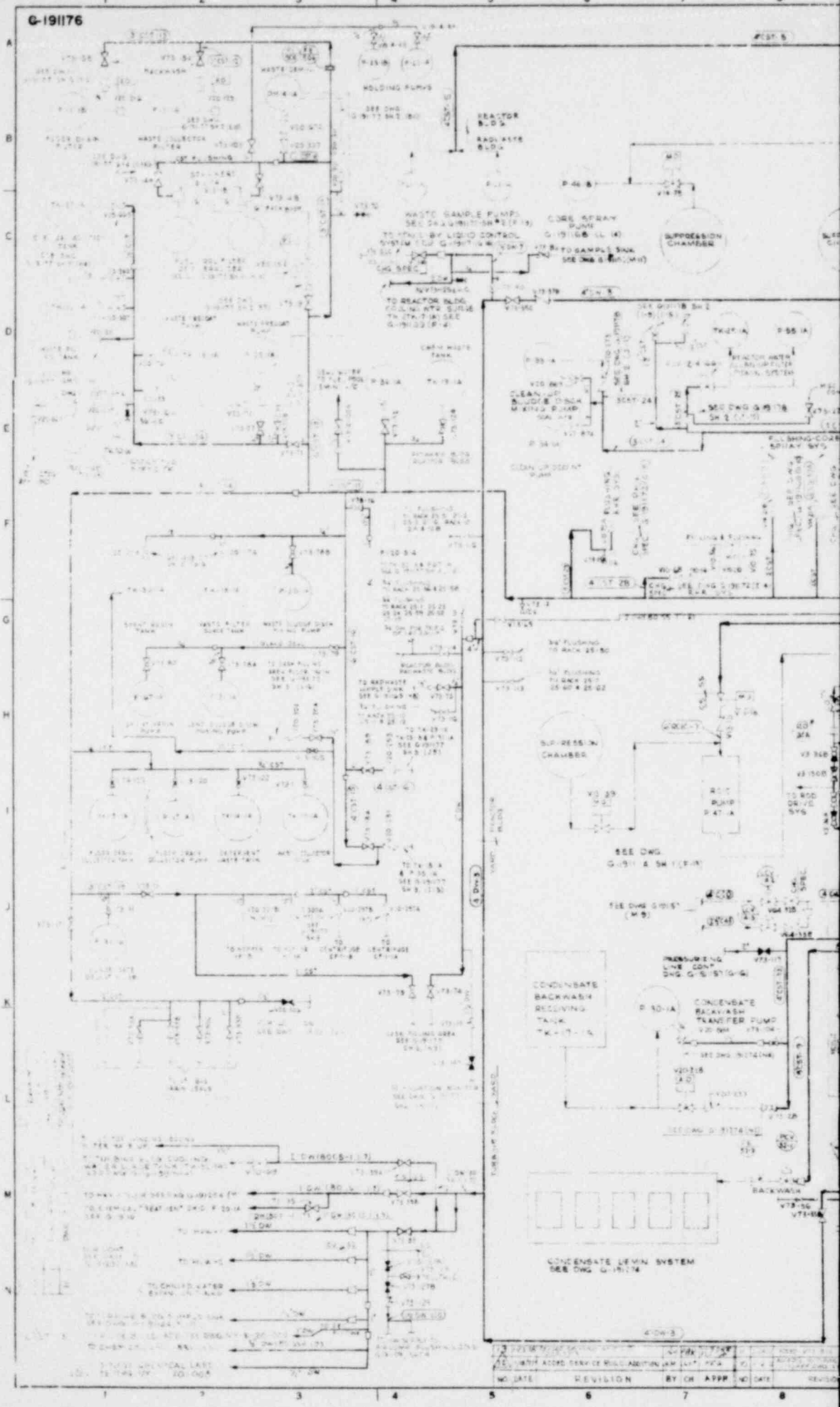
REPRODUCED FROM
DWG 720E532 REV 3
DWG 729E385 REV 2

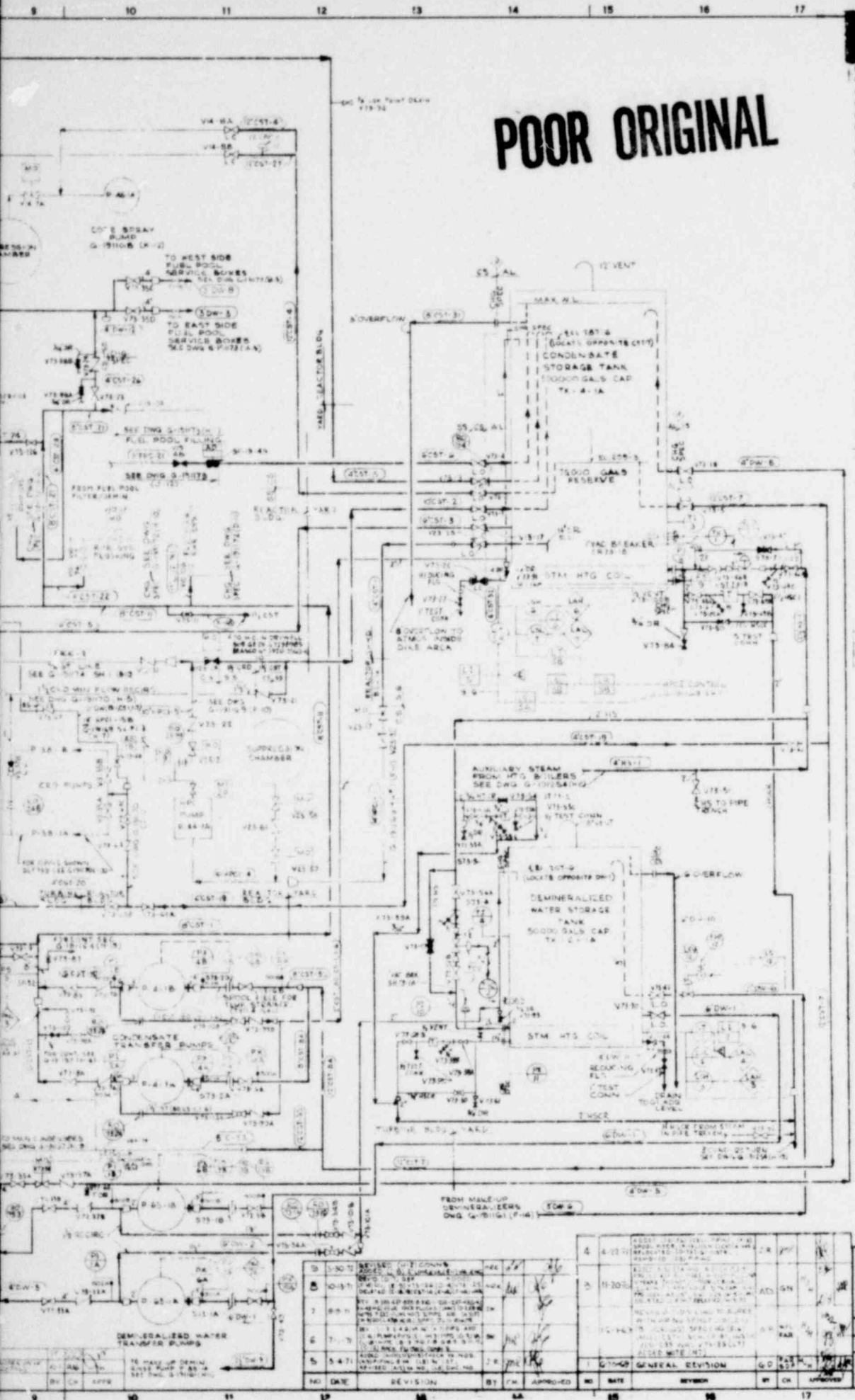
VERMONT YANKEE NUCLEAR POWER CORPORATION
VERNON YANKEE NUCLEAR POWER STATION
VERNON, VERMONT
FLOW DIAGRAM
PRIMARY CONTMT ATMOS CONTROL SYSTEM
STEARNS-ROGER SERVICES INCORPORATED NEW YORK

G-191178

1401 329

POOR ORIGINAL





MARK	SIZE	SCHED	MATERIAL	CONN	RATING	TEMP	SERVICE
CST-1	14"	STD	CS-1				
CST-2	10"	20	CS-1				
CST-3	6"	40	CS-1				
CST-4	12"	STD	CS-1				
CST-5	4"	40	CS-1				
CST-6	6"	40	CS-1				
CST-7	2"	STD	CS-1				
CST-8AB	8"	STD	CS-1				
CST-9	8"	STD	CS-1				
CST-10	3"		CS-1				
CST-11AB	BLANK		CS-1				
CST-12	3"		CS-1				
CST-13	4",3"		CS-1				
CST-15	4"	STD	CS-1	SO			
CST-16	6",4"		CS-1				
CST-17	6"		CS-1				
CST-18	3"		CS-1				
CST-19	4"		CS-1				
CST-20	4"		CS-1				
CST-21	8"		CS-1				
CST-22	4"		CS-1				
CST-23	4"		CS-1				
CST-24	4.5"		CS-1				
CST-25	3"		CS-1				
CST-26	4"	STD	CS-1				
CST-27	12"	STD	CS-1				
CST-28	4"	STD	CS-1				
CST-29	4"		CS-1				
CST-30	6"		CS-1				
CST-31	8"		CS-1				
CST-32	4"		CS-1				
CST-33	4"		CS-1				
CST-34	FLSH	80	CS-1				
DW-1	6"	40	SS-1				
DW-2	8"	40	SS-1				
DW-3	6",3"	40	SS-1				
DW-4	3"	40	SS-1				
DW-5	4"	40	SS-1				
DW-6	3"	40	SS-1				
DW-7	2½"	80	SS-1				
DW-8	4",3"	40	SS-1				
DW-9	2½"	40	SS-1				
DW-10	6"	40	CS-1				
DW-11	6"	40	SS-1				
DW-12	4"	40	SS-1				
DW	ZE SH	30	SS				
HS-1	4"SN	40	CS-1		3W	17	2
HS	2"SW	30	CS-1				
HSER	1"	160	CS-1				

REFERENCE DRAWINGS
LIST OF DRAWINGS — G-191134
VALVE AND SPECIALTY LIST — G-191132
PIPING AND INSTRUMENT SYMBOLS — G-191156
FLOW DIAGRAM, CONDENSATE DEMINERALIZER SYSTEM — G-191187
FLOW DIAGRAM, SERVICE & COOLING WATER SYSTEM — G-191179
FLOW DIAGRAM, LOOP SAMPLING SYSTEM — G-191160
FLOW DIAGRAM, PRESSURE CONTROL SYSTEM — G-191161
FLOW DIAGRAM, CONTROL ROD DRIVE HYDRAULIC SYSTEM — G-191178
FLOW DIAGRAM, STANDBY LIQUID CONTROL SYSTEM — G-191184
FLOW DIAGRAM, RADWASTE SYSTEM — G-191176
FLOW DIAGRAM, FUEL POOL COOLING & CLEANUP SYSTEM — G-191172
FLOW DIAGRAM, REACTOR BLDG CLOSED COOLING WATER SYSTEM — G-191175
FLOW DIAGRAM, REACTOR CORE ISOLATION COOLING SYSTEM — G-191174
FLOW DIAGRAM, REACTOR WATER CLEANUP SYSTEM — G-191181
HVAC HEATING PIPING DIAGRAM — G-191154
BOILER ROOM PIPING — G-191155
FLOW DIAGRAM, RADWASTE SYSTEM (SH 4) — G-191177
FLOW DIAGRAM, SAMPLING SYSTEMS (SH 4) — G-191165
REACTOR BLDG CLOSED COOLING WATER & EMERGENCY FUEL POOL MAKEUP — G-191135
TURBINE BLDG CONDENSATE & DEMINERALIZED WATER TRANSFER SYSTEM PIPING — G-191158
HVAC HEATING DUCT DIAGRAM — G-191157

NOTES
UNLESS OTHERWISE NOTED ALL INSTRUMENT AND CONTROL VALVE NUMBERS SHALL BE PREFIXED BY SYSTEM NO. (1ST 2 DIGITS) EXAMPLE ACTUAL TAGGING SHALL BE LSH 07-48
TYPE OF INSTRUMENT
SYSTEM NO.
INST DESIGNATION NO.
PROVIDE HEATING PURGE FOR SENSING PROTECTION BETWEEN PURGED CONDENSATE AND ALUMINUM MATERIAL ONLY STAINLESS STEEL AND/OR CARBON STEEL PIPING

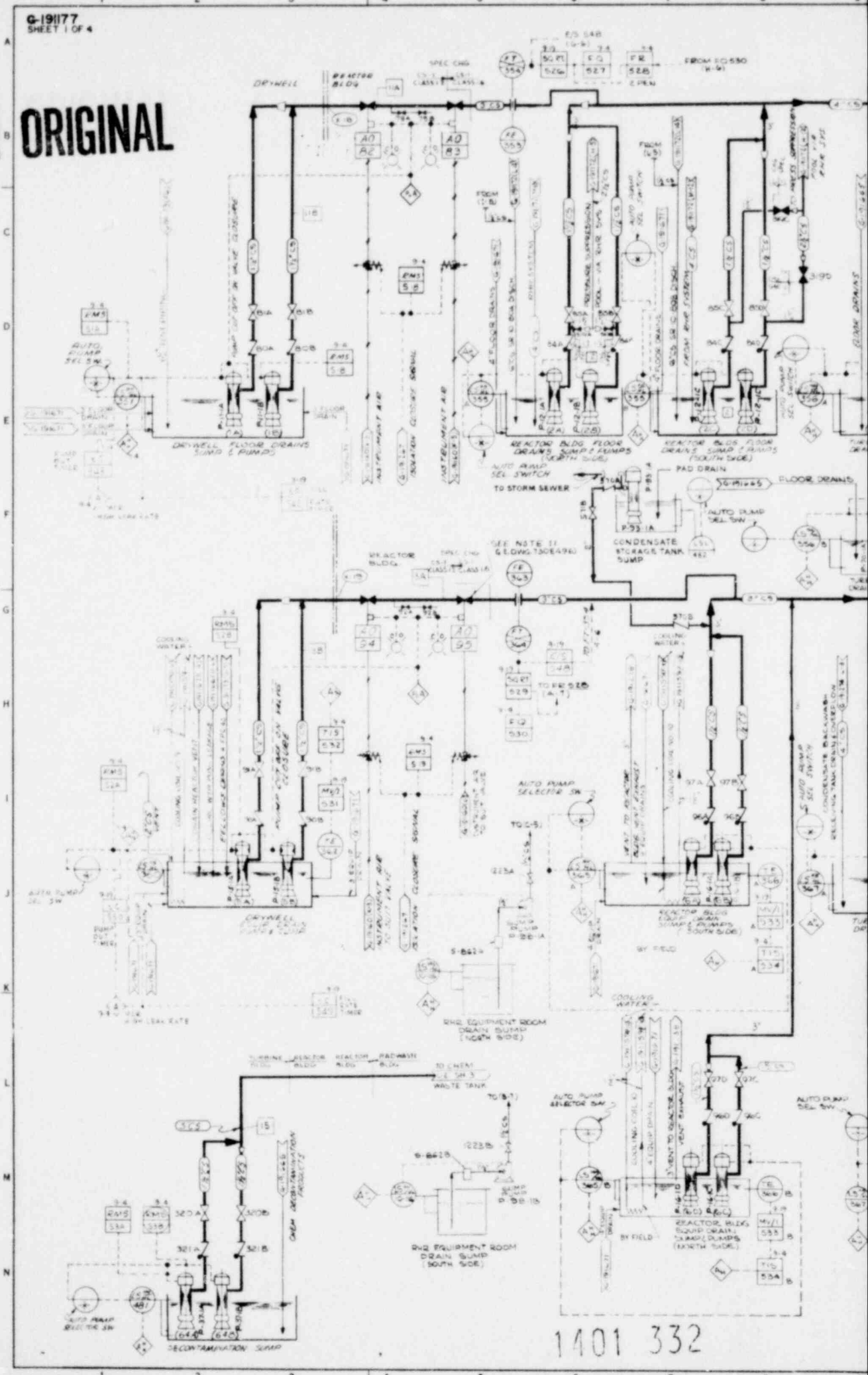
AS BUILT

NO	DATE	REVISION	BY	CH	APPROVED
9	1-30-72	REVISED CST CONN			
8	10-13-71				
7	8-6-71				
6	7-7-71				
5	5-4-71				
4	4-22-71				
3	11-20-70				
1	6-10-69	GENERAL REVISION	GD		

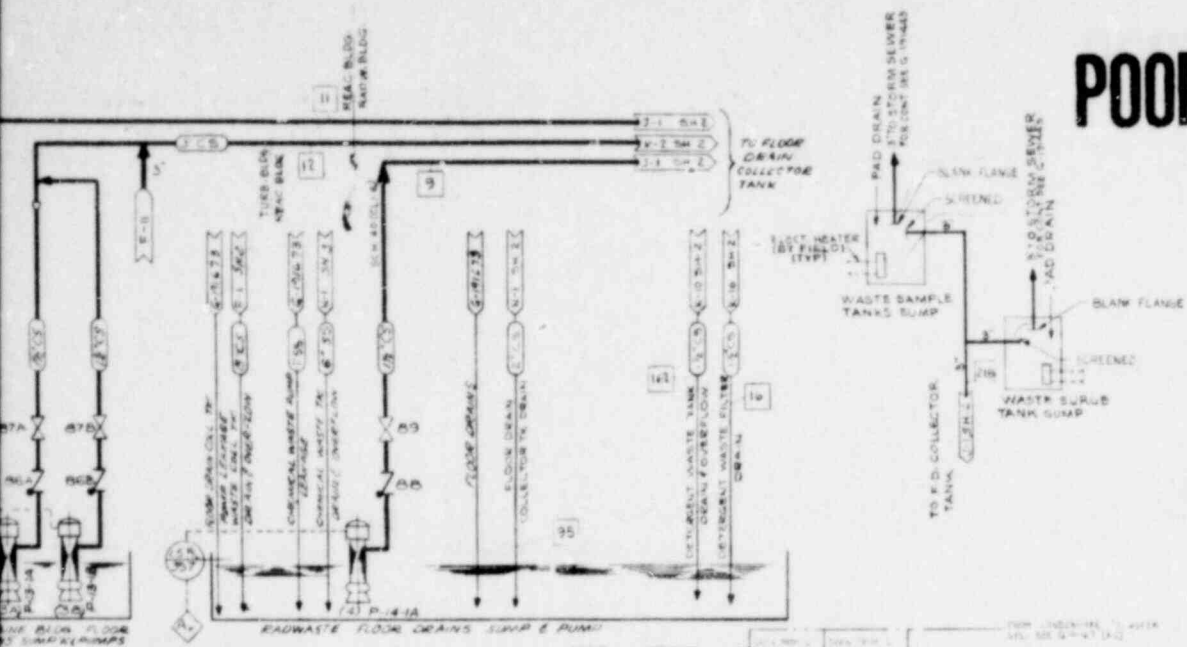
VERMONT YANKEE NUCLEAR POWER CORPORATION
VERMONT YANKEE NUCLEAR POWER STATION
VERNON, VERMONT
FLOW DIAGRAM - CONDENSATE & DEMINERALIZED WATER TRANSFER SYSTEM
EBASCO SERVICES INCORPORATED NEW YORK
SCALE NONE
APPROVED
DATE 4-22-71
DR. MESH
CH.
G-191176

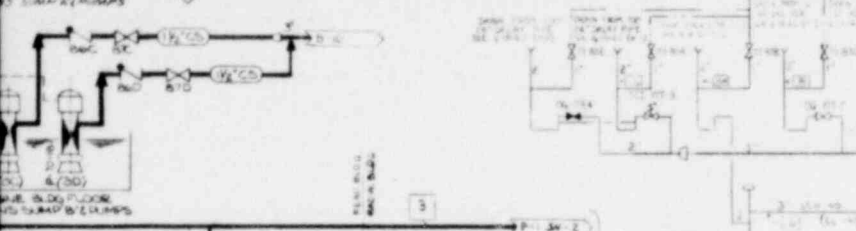
1401 331

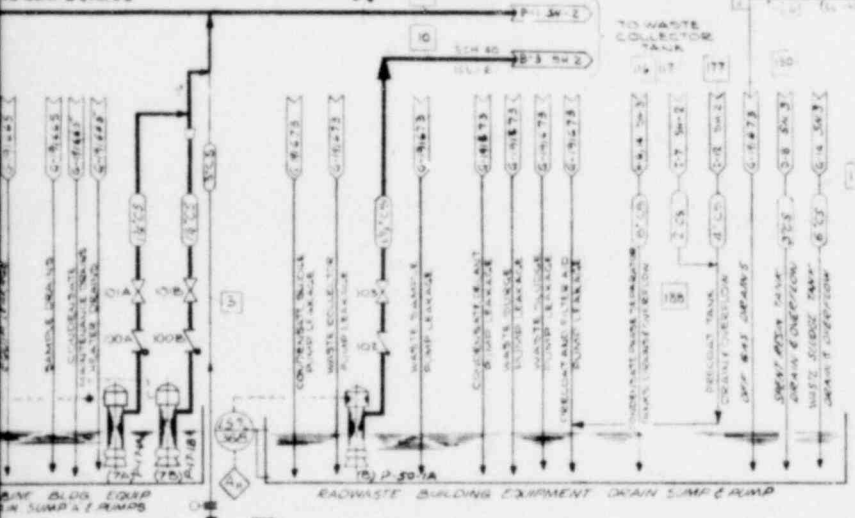
G-191177
SHEET 1 OF 4

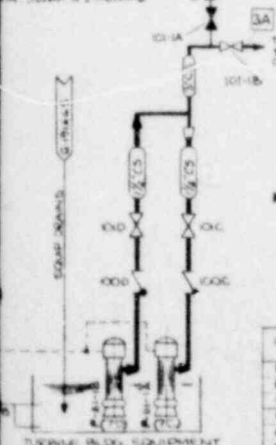


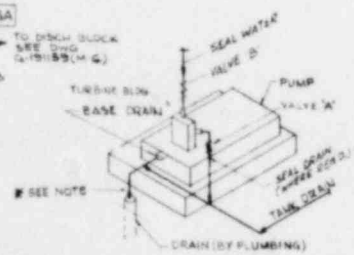
1401 332











TANK & PUMP DRAIN ARRANGEMENT

PUMP NO	VALVE 'A' SIZE	VALVE 'A' TAG NO	VALVE 'B' SIZE	VALVE 'B' TAG NO	LOCATION FLOW DIAGRAM	LOCATION BUILDING
P-30-1A		-	1/4	(K-6)	G-191274 (N-3)	TURBINE
P-27-1A		-	3/4	(J-2)	G-191177 SH 2 (N-3)	RADWASTE
P-3-1A		-	3/4	(Q-2)	SH 3 (M-4)	
P-31-1A	1/2	SEE SIG 5 (L-8)	3/4	(J-1)	(L-5)	
P-35-1A		-	3/4	(F-3)	(K-4)	
P-36-1A		-	3/4	(E-4)	(N-5)	
P-6-1A		-	3/4	(G-1)	(N-5)	
P-25-1A	1/2	V20-882	3/4	(D-2)	G-191177 SH 2 (N-3)	
P-53-1A		-	3/4	(D-6)	G-191178 SH 2 (L-5)	REACTOR
P-34-1A		-	3/4	(E-6)	(M-5)	

* ALL PUMP DRAIN & SEAL WATER REQUIRED SHALL BE ROUTED TO EQUIPMENT OR FLOOR DRAIN SYSTEM IN ACCORDANCE WITH DESIGN BASIS FOR RADIOACTIVE DRAIN SYSTEM AND NOT FLOW FREELY ACROSS THE FLOOR.

NOTES:

1. UNLESS OTHERWISE NOTED ALL VALVES AND INSTRUMENT NUMBERS TO BE PREFIXED BY SYSTEM NUMBER 20.
   FOR EXAMPLE FOR VALVE 74
   ACTUAL TAGGING SHALL BE V20-74
   SYSTEM NO
   VALVE DESIGNATION NO
   FOR INSTRUMENT PI-95
   ACTUAL TAGGING SHALL BE PI-20-95
   TYPE OF INSTRUMENT
   SYSTEM NO
   INSTRUMENT DESIGNATION
2. [16] INDICATES LINE NUMBER
   UNLESS OTHERWISE NOTED ALL LINE NUMBERS TO BE PREFIXED BY RW(RADWASTE)
   FOR EXAMPLE [16]
   ACTUAL TAGGING SHALL BE RW-16
   FOR PIPING LINE LIST SEE DWG G-191272
3. FOR ALL OTHER NOTES SEE EBASCO DWG. E.F. NO. 5920-606 (SEE DWG. 730E496 SH.1)
4. ALL AO VALVES TO FAIL CLOSE (F.C.) ON ELECTRICAL OR AIR SUPPLY FAILURE.
5. UNLESS OTHERWISE NOTED ALL CARBON STEEL PIPING SHALL BE CS-1, CLASS 1B, STANDARD WALL FOR 2½ & ABOVE SCHED 80 FOR 2" & SMALLER
6. [11A] [11B] [3A] [3B] AREAS-CLASS 1 PIPING.

REFERENCE DRAWINGS:

LIST OF DRAWINGS	A-191,59
VALVE AND SPECIALTY LIST	G-191137
PIPING AND INSTRUMENT SYMBOLS	G-191,50
TURBINE BUILDING - RISER DIAGRAMS SH.1 PLUMBING AND DRAINAGE	G-191,63
REACTOR BUILDING RISER DIAGRAMS AND DETAILS PLUMBING AND DRAINAGE	G-191,71
RADWASTE BUILDING RISER DIAGRAMS AND DETAILS PLUMBING DRAINAGE	G-191,73
FUEL POOL FILTER DEMIN SYS SH 4	G-191177
RESIDUAL HEAT REMOVAL SYSTEM	G-191172
PROCESS RADIATION MON. I.E.D.	5920-526
REACTOR WATER CLEANUP SYSTEM	G-191178
CONTROL ROD DRIVE HYDRAULIC SYS.	G-191170
REACTOR BLDG CLOSED C.W. SYS. P & I.D.	G-191159
FUEL POOL COOLING & CLEANUP SYS.	G-191173
CONDENSATE & DEMINERALIZED WATER TRANSFER SYSTEM	G-1916
H.P.C.I. SYSTEM	G-191619
R.C.I.C. SYSTEM	G-191174
F.C.D. NUCLEAR BOILER VESSEL INSTR.	G-191667
RADWASTE FUNCTIONAL CONTROL DIAGRAM (4 SHEETS)	5920-469 -470 -1471 -2739
HVAC - RADWASTE BUILDING	G-19[illegible]
HVAC - HEATING FLOW DIAGRAM FOR LEX ROOM LAYOUT	G-19254
HVAC - FLOW DIAGRAM RADWASTE BLDG.	G-19253
FLOW DIAGRAM - CONDENSATE DEMIN SYSTEM	G-191,71
FLOW DIAG. - SERVICE & INSTR AIR SYS.	G-191660
FLOW DIAG. - CIRCULATING WATER & MISC SYSTEM.	G-191666
RADWASTE BUILDING PIPING - SHEET 1	G-192225
FLOW DIAGRAM MISC SYS	G-1916[illegible]

ASBUILT

1401 333

NO.	DATE	REVISION	BY	CH	APPROVED
11	8-10-77	REVISED AS PER PMR 77-2	HRK	[illegible]	[illegible]
7	9-15-72	ADDED [illegible]	HRK	[illegible]	[illegible]
6	3-30-72	REVISED [illegible]	HRK	[illegible]	[illegible]
5	10-6-71	[illegible]	SH	[illegible]	[illegible]
4	6-25-71	REVISED [illegible]	HRK	[illegible]	[illegible]
3	3-30-70	[illegible]	[illegible]	[illegible]	[illegible]
2	5-16-69	[illegible]	[illegible]	[illegible]	[illegible]
1	3-14-69	GENERAL REVISION	A.B.	A.B.	[illegible]

REPRODUCED FROM ORIGINAL G.E. DWG. 730E496

GENERAL ELECTRIC COMPANY
ATOMIC POWER EQUIPMENT DEPARTMENT

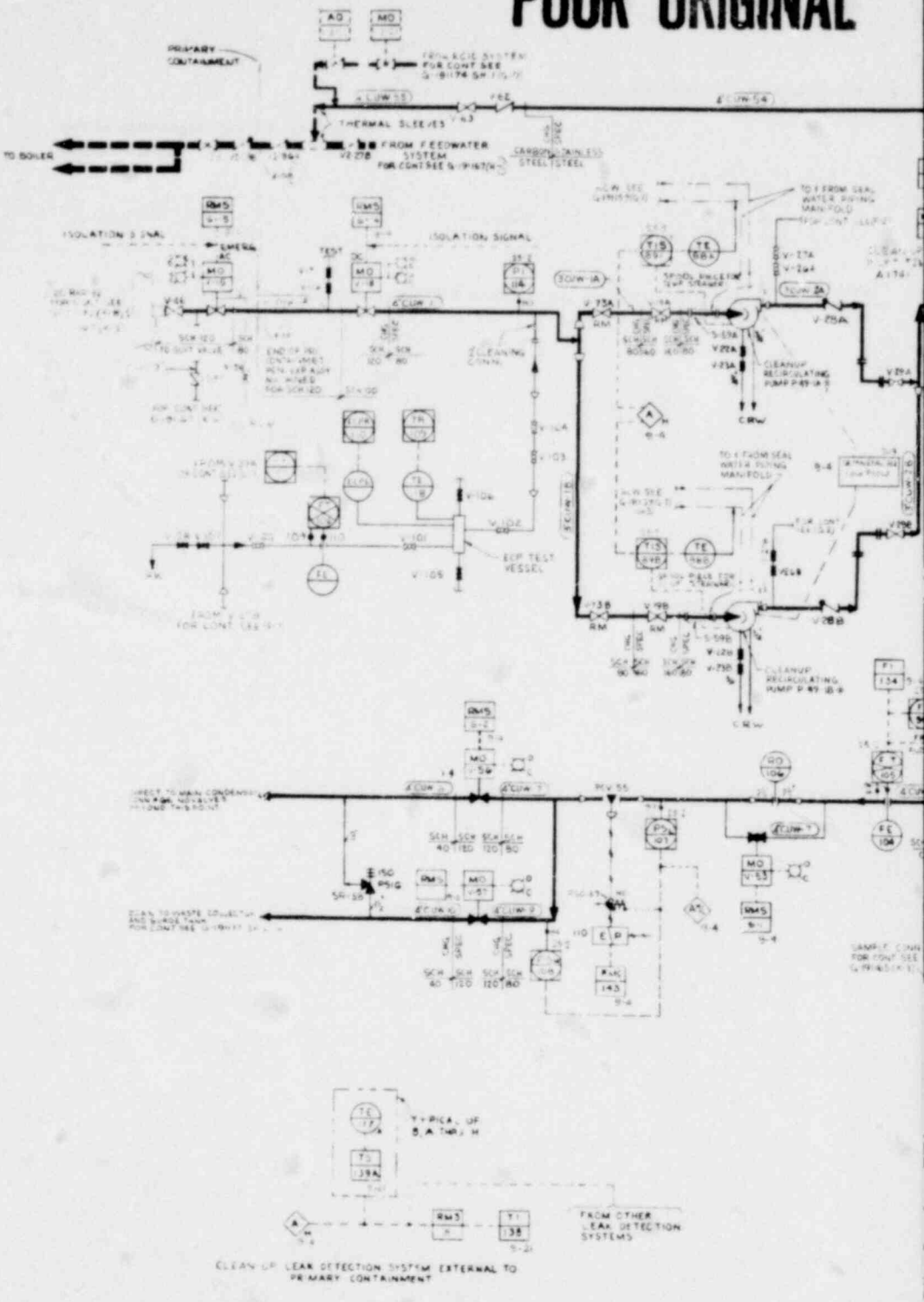
VERMONT YANKEE NUCLEAR POWER CORPORATION
VERMONT YANKEE NUCLEAR POWER STATION
VERNON, VERMONT

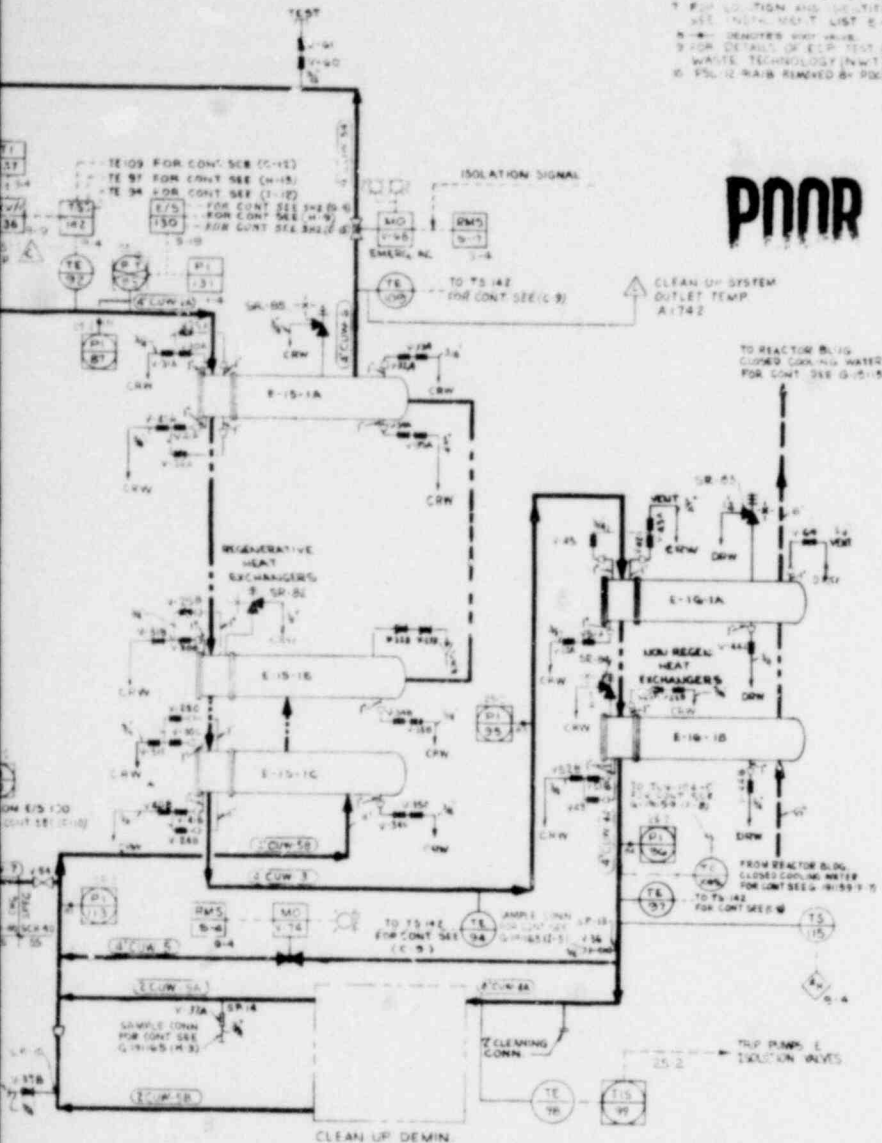
FLOW DIAGRAM - RADWASTE SYSTEMS

EBASCO SERVICES INCORPORATED NEW YORK

SCALE NONE	APPROVED	DATE 12-13-72
DW MEGH.		
DES. ASSTANT		G-191177
CHECKED 12-13-72		SHEET 1 OF 4

G-191178





NOTES (CONTINUED SEE G-10)

5 FOR INSTRUMENT WITHOUT TAG NUMBER SEE LOOP DIAGRAM FOR INSTALLATION DETAILS FOR MOUNTING
6 MOTOR OPER ISOLATION VALVES ... MAY BE OPENED FOLLOWING SIGNALS
(A) HIGH TEMP FOLLOWING A HIGH RATE OF CHANGE
(B) ... CLEAN UP SYSTEM ...
7 FOR LOCATION AND IDENTIFICATION OF ... SEE INSTR VALVE LIST E-19-140
8 ⊣ DENOTES ROOT VALVE
9 FOR DETAILS OF ECP TEST LOOP SEE NUCLEAR WATER & WASTE TECHNOLOGY (NWT) DRAWINGS
10 PSL-12 WAS REMOVED BY PDCR 77-9

PIPING LINE LIST

NOTES

1 UNLESS OTHERWISE NOTED ALL VALVE INSTRUMENT NUMBERS ARE PREFIXED BY SYSTEM NO FOR EXAMPLE FOR VALVE V-1A ACTUAL ASSIGNED NUMBER IS ...

5 UNLESS OTHERWISE NOTED ALL ... AND VENTS SHALL BE ...

6 X DENOTES EQUIPMENT BY OTHERS

REFERENCE DRAWINGS

LIST OF DRAWINGS	A-5 34
VALVE & SPECIALTY	G-5 17
PIPING & EQUIPMENT	G-5 14
PLOT PLAN	G-1 1
WATER SYSTEMS	G-2 99
FLOW DIAGRAM CONDENSATE BOOSTER	G-3 99
FLOW DIAGRAM REACTOR BLDG CLOSED COOLING WATER SYSTEM	G-191178
REACTOR WATER CLEAN-UP SYSTEM	G-191189
PIPING ISOMETRIC	G-191190
FLOW DIAGRAM CONDENSATE & FEEDWATER	G-191176
FLOW DIAGRAM DEMINERALIZED WATER SYSTEM	G-191194
FLOW DIAGRAM CONDENSATE STORAGE & TRANSFER SYSTEM	G-191195
PIPING ISOMETRIC CONDENSATE STORAGE & TRANSFER SYSTEM	G-191196
MISC EQUIPMENT LIST	G-191145
DIAGRAMMATIC ARRANGEMENT LIST	FCE 7245E6404-B
NWT ECP TEST FLOW DIAGRAM	NWT-17
NWT ECP TEST LOOP PIPING	NWT-18

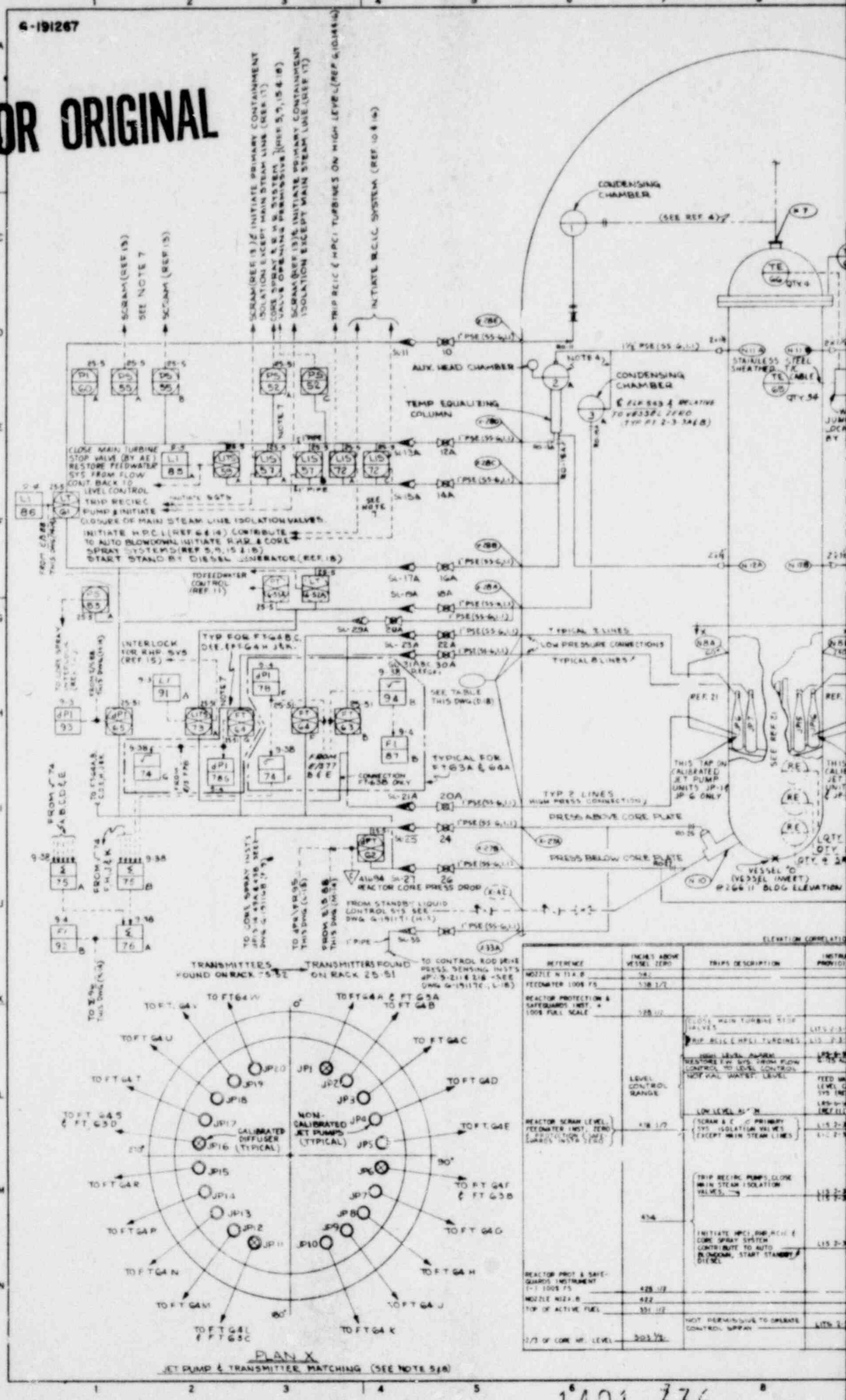
REPRODUCED FROM GE DWG 728E940 REV 5

REV	DESCRIPTION	NO	DATE	REVISION	BY	CK	APPROVED
13	PER CORRECTIVE UPDATE	10	9-23-72	ADDED ECP TEST LOOP			
12	PDCR 77-9 CLEAN-UP FLOW SWITCH REMOVED	9	7-30-76	...			
11	...	8	...	...			
		7	2-23-72	...			
		6	...	...			
		5	1-27-72	...			
		4	11-20-70	...			
		3	9-11-70	...			
		2	7-1-69	...			
		1	4-6-68	GENERAL REVISION			

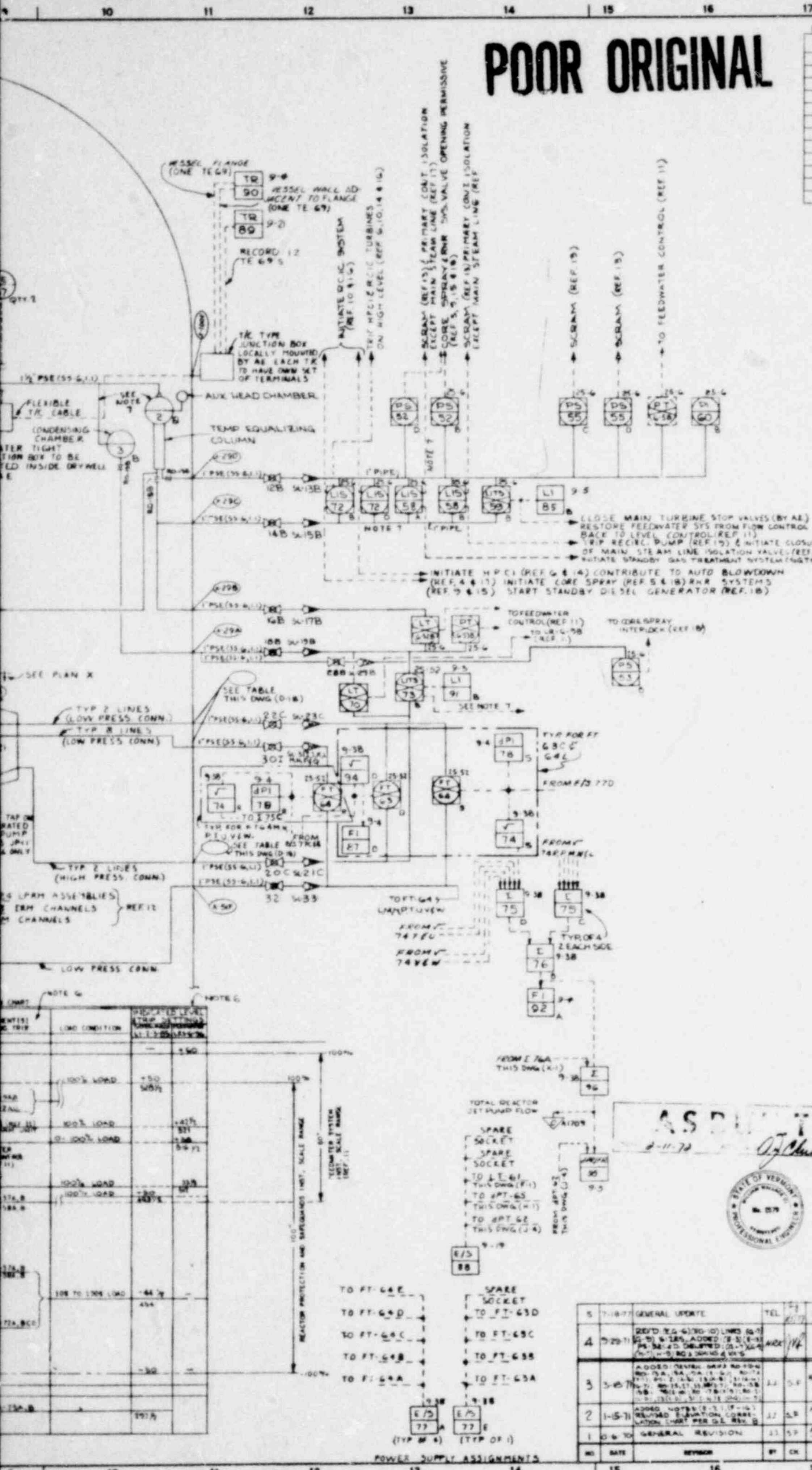
VERMONT YANKEE NUCLEAR POWER CORPORATION
VERMONT YANKEE NUCLEAR POWER STATION
VERNON, VERMONT
FLOW DIAGRAM
REACTOR WATER CLEAN-UP SYSTEM
ERADCO SERVICES INCORPORATED NEW YORK

SCALE NONE | DRAWN | DATE FOR RECORD
DIV MECH | CHECKED | G-191178
DIV ELECTRICAL | APPROVED | SHEET 1 OF 2

1401 335



POOR ORIGINAL



AS BUILT
8-11-70

No. 2579

DRYWELL PENETRATIONS FOR JET PUMP INST. LINES			
JET PUMP	PENETRATION	JET PUMP	PENETRATION
JP1 (UPPER)	X-40B-C	JP11 (UPPER)	X-40D-C
JP1 (LOWER)	X-40B-B	JP11 (LOWER)	X-40D-B
JP2	X-40B-E	JP12	X-40D-E
JP3	X-40B-D	JP13	X-40D-D
JP4	X-40B-F	JP14	X-40D-F
JP5	X-40B-A	JP15	X-40D-A
JP6 (UPPER)	X-40A-C	JP16 (UPPER)	X-40C-C
JP6 (LOWER)	X-40A-B	JP16 (LOWER)	X-40C-B
JP7	X-40A-E	JP17	X-40C-E
JP8	X-40A-C	JP18	X-40C-D
JP9	X-40A-F	JP19	X-40C-F
JP10	X-40A-A	JP20	X-40C-A

NOTES:

1. UNLESS OTHERWISE NOTED ALL INSTRUMENT AND VALVE NUMBERS TO BE PREFIXED BY SYSTEM NUMBER 2-3

   FOR EXAMPLE: FOR INSTRUMENT LT-61

   ACTUAL TAGGING SHALL BE: LT-2-3-61
   TYPE OF INSTRUMENT
   SYSTEM NO.
   INSTRUMENT DESIGNATION NO.
   FOR VALVE 12B
   ACTUAL TAGGING SHALL BE V2-3-12B
   SYSTEM NO.
   VALVE DESIGNATION NO.

2. INSTRUMENT LINES TO SLOPE MINIMUM 1/2 INCH PER FOOT TOWARDS INSTRUMENT. WATER LINES MUST NOT HAVE AIR TRAPS, AND STEAM LINES MUST NOT HAVE WATER TRAPS.

3. LINES TO DIFFERENTIAL PRESSURE TRANSMITTERS SHOULD BE AS SHORT AS PRACTICABLE.

4. INSTALL TEMP. EQUALIZING COLUMN AND LEVEL INSTRUMENT PIPING AS DIRECTED BY VENDOR'S INSTALLATION DRAWING.

5. ALL INSTRUMENT LINES FROM JET PUMPS 1 TO 10 EXIT THRU PENETRATIONS X-40A AND X-40A AND B. LINES 11 TO 20 EXIT THRU PENETRATIONS X-40B AND X-40C AND D. SEE TABLE THIS DRAWING (D-19).

6. INSTRUMENTS ARE CALIBRATED FOR 1000 PSIG REACTOR PRESSURE AND 135° F AMBIENT TEMPERATURE AT THE EQUALIZING COLUMN. INSTRUMENT ERROR AT 100% LOAD WITH LIQUID LEVEL ABOVE DRYER SKIRT INCLUDES 7" WC ΔP ACROSS DRYER, ALLOWANCE FOR 3% STEAM CARRY UNDER AND ± 2% ALLOWABLE INSTRUMENT ERROR. WHEN LIQUID LEVEL FALLS BELOW DRYER SKIRT, INSTRUMENT ERROR AT STATED CONDITIONS BECOMES ± 2" WC (± 2% OF 100 RANGE). INDICATED LEVELS MARKED WITH * ARE TRIP SETTINGS ON THE ASSOCIATED INSTRUMENT LISTED IN "INSTRUMENTS PROVIDING TRIP" COLUMN.

7. ALARMS ASSOCIATED WITH THE SYSTEMS INITIATED BY THE REACTOR PROTECTION OR SAFEGUARD SYSTEM LEVEL AND PRESSURE SWITCHES ARE SHOWN ON THE P AND I.D. FOR THE PARTICULAR SYSTEM.

8. ON PLAN "X" JET PUMPS JP-1 THRU JP-10 ARE RELATED TO RECIRC. LOOP "B", AND JP-11 THRU JP-20 ARE RELATED TO RECIRC. LOOP "A"

REFERENCE DRAWINGS:

1. LIST OF DRAWINGS	A-191136
2. VALVE AND SPECIALITY LIST	B-191137
3. PIPING AND INSTRUMENT SYMBOLS	G-191156
4. FLOW DIAGRAM - NUCLEAR BOILER	G-191167
5. FLOW DIAGRAM - CORE SPRAY SYSTEM	G-191168
6. FLOW DIAGRAM - HIGH PRESSURE COOLANT INJECTION SYSTEM SHEET 1 & 2	G-191169
7. FLOW DIAGRAM - CONTROL ROD HYDRAULIC SYSTEM	G-191170
8. FLOW DIAGRAM - STANDBY LIQUID CONTROL SYSTEM	G-191171
9. FLOW DIAGRAM - RESIDUAL HEAT REMOVAL SYSTEM	G-191172
10. FLOW DIAGRAM - REACTOR CORE ISOLATION COOLING SYSTEMS SHEET 1 & 2	G-191174
11. I.E.D. - FEEDWATER CONTROL SYSTEM	EBASCO F.F.# 5920-204
12. I.E.D. - NEUTRON MONITORING SYSTEM	EBASCO F.F.# 5920-270 & 271
13. I.E.D. - REACTOR PROTECTION SYSTEM	EBASCO F.F.# 5920-272, 273 & 274
14. FUNCT. CONTR. DIAG. - HIGH PRESSURE COOLANT INJECTION SYSTEM	EBASCO F.F.# 5920-38, 35 & 461
15. FUNCT. CONTR. DIAG. - RESIDUAL HEAT REMOVAL SYSTEM	EBASCO F.F.# 5920-27, 28 & 29
16. FUNCT. CONTR. DIAG. - REACTOR CORE ISOLATION COOLING SYS.	EBASCO F.F.# 5920-25, 26 & 490
17. FUNCT. CONTR. DIAG. - NUCLEAR BOILER MISC. SYSTEMS	EBASCO F.F.# 5920-611 & 612
18. FUNCT. CONTR. DIAG. - CORE SPRAY SYSTEM	EBASCO F.F.# 5920-37
19. FUNCT. CONTR. DIAG. - RECIRCULATION FLOW CONTROL SYS.	EBASCO F.F.# 5920-1[illegible] 1848 & 1818
20. REACTOR VESSEL (THERMOCOUPLE PAD)	EBASCO F.F.# 5920-52
21. REACTOR ASSEMBLY DRAWING	EBASCO F.F.# 5920-5775 & 5774

REPRODUCED FROM ORIGINAL GE DWG 729E425

NO	DATE	REVISION	BY	CK	APPROVED
5	7-18-77	GENERAL UPDATE	TEL	[illegible]	AEA [illegible]
4	5-29-71	REV'D (E-G-6)(B0-10) LINES (G-?) (G-5) & 12B, ADDED (B-5)(E-5) PS-52 & D. DELETED [illegible]	MRK	[illegible]	[illegible]
3	3-8-71	ADDED: [illegible]	JJ	SF	WJH
2	1-15-71	ADDED NOTES (E-?)(F-16) REVISED ELEVATION CORRELATION CHART PER G.E. REV. B	JJ	SP	WJH
1	10-6-70	GENERAL REVISION	JJ	SP	WJH

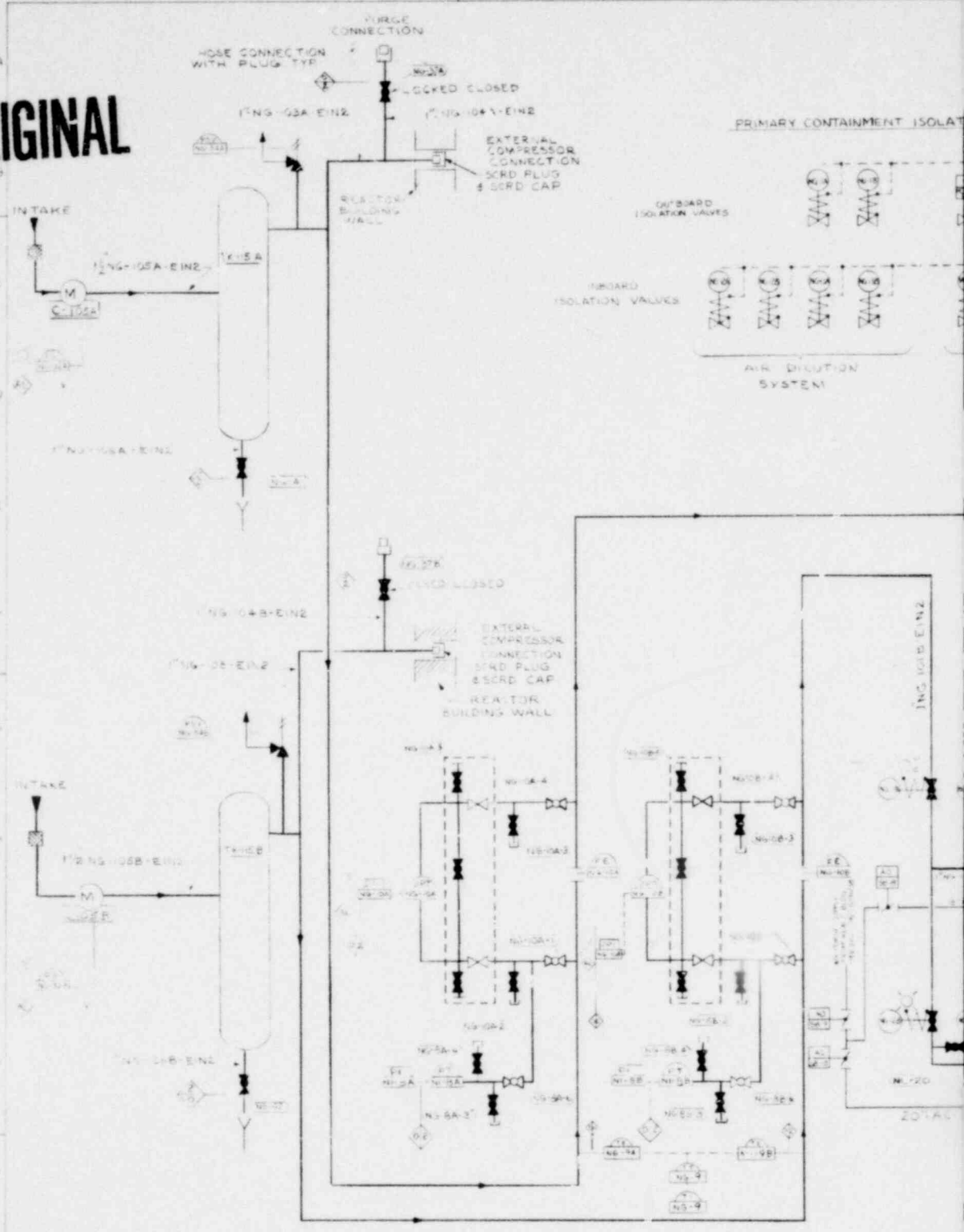
VERMONT YANKEE NUCLEAR POWER CORPORATION
VERMONT YANKEE NUCLEAR POWER STATION
VERNON, VERMONT
FLOW DIAGRAM
NUCLEAR BOILER VESSEL INSTRUMENTATION

EBASCO SERVICES INCORPORATED NEW YORK

SCALE NONE	APPROVED W. [illegible]	DATE 6/6/64
DR MECH		G-191267
CH [illegible]		

1401 337

POOR ORIGINAL



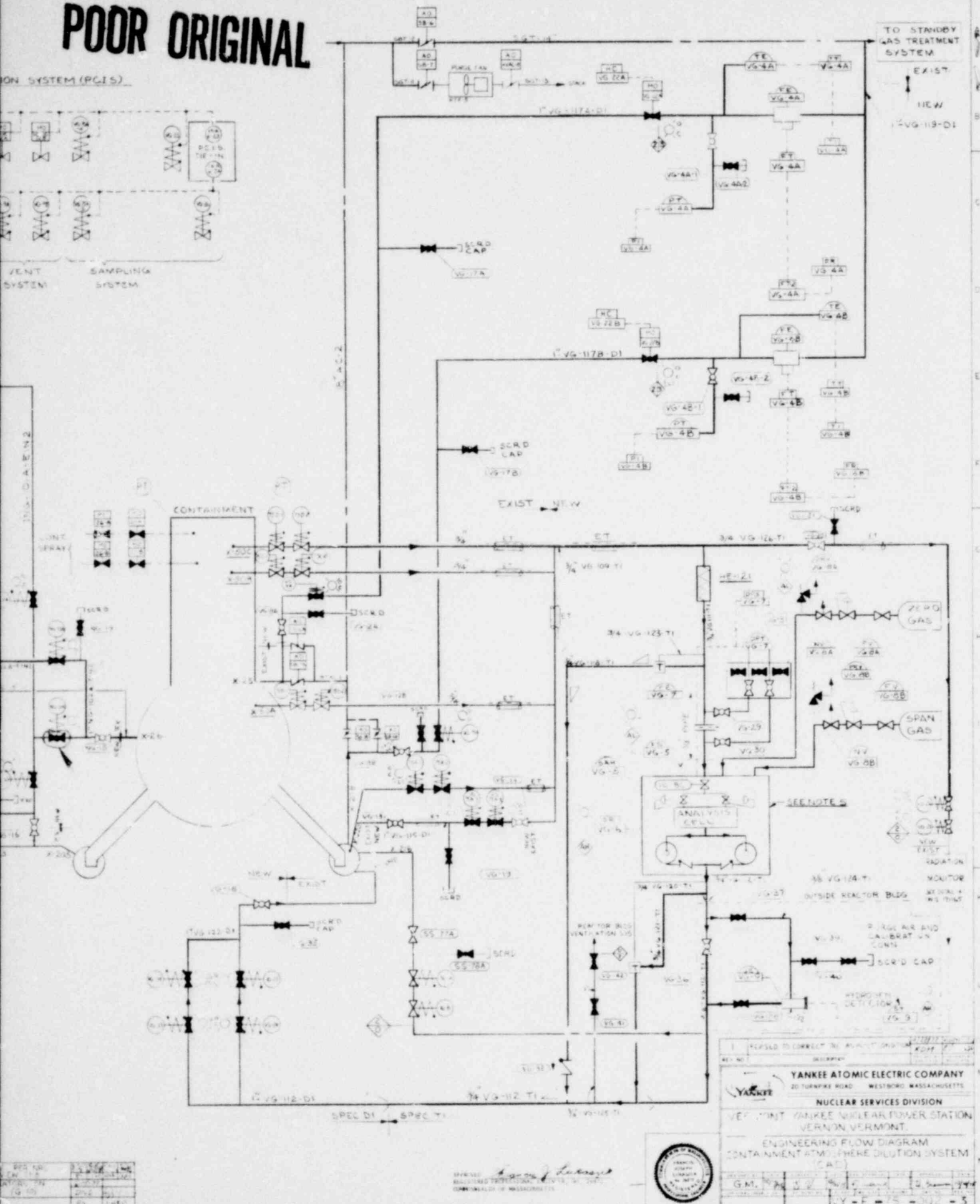
NOTES

1. [illegible] ARE SAFETY RELATED.
2. [illegible] ARE SAFETY CLASS 2 WHERE INDICATED.
3. ALL ITEMS MARKED SAFETY CLASS 2 ARE TO THE REQUIREMENTS OF ASME B&PV CODE SECTION III 1974 EDITION NO EXCEPT 1105 A&B AND PVP-No 34 A&B.
4. ALL ITEMS MARKED SAFETY CLASS 2 OR SAFETY CLASS 3 AND DESIGNATED VG ARE TO THE REQUIREMENTS OF ANSI B31.1
5. THE HYDROGEN ANALYZER SAH-VG-5 IS A UNIT PACKAGE SUPPLIED BY DELPHI IND. DRAWING NO 017220
6. FOR INSTRUMENT AIR SYSTEM SEE DRWG [illegible]

1401 338

REV NO	DESCRIPTION
3	[illegible]
2	ADDED [illegible] VALVES 26-A & 26-B

POOR ORIGINAL

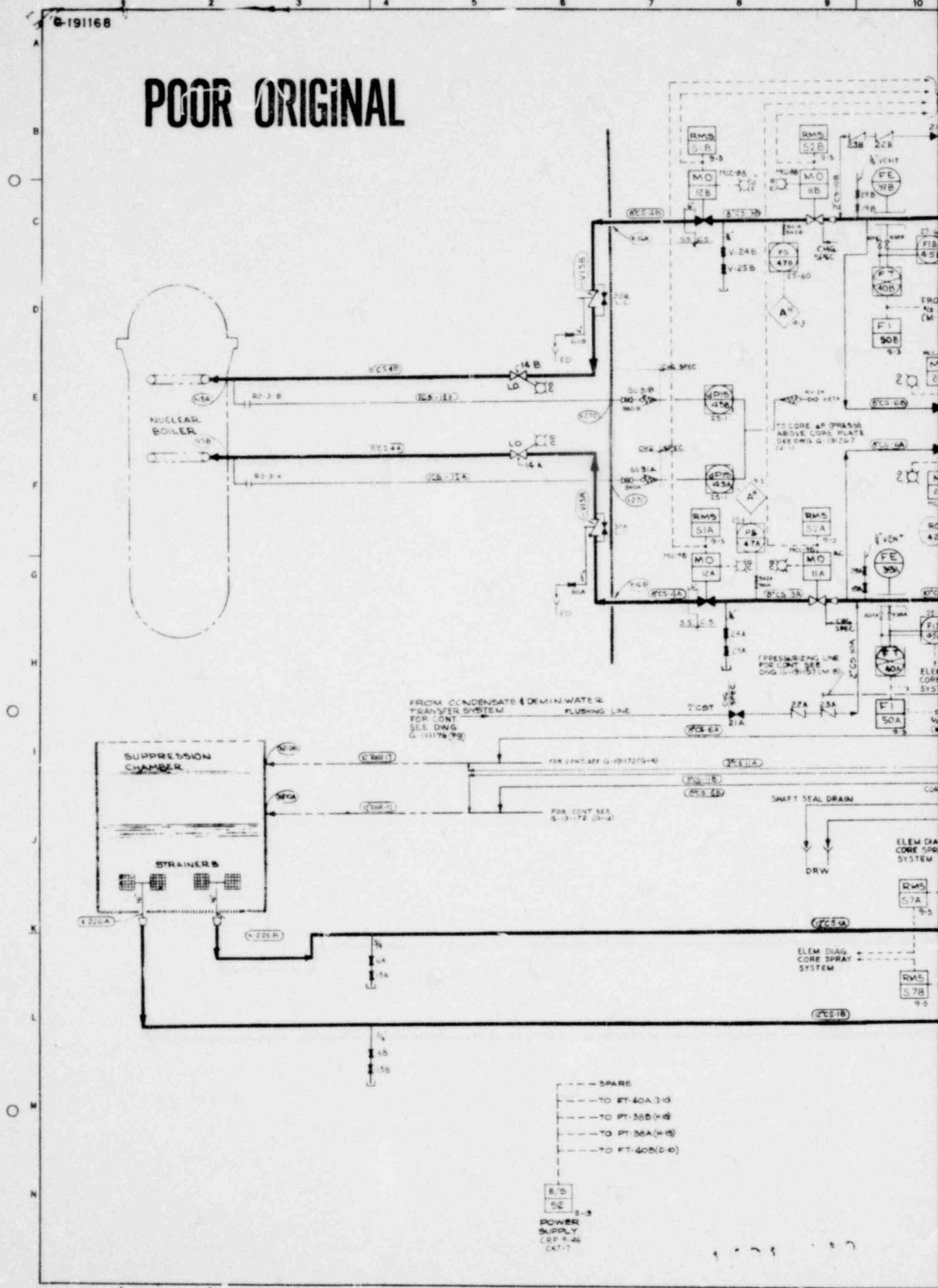


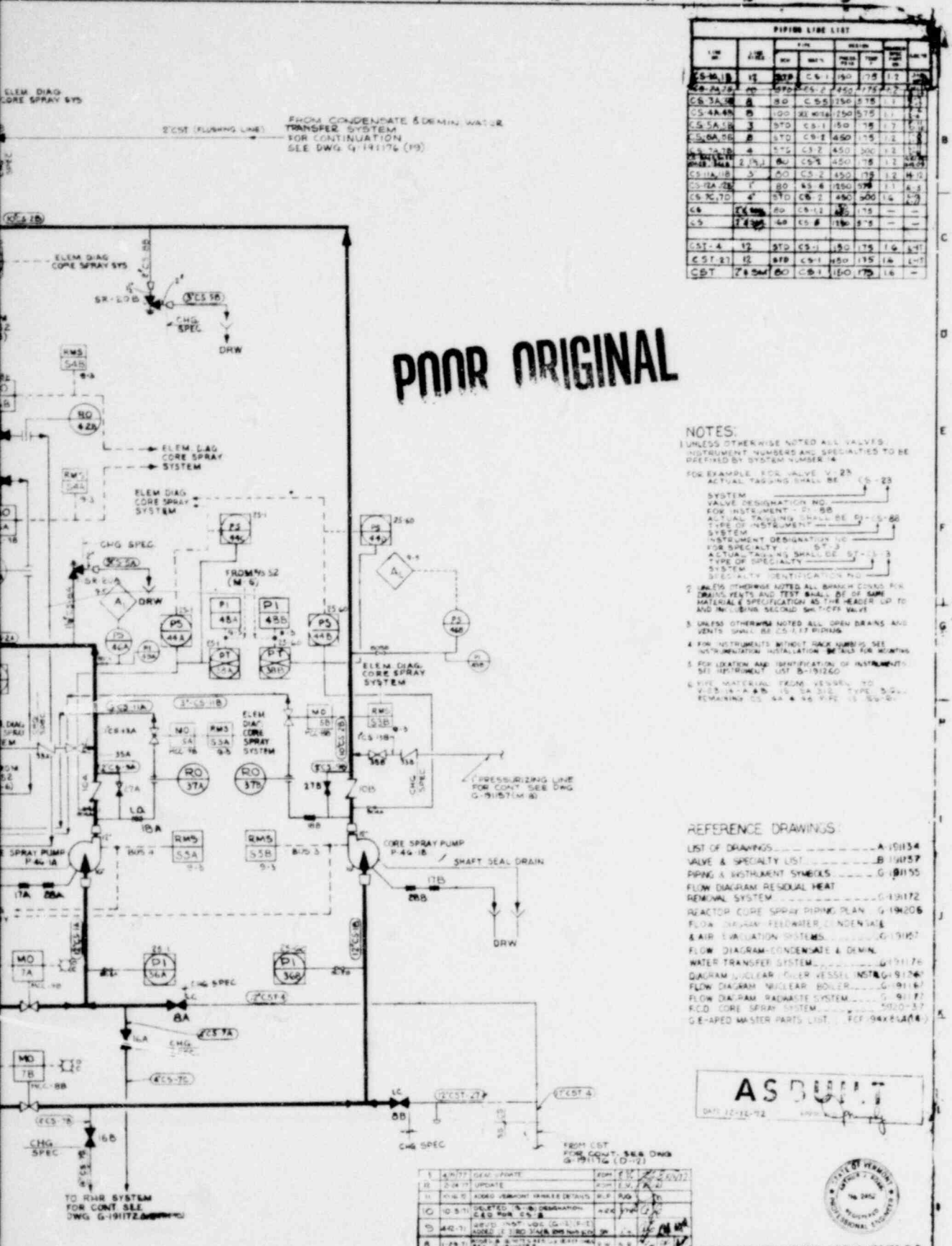
YANKEE ATOMIC ELECTRIC COMPANY
20 TURNPIKE ROAD WESTBORO, MASSACHUSETTS
NUCLEAR SERVICES DIVISION
YANKEE NUCLEAR POWER STATION
VERNON, VERMONT
ENGINEERING FLOW DIAGRAM
CONTAINMENT ATMOSPHERE DILUTION SYSTEM
(CAD)
G.M.
YAEC 1075-002-3

1401 339

G-191168

POOR ORIGINAL





PIPING LINE LIST								
LINE NO.	SIZE	FLUID		VERSION				
		SERV.	MAT'L	PRESS. PSIG	TEMP. °F	INSUL. THICK. IN.	INSUL. TYPE	
CS-1A,1B	12	STD	CS-1	150	175	1.5		
CS-2A,2B	10	STD	CS-2	450	575	1.5		
CS-3A,3B	8	80	CS-5	250	575	1		
CS-4A,4B	6	100	XX NOTE	250	575	1		
CS-5A,5B	3	STD	CS-1	150	175	1.5		
CS-6A,6B	8	STD	CS-2	450	575	1.5		
CS-7A,7B	4	STD	CS-2	450	300	1.5		
CS-8A,8B	2 (NPS)	80	CS-5	450	575	1.5		
CS-11A,11B	3	80	CS-2	450	575	1.5		
CS-12A,12B	1	80	CS-6	1250	575	1.5		
CS-9C,7D	4	STD	CS-2	450	300	1.5		
CS	CS-9A,9B	80	CS-12	450	575	—	—	
CS	CS-10A,10B	40	CS-8	150	575	—	—	
CST-4	12	STD	CS-11	150	175	1.5		
CST-27	12	STD	CS-1	150	175	1.5		
CBT	2 & SCH	80	CS-1	150	175	1.5	—	

NOTES:

1. UNLESS OTHERWISE NOTED ALL VALVES, INSTRUMENT NUMBERS AND SPECIALTIES TO BE PREFIXED BY SYSTEM NUMBER (4

FOR EXAMPLE, FOR VALVE V-23 ACTUAL TAGGING SHALL BE: CS-23

SYSTEM
VALVE DESIGNATION NO.
FOR INSTRUMENT - PI-88
ACTUAL TAGGING SHALL BE PI-CS-88
TYPE OF INSTRUMENT
SYSTEM
INSTRUMENT DESIGNATION NO.
FOR SPECIALTY - ST-3
ACTUAL TAGGING SHALL BE ST-CS-3
TYPE OF SPECIALTY
SYSTEM
SPECIALTY IDENTIFICATION NO.

2. UNLESS OTHERWISE NOTED ALL BRANCH CONN. FOR DRAINS, VENTS AND TEST SHALL BE OF SAME MATERIAL & SPECIFICATION AS THE HEADER UP TO AND INCLUDING SECOND SHUT-OFF VALVE
3. UNLESS OTHERWISE NOTED ALL OPEN DRAINS AND VENTS SHALL BE CS-1.17 PIPING
4. FOR INSTRUMENTS WITHOUT RACK NUMBERS, SEE INSTRUMENTATION INSTALLATION DETAILS FOR MOUNTING
5. FOR LOCATION AND IDENTIFICATION OF INSTRUMENTS SEE INSTRUMENT LIST B-191260
6. PIPE, MATERIAL FROM VESSEL TO V-23 (A-A & B-B) IS SA 312 TYPE 304. REMAINING CS 6A & 6B PIPE IS SA-106

REFERENCE DRAWINGS:

LIST OF DRAWINGS	A-191134
VALVE & SPECIALTY LIST	B-191157
PIPING & INSTRUMENT SYMBOLS	G-191155
FLOW DIAGRAM RESIDUAL HEAT REMOVAL SYSTEM	G-191172
REACTOR CORE SPRAY PIPING PLAN	G-191206
FLOW DIAGRAM FEEDWATER CONDENSATE & AIR EVALUATION SYSTEMS	G-191157
FLOW DIAGRAM-CONDENSATE & DEMIN. WATER TRANSFER SYSTEM	G-191176
DIAGRAM NUCLEAR BOILER VESSEL INSTR.	G-191264
FLOW DIAGRAM NUCLEAR BOILER	G-191161
FLOW DIAGRAM RADWASTE SYSTEM	G-191177
P.C.D. CORE SPRAY SYSTEM	5020-37
G.E.-APED MASTER PARTS LIST	FCF 94X81A068

AS BUILT
DATE 12-12-72

NO.	DATE	REVISION	BY	CK.	APPROVED
18		REVISED PER CORRECTIVE UPDATE			
17		CORRECTIVE UPDATE PER NRC EXIT INTERVIEW 77-8			
16		CORRECTIVE UPDATE (CHANGED NOTE 6)			
15		ADDED NOTE 6 (LDCR 77-8)			
14	6-9-77	GEN. UPDATE	RDM	IND	
1	9-30-66	GENERAL REVISION			

REPRODUCED FROM ORIGINAL GE DWG 148F477 REV.

VERMONT YANKEE NUCLEAR POWER CORPORATION
VERMONT YANKEE NUCLEAR POWER STATION
VERNON, VERMONT
FLOW DIAGRAM
CORE SPRAY SYSTEM
STONE & WEBSTER ENGINEERING CORPORATION BOSTON, MASSACHUSETTS

SCALE NONE | APPROVED | DATE DEC 72

G-191169

1401 341