SCE&G
A SCANA Company

South Carolina Electric & Gas Company
Virgil C. Summer Nuclear Station
P. O. Box 88
Jenkinsville, SC 29065
(803) 345-5209

July 11, 1995
RC-95-0185

Mr. S. Dembek
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation
Mail Stop 14B20 (OWFN)
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Dembek:

Subject: VIRGIL C. SUMMER NUCLEAR STATION
DOCKET NO. 50/395
OPERATING LICENSE NO. NPF-12
AMENDMENT 95-02
FINAL SAFETY ANALYSIS REPORT (FSAR)

Per your phone conversation with Ms. Berley indicating that the previously transmitted FSAR Amendment 95-02 was destroyed prior to reaching your office, enclosed is a replacement set of FSAR Amendment 95-02 to the Final Safety Analysis Report (FSAR) for the Virgil C. Summer Nuclear Station. The remaining ten sets will be forwarded by copy of this letter to the Document Control Desk.

This FSAR Amendment is updated as of March 27, 1995; it constitutes the second update to the FSAR for 1995, including the required information in accordance with 10CFR50.71(e).

Please note that pages which are submitted as amendment numbers other than 95-02 are administrative in nature and do not constitute any technical changes.

If there are any questions, please contact Ms. Janis Berley at (803) 345-4248.

Very truly yours,

R M Fowlkes

R. M. Fowlkes

jlb
Enclosure

c: Document Control Desk W/ATTACHMENTS
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NUCLEAR EXCELLENCE - A SUMMER TRADITION!

VIRGIL C. SUMMER NUCLEAR STATION
FINAL SAFETY ANALYSIS REPORT - AMENDMENT 95-02
INSTRUCTION SHEET

This Instruction Sheet functions as a guide and checklist for inserting Amendment 95-02 into the Virgil C. Summer Final Safety Analysis Report. Please note that pages which are submitted as amendment numbers other than 95-02 are pages which have received corrections which are administrative in nature.

The following listed pages and figures of South Carolina Electric & Gas Company's Final Safety Analysis Report for the Virgil C. Summer Nuclear Station are to be removed and replaced as indicated

REMOVE (Front/Back)	INSERT (Front/Back)
Volume I	Volume I
Page 1-v/1-vi	Page 1-v/1-vi
Fig. 1.2-6	Fig. 1.2-6
Fig. 1.2-15	Fig. 1.2-15
Volume VI	Volume VI
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Page 5-xiii/5-xiv	Page 5-xiii/5-xiv
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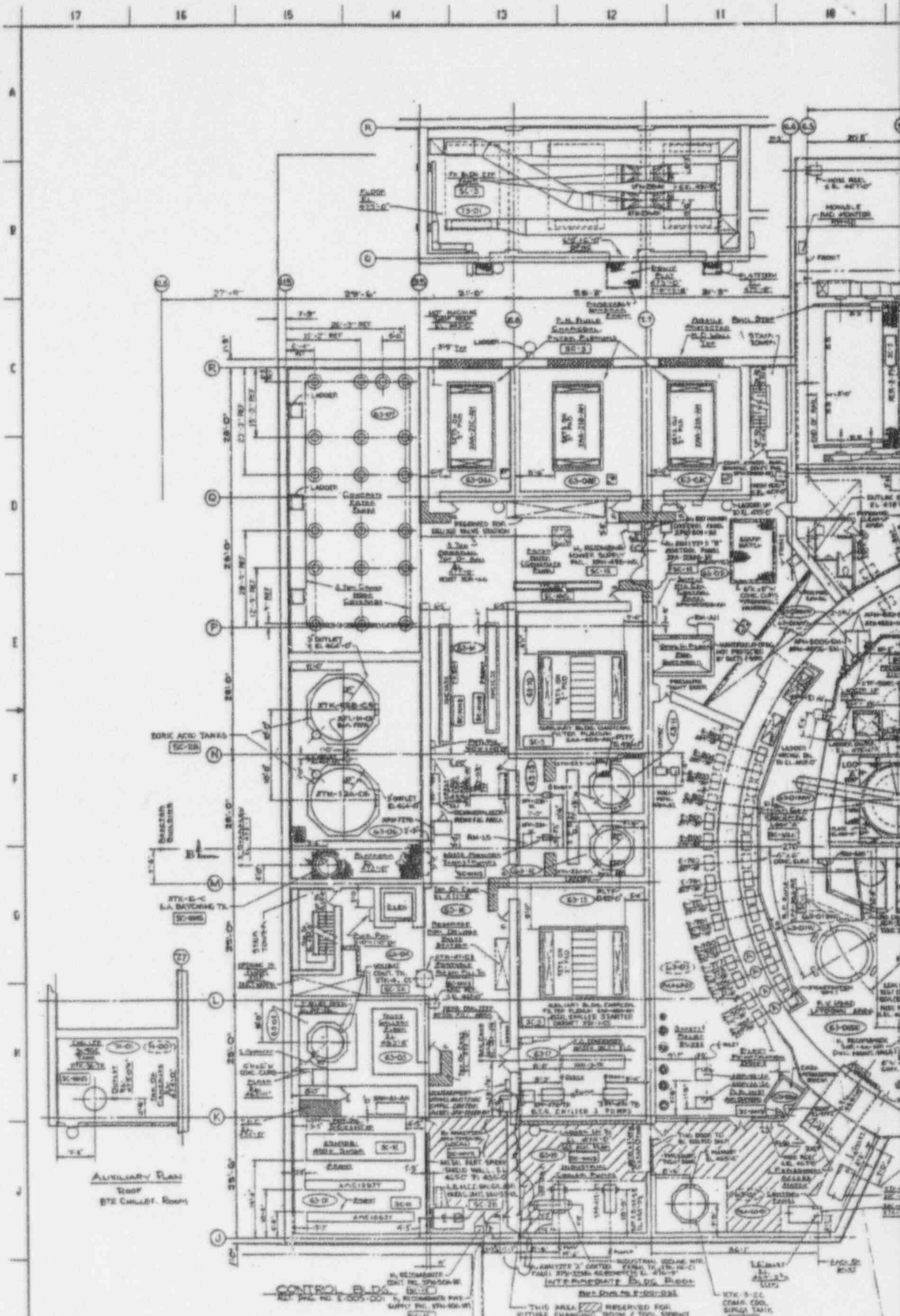
Page 8-viia/8-viii	Page 8-viia/8-viii
Fig. 8.2-3	Fig. 8.2-3
Fig. 8.2-4	Fig. 8.2-4

~~9506160376~~ 100 pp.



17
16
15
14
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12
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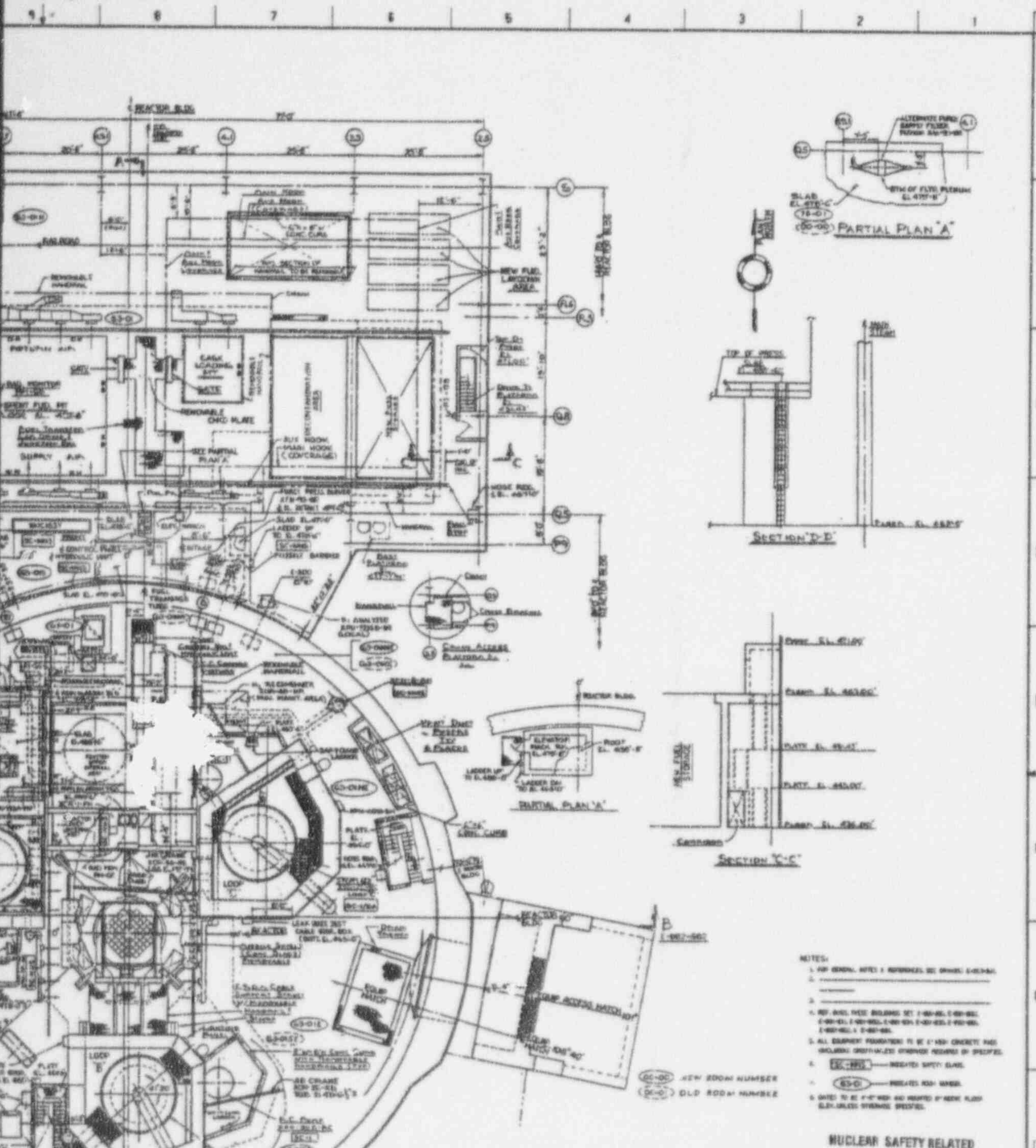
A
B
C
D
E
F
G
H
J
K
BORIC ACID TANKS
AUXILIARY PLAN
ROOF
BTX CHILLER ROOM
CONTROL BLDG.
THIS AREA RESERVED FOR FUTURE CHANGING ROOM & TOOL STORAGE



AMENDMENT 95-02
APRIL, 1995

SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

Auxiliary, Reactor, and Fuel Handling Buildings-Plan Above Operating Floor Elevation 463'-0"
(Dwg. No.E-001-031 Rev. 39)

Figure 1.2-6

9506160376-01

LIST OF EFFECTIVE PAGES (LEP)

The following list delineates pages to Chapter 1 of the Virgil C. Summer Nuclear Station Final Safety Analysis Report which are currently in effect. The latest changes to pages and figures are indicated below by Amendment 94-10 in the Amendment column along with the amendment number and date for each page and figure included in the Final Safety Analysis Report.

Page/Fig. No.		Amend. No.	Date
Page	1-i	0	Aug. 1984
	1-ii	0	Aug. 1984
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	1.2-6	0	Aug. 1984
	1.2-7	0	Aug. 1984
	1.2-8	0	Aug. 1984
	1.2-9	0	Aug. 1984
	1.2-10	0	Aug. 1984
	1.2-11	0	Aug. 1984
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	1.2-13	0	Aug. 1984
	1.2-14	0	Aug. 1984
	1.2-15	0	Aug. 1984
	1.2-16	0	Aug. 1984
	1.2-17	0	Aug. 1984
	1.2-18	0	Aug. 1984
	1.2-19	0	Aug. 1984
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Fig.	1.2-1	94-04	Apr. 1994
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	1.2-4	4	Aug. 1988
	1.2-5	93-10	Dec. 1993
	1.2-6	95-02	Apr. 1995
	1.2-7	0	Aug. 1984
	1.2-8	3	Aug. 1987
	1.2-9	2	Aug. 1986
	1.2-10	5	Aug. 1989
	1.2-11	7	Aug. 1991
	1.2-12	93-10	Dec. 1993
Fig.	1.2-13	4	Aug. 1988
	1.2-14	0	Aug. 1984
	1.2-15	95-02	Apr. 1995
	1.2-16	5	Aug. 1989
	1.2-17	0	Aug. 1984
	1.2-18	94-10	Dec. 1994
	1.2-19	94-10	Dec. 1994
	1.2-20	93-06	Jul. 1993
	1.2-21	93-06	Jul. 1993
	1.2-22	94-10	Dec. 1994
	1.2-23	0	Aug. 1984
	1.2-24	4	Aug. 1988
	1.2-25	93-10	Dec. 1993
	1.2-26	4	Aug. 1988
	1.2-27	94-10	Dec. 1994
	1.2-28	7	Aug. 1991
	1.2-28a	94-10	Dec. 1994
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Page	1.3-1	0	Aug. 1984
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	1.3-4	0	Aug. 1984
	1.3-5	0	Aug. 1984
	1.3-6	0	Aug. 1984
	1.3-7	0	Aug. 1984
	1.3-8	0	Aug. 1984
	1.3-9	0	Aug. 1984
	1.3-10	0	Aug. 1984
	1.3-11	0	Aug. 1984
	1.3-12	0	Aug. 1984
	1.3-13	0	Aug. 1984
	1.3-14	5	Aug. 1989
	1.4-1	0	Aug. 1984
	1.4-2	0	Aug. 1984
	1.4-3	0	Aug. 1984
	1.4-4	0	Aug. 1984
	1.4-5	0	Aug. 1984
	1.4-6	0	Aug. 1984
	1.4-7	0	Aug. 1984
	1.4-8	0	Aug. 1984
	1.4-9	0	Aug. 1984
	1.4-10	0	Aug. 1984

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Fig. 9.2-4	Fig. 9.2-4
Fig. 9.2-7	Fig. 9.2-7
Fig. 9.3-3A	Fig. 9.3-3A
Fig. 9.3-4	Fig. 9.3-4
Fig. 9.3-16 SHT. 1C	Fig. 9.3-16 SHT. 1C
Volume X	Volume X
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Page 9.4-77/9.4-78	Page 9.4-77/9.4-78
Fig. 9.4-5	Fig. 9.4-5
Fig. 9.4-26c	Fig. 9.4-26c
Fig. 9.4-33	Fig. 9.4-33
Fig. 9.5-1	Fig. 9.5-1
Fig. 9.5-2	Fig. 9.5-2
Fig. 9.5-11	Fig. 9.5-11
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Fig. 10.4-14	Fig. 10.4-14
Fig. 10.4-16	Fig. 10.4-16
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Fig. 11.2-2 SHT. 2 of 5	Fig. 11.2-2 SHT. 2 of 5
Fig. 11.2-2 SHT. 3 of 5	Fig. 11.2-2 SHT. 3 of 5
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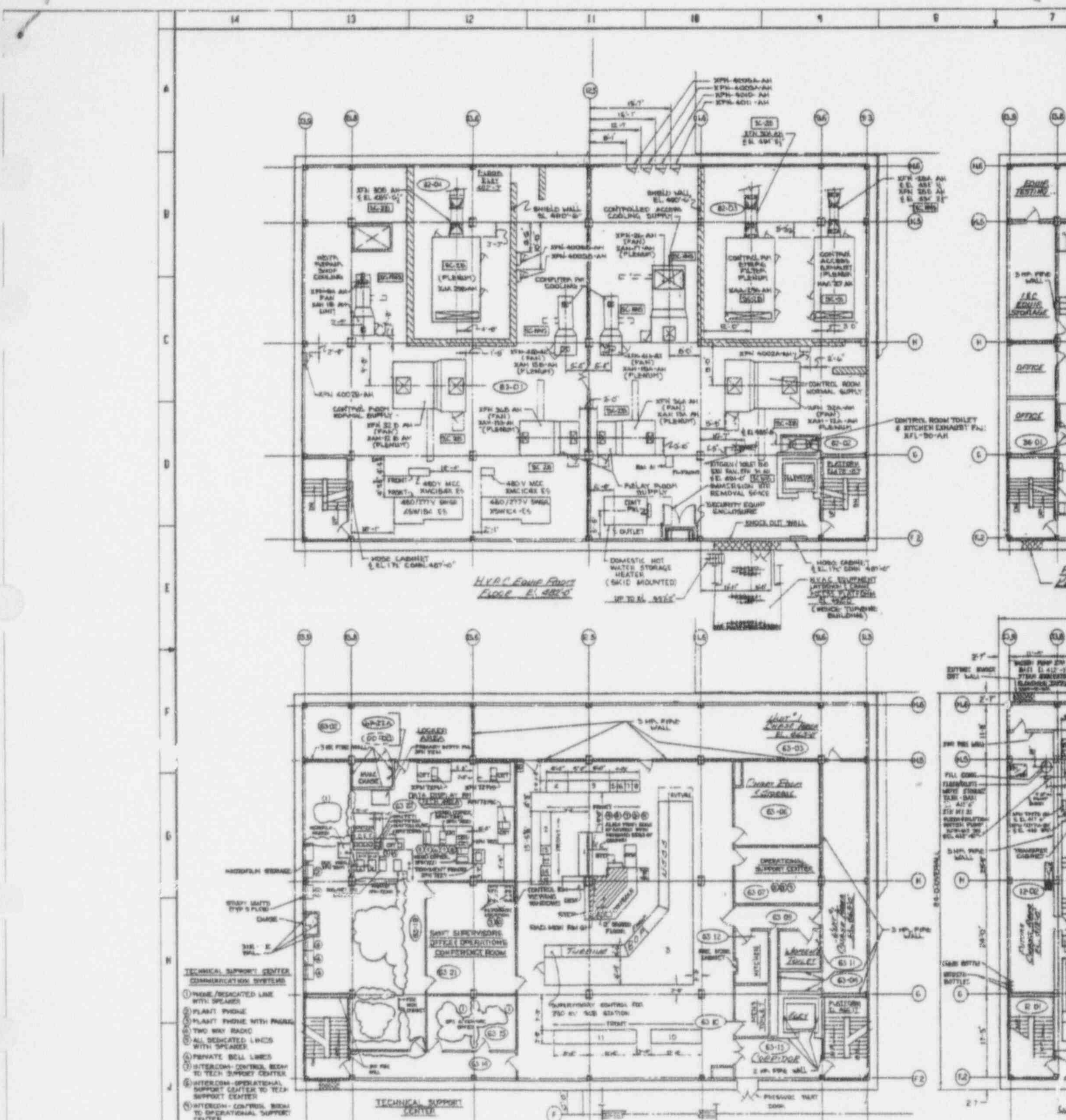
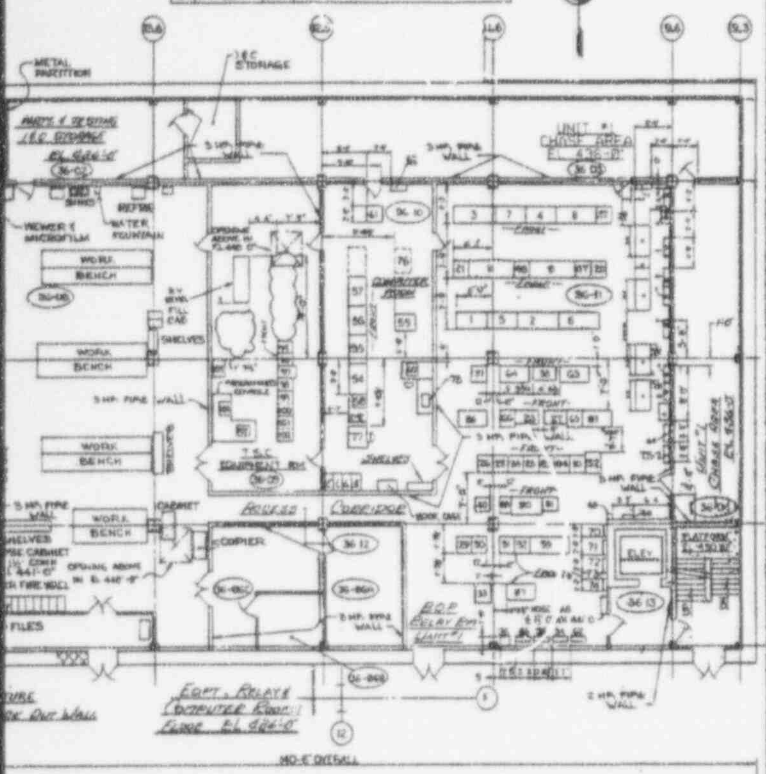
Page 12-xi	Page 12-xi
Page 12.2-5/12.2-6	Page 12.2-5/12.2-6
Fig. 12.1-19	Fig. 12.1-19
Fig. 12A.4-7	Fig. 12A.4-7



CONTROL ROOM EQUIPMENT LIST			
ITEM NO	EQUIP NO	SAFETY CLASS	DESCRIPTION
1	XCP 7058	NNS	COMPUTER OPERATOR CONSOLE
2	XCP 7040	NNS	INCORE INSTR MACH FLUX MAPPING SYS
3	XCP 6100	IE	MAIN CONTROL BOARD
4	XCP 6090	NNS	FIRE SERVICE PANEL
5	XCP 7071	IE	NUCLEAR INSTRUMENT SYS CONSOLE CHAN I
6	XCP 7070	IE	NUCLEAR INSTRUMENT SYS CONSOLE CHAN I
7	XCP 7073	IE	NUCLEAR INSTRUMENT SYS CONSOLE CHAN III
8	XCP 7074	IE	NUCLEAR INSTRUMENT SYS CONSOLE CHAN IV
9	XCP 6200	NNS	RADIATION MONITORING SYSTEM PANEL
10	XCP 6210	IE	H.V.A.C. CONTROL BOARD
11	XCP 6220	NNS	[illegible] ELECT RELAY BOARD
12	XCP 6230	NNS	TEMP SCANNING SYS CONTROL PANEL

CONTROL ROOM EQUIPMENT LIST			
ITEM NO	EQUIP NO	SAFETY CLASS	DESCRIPTION
13	XCP 7040	NNS	AXIAL PWR DIST MONITORING SYS CABINET
14	XPN 6042	NNS	LOOSE PARTS MONITORING PANEL
15	XPN 7218	IE	R.C. [illegible] MONITOR AND ACOUSTIC LEAK MONITOR PANEL
16	XPN 7220A		PLANT SAFETY STATUS DISPLAY CRT
17	XPN 7220B		PLANT SAFETY STATUS DISPLAY CRT
18	XPN 7221A		BYPASS AND INOPERABLE STATUS INDICATION CRT
19	XPN 7221B		BYPASS AND INOPERABLE STATUS INDICATION CRT
20	XPN 7040		VIDEO COPIER



TECHNICAL SUPPORT CENTER INSTRUMENT, COMPUTER & RELAY RM EQUIPMENT LIST (CONT'D)

102	XPN7229B	NSS	I/O CABINET
105	XPN7267	NSS	PROGRAMMER'S CARD READER
106	XPN7341	NSS	PROGRAMMER'S CRT
[illegible]	XPN7242	NSS	PROGRAMMER'S PRINTER
[illegible]	XPN7246	NSS	DECWRITER
107	XPN7247	NSS	DECWRITER

TECHNICAL SUPPORT CENTER INSTRUMENT, COMPUTER & RELAY RM EQUIPMENT LIST

ITEM NO.	EQUIP NO.	SAFETY CLASS	DESCRIPTION
1	XPN7001	1E	PROCESS I&C RACK PROT SET I
2	XPN7002	1E	PROCESS I&C RACK PROT SET II
3	XPN7003	1E	PROCESS I&C RACK PROT SET III
4	XPN7004	1E	PROCESS I&C RACK PROT SET IV
5	XPN7005	NNS	PROCESS I&C RACK CONT GRP 1
6	XPN7006	NNS	PROCESS I&C RACK CONT GRP 2
7	XPN7007	NNS	PROCESS I&C RACK CONT GRP 3
8	XPN7008	NNS	PROCESS I&C RACK CONT GRP 4
9	XPN7010	1E	SOLID STATE PROT SYSTEM CAB TRAIN A
10	XPN7020	NNS	SOLID STATE PROT SYS CONT RB DEMULTIPLEXER
11	XPN7030	1E	SOLID STATE PROT SYSTEM CAB TRAIN B
12	XIT5901	1E	120V INVERTER 1, NSSS
13	XIT5902	1E	120V INVERTER 2, NSSS
14	XIT5903	1E	120V INVERTER 3, NSSS
15	XIT5904	1E	120V INVERTER 4, NSSS
16	APN5901	1E	120V VITAL AC DIST PANEL 1, NSSS
17	APN5902	1E	120V VITAL AC DIST PANEL 2, NSSS
18	APN5903	1E	120V VITAL AC DIST PANEL 3, NSSS
19	APN5904	1E	120V VITAL AC DIST PANEL 4, NSSS
20	XPN7051	NNS	NUC STEAM SUPPLY AUXILIARY RELAY RACK 1
21	XPN7052	NNS	NUC STEAM SUPPLY AUXILIARY RELAY RACK 2
22	XPN7053	NNS	NUC STEAM SUPPLY AUXILIARY RELAY RACK 3
23	XPN6001	NNS	ANNUNCIATOR RELAY PANEL 01
24	XPN6002	NNS	ANNUNCIATOR RELAY PANEL 02
25	XPN6003	NNS	ANNUNCIATOR RELAY PANEL 03
26	XPN6004	NNS	ANNUNCIATOR RELAY PANEL 04
27	XPN6020	1E	ENG SAFETY FEATURES LOAD SEQ PNL TRAIN A
28	XPN6021	1E	ENG SAFETY FEATURES LOAD SEQ PNL TRAIN B
29	XPN6031	NNS	BAL OF PLANT AUXILIARY RELAY RACK 01
30	XPN6032	NNS	BAL OF PLANT AUXILIARY RELAY RACK 02
31	XPN6033	NNS	BAL OF PLANT AUXILIARY RELAY RACK 03
32	XPN6034	NNS	BAL OF PLANT AUXILIARY RELAY RACK 04
33	XIT5906	NNS	120V INVERTER 6 B.O.P. SUPPLY
34	APN5906	NNS	120V AC INST SUPPLY BUS 6 B.O.P. SUPPLY
35	APN1FS1	NNS	120V AC INST DIST PANEL 1FS1
36	XTF1FS1	NNS	120V AC INST SUPPLY TRANS FOR B.O.P.
37	XPN6011	NNS	EARTHQUAKE MONITORING PANEL
38	XPN5300	1E	1E AUXILIARY RELAY RACK
39	XPN6003	NNS	BAL OF PLANT INSTRUMENT PANELS 8TH TRAIN
40	XPN6010	NNS	SUBSTATION SUPERVISORY SYS MASTER STA
41	DPN1HB2	1E	DC DIST PANEL 1HB2
42	XTF1FS	1E	120V AC INSTRUMENT SUPPLY TRANS FOR NSSS
43	APN1FS	1E	120V AC INSTRUMENT NN DIST PANEL 1FS
44	APN1FA	1E	120V AC INSTRUMENT NN DIST PANEL 1FA
45	XTF1FA	1E	120V AC INSTRUMENT SUPPLY TRANS FOR NSSS
46	APN1FS	NNS	120V AC INSTRUMENT NN DIST PANEL 1FS
47	XPN7011	1E	SOLID STATE PROT SYS TEST PANEL TRAIN A
48	XPN7031	1E	SOLID STATE PROT SYS TEST PANEL TRAIN B
49	XPN6030	NNS	TURBINE SUPERVISORY INSTRUMENT PANEL
50	XPN6040	NNS	ELECTRO HYD CONT CABINET
51	XPN6041	NNS	ELECTRO HYD TERMINATION PANEL
52	XPN6010	1E	ANSAC PANEL
53			
54			
55			
56			
57			
58	XPN7055	NNS	COMPUTER PAPER TAPE READER/PUNCH CAB
59	XPN7006	NNS	COMPUTER LINE PRINTER CAB
60	XPN7017	NNS	COMPUTER PROGRAMMER CONSOLE
61	XIT5905	NNS	120V INVERTER 5 COMPUTER SUPPLY
62	APN5905C	NNS	120V VITAL AC INST SUPPLY BUS 5 COMP SUPPLY
63	XPN6300	1E	BAL OF PLANT INST PANEL TRAIN "A"
64	XPN6302	1E	BAL OF PLANT INST PANEL "TRAIN B"
65	XPN7384	1E	AUX SAFEGUARD CAB "TRAIN A"
66	XPN7048	1E	AUX SAFEGUARD CAB "TRAIN B"
67	DPN1HA1	NNS	DC DIST PANEL 1HA1
68	APN8012A	NNS	LIGHTING PANEL 12 ESSENTIAL PANEL
69	XTF9005A	NNS	RECEPTACLE SWTR TRAIN A PWR FEED
70	APN8005A	NNS	RECEPTACLE PANEL 5 ESSENTIAL PANEL
71	APN8029	NNS	LIGHTING PANEL 29 NORMAL LIGHTING
72	APN8015	NNS	LIGHTING PANEL 15 ESSENTIAL PANEL
73	XTF9006B	NNS	RECEPTACLE SWTR TRAIN B FEED
74	APN8006B	NNS	RECEPTACLE PANEL 6 ESSENTIAL PANEL
75	DPN1HA2	1E	DC DIST PANEL 1HA2
76	(FUTURE)		TELEPROCESSOR
77	XPN7048	NNS	CARD PUNCH
78	XPN7049		CARD READER
80	APN5907	1E	120V VITAL AC DIST PANEL 7, NSSS
82	APN5908	1E	120V VITAL AC DIST PANEL 8, NSSS
83	XPN6005	NNS	ANNUNCIATOR RELAY PANEL 05
84	XPN6006	NNS	ANNUNCIATOR RELAY PANEL 06
85	XPN6304	1E	BAL OF PLANT INST PANEL "TRAIN A"
86	XPN6305	1E	BAL OF PLANT INST PANEL "TRAIN B"
87	XPN6306	NNS	BAL OF PLANT INST PANEL "TRAIN NON"
88			
89			
90			
91			
92			
93			
94			
95	XPN7TPMA	NSS	COMPUTER MAGNETIC TAPE
96	XPN7TPMB	NSS	COMPUTER MAGNETIC TAPE
97	XPN7300	NSS	DATA GENERATING CABINET
98	XPN7227	NSS	I/O CABINET
99	XPN7228A	NSS	I/O CABINET
100	XPN7228B	NSS	I/O CABINET
101	XPN7229A	NSS	I/O CABINET

AMENDMENT 95-02
APRIL, 1995

SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C SUMMER NUCLEAR STATION

PLANT LAYOUT CONTROL COMPLEX

PLAN AT ELEVATIONS 412'-0", 436'-0", 463'-0" & 482'-0"

E-005-001 REV. 38

Figure 1.2-15

LIST OF FIGURES (Cont'd)

LIST OF EFFECTIVE PAGES (LEP)

The following list delineates pages to Chapter 5 of the Virgil C. Summer Nuclear Station Final Safety Analysis Report which are currently in effect. The latest changes to pages and figures are indicated below by Amendment 94-09 in the Amendment column along with the amendment number and date for each page and figure included in the Final Safety Analysis Report.

Page/Fig. No.	Amend. No.	Date	Page/Fig. No.	Amend. No.	Date
Page 5-i	7	Aug. 1991	Page 5.2-11	0	Aug. 1984
5-ii	7	Aug. 1991	5.2-12	0	Aug. 1984
5-iii	7	Aug. 1991	5.2-13	0	Aug. 1984
5-iv	7	Aug. 1991	5.2-14	0	Aug. 1984
5-v	0	Aug. 1984	5.2-15	0	Aug. 1984
5-vi	0	Aug. 1984	5.2-16	0	Aug. 1984
5-vii	0	Aug. 1984	5.2-17	0	Aug. 1984
5-viii	0	Aug. 1984	5.2-18	0	Aug. 1984
5-ix	94-02	Feb. 1994	5.2-19	0	Aug. 1984
5-x	0	Aug. 1984	5.2-20	0	Aug. 1984
5-xi	0	Aug. 1984	5.2-21	0	Aug. 1984
5-xii	95-02	Apr. 1995	5.2-22	0	Aug. 1984
5-xiii	94-09	Nov. 1994	5.2-23	0	Aug. 1984
5-xiv	95-02	Apr. 1995	5.2-24	7	Aug. 1991
5-xv	94-09	Nov. 1994	5.2-25	0	Aug. 1984
5.1-1	0	Aug. 1984	5.2-26	0	Aug. 1984
5.1-2	0	Aug. 1984	5.2-27	0	Aug. 1984
5.1-3	0	Aug. 1984	5.2-28	0	Aug. 1984
5.1-4	0	Aug. 1984	5.2-29	0	Aug. 1984
5.1-5	0	Aug. 1984	5.2-30	0	Aug. 1984
5.1-6	0	Aug. 1984	5.2-31	0	Aug. 1984
5.1-7	6	Aug. 1990	5.2-32	0	Aug. 1984
5.1-8	6	Aug. 1990	5.2-33	0	Aug. 1984
Fig. 5.1-1(1 of 3)	7	Aug. 1991	5.2-34	94-09	Nov. 1994
5.1-1(2 of 3)	94-08	Oct. 1994	5.2-35	2	Aug. 1986
5.1-1(Sht. 3a)	7	Aug. 1991	5.2-36	94-08	Oct. 1994
5.1-1(Sht. 3b)	7	Aug. 1991	5.2-37	1	Aug. 1985
5.1-1(Sht. 3c)	7	Aug. 1991	5.2-38	0	Aug. 1984
5.1-2	0	Aug. 1984	5.2-39	0	Aug. 1984
5.1-3(1 of 3)	7	Aug. 1991	5.2-40	0	Aug. 1984
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5.2-2	0	Aug. 1984	5.2-44	91-03	Nov. 1991
5.2-3	0	Aug. 1984	5.2.44a	91-03	Nov. 1991
5.2-4	7	Aug. 1991	5.2-45	0	Aug. 1984
5.2-5	91-03	Nov. 1991	5.2-46	0	Aug. 1984
5.2-6	0	Aug. 1984	5.2-47	0	Aug. 1984
5.2-7	0	Aug. 1984	5.2-48	0	Aug. 1984
5.2.7a	91-03	Nov. 1991	5.2-49	0	Aug. 1984
5.2-8	0	Aug. 1984	5.2-50	0	Aug. 1984
5.2-9	0	Aug. 1984	5.2-51	0	Aug. 1984
5.2-10	0	Aug. 1984	5.2-52	0	Aug. 1984

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Page	5.2-53	92-09	Sep. 1992	Fig.	5.2-11	0	Aug. 1984
	5.2-54	3	Aug. 1987		5.2-12	0	Aug. 1984
	5.2-55	0	Aug. 1984		5.2-15	0	Aug. 1984
	5.2-56	1	Aug. 1985		5.2-16	0	Aug. 1984
	5.2-57	0	Aug. 1984		5.2-17	0	Aug. 1984
	5.2-58	0	Aug. 1984		5.2-18	0	Aug. 1984
	5.2-59	0	Aug. 1984		5.2-19	0	Aug. 1984
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	5.2-61	0	Aug. 1984		5.2-21	0	Aug. 1984
	5.2-62	0	Aug. 1984		5.2-22	0	Aug. 1984
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	5.2-90	0	Aug. 1984		5.5-6	0	Aug. 1984
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5.5.7.3.3 Overpressurization Protection

Each inlet line to the RHRS is equipped with a pressure relief valve which protects the system from inadvertent overpressurization during plant cooldown or startup. Each valve has a relief flow capacity of 900 gpm at a set pressure of 450 psig. Analyses have been conducted to confirm the capabilty of the RHRS relief valve to prevent overpressurization of the RHRS. All credible events were examined for their potential to overpressurize the RHRS. These events included normal operating conditions, infrequency transients, and abnormal occurrences. The analyses confirmed that one relief valve has the capability to keep the RHRS maximum pressure within 10CFR50 Appendix G limits.

Each discharge line from the RHRS to the RCS is equipped with a pressure relief valve to relieve the maximum possible back-leakage through the valves separating the RHRS from the RCS. Each valve has a relief flow capacity of 20 gpm at a set pressure of 600 psig. These relief valves are located in the ECCS (see Figure 6.3-1).

The fluid discharged by the suction side relief valves is collected in the pressurizer relief tank. The fluid discharged by the discharge side relief valves is collected in the recycle holdup tanks of the boron recycle system.

5.5.7.3.4 Prevention of Exposure of the RHRS to Normal RCS Operating Pressure

The design of the RHRS includes two motor-operated gate isolation valves in series on each inlet line between the high pressure RCS and the lower pressure RHRS. They are closed during normal operation and are only opened for residual heat removal and RCS cold overpressure protection during a plant cooldown after the RCS pressure is reduced to approximately 425 psig or lower and the RCS temperature is reduced to approximately 350°F. During a plant startup the inlet isolation valves are shut after drawing a bubble in the pressurizer and prior to increasing RCS pressure above 425 psig. Power to the isolation valves is manually locked out during normal operation.

The two inlet isolation valves in each residual heat removal subsystem are independently and diversely interlocked with pressure signals to prevent their being opened whenever the RCS pressure is greater than approximately 425 psig. The autoclosure interlock of these valves has been removed as per WCAP-11835. An alarm has been added to alert the operator if the valves are not closed when the RCS pressure increases above the alarm 520 psig setpoint.

The use of two independently powered motor-operated valves in each of the two inlet lines, along with an independent and diverse pressure interlock to prevent them from being opened, and a RCS pressure high with RHR suction. Valves not closed alarm assures a design which meets applicable single failure criteria. Not only more than one single failure, but also different failure mechanisms, must be postulated to defeat the function of preventing possible exposure of the RHR system to normal RCS operating pressure. This protective interlock design, in combination with alarm, administrative controls and plant operating procedures, provide the means for accomplishing the protective function. For further information on the instrumentation and control features, see Section 7.6.2.

The RHR inlet isolation valves are provided with red-green position indicator lights on the main control board and a ESF monitor light for proper valve position. ESF monitor light is independent and diverse from valve position indication.

Isolation of the low pressure RHRS from the high pressure RCS is provided on the discharge side by two check valves in series. These check valves are located in the ECCS and their testing is described in Section 5.2.2.4.

5.5.7.3.5 Shared Function

The safety function performed by the RHRS is not compromised by its normal function which is normal plant cooldown. The valves associated with the RHRS are normally aligned to allow immediate use of this system in its engineered safety features mode of operation. The system has been designed in such a manner that two redundant flow circuits are available, assuring the availability of at least one train for safety purposes.

The normal plant cooldown function of the RHRS is accomplished through a suction line arrangement which is independent of any safety function. The cold leg cooldown return lines are arranged in parallel redundant circuits and are utilized also as the low head injection lines to the RCS. Utilization of the same return circuits for cold leg cooldown lends assurance to the proper functioning of these lines for engineered safety features purposes.

5.5.7.3.6 Radiological Consideration

The highest radiation levels experienced by the RHRS are those which would result from a loss of coolant accident. Following a loss of coolant accident, the RHRS is used as part of the ECCS. During the recirculation phase of emergency core cooling, the RHRS is designed to operate for up to a year pumping water from the reactor building sump, cooling it, and returning it to the reactor building to cool the core.

Since, except for some valves and piping, the RHRS is located outside the reactor building, most of the system is not subjected to the high levels of radioactivity in the reactor building post accident environment.

LIST OF EFFECTIVE PAGES (LEP)

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6.3-34	0	Aug. 1984	Page 6.4-1	0	Aug. 1984
6.3-35	0	Aug. 1984	6.4-2	0	Aug. 1984
6.3-36	0	Aug. 1984	6.4-3	0	Aug. 1984
6.3-37	0	Aug. 1984	6.4-4	3	Aug. 1987
6.3-38	0	Aug. 1984	6.4-5	0	Aug. 1984
6.3-39	0	Aug. 1984	6.4-6	0	Aug. 1984
6.3-40	3	Aug. 1987	6.4-7	0	Aug. 1984
6.3-41	3	Aug. 1987	6.4-8	0	Aug. 1984
6.3-42	0	Aug. 1984	6.4-9	0	Aug. 1984
6.3-43	0	Aug. 1984	6.4-10	0	Aug. 1984
6.3-44	0	Aug. 1984	6.4-11	0	Aug. 1984
6.3-45	0	Aug. 1984	6.4-12	0	Aug. 1984
6.3-46	3	Aug. 1987	6.4-13	0	Aug. 1984
6.3-47	3	Aug. 1987	6.4-14	0	Aug. 1984
6.3-48	3	Aug. 1987	6.5-1	0	Aug. 1984
6.3-49	0	Aug. 1984	6.5-2	0	Aug. 1984
6.3-50	4	Aug. 1988	6.5-3	0	Aug. 1984
6.3-51	3	Aug. 1987	6.5-4	0	Aug. 1984
6.3-52	3	Aug. 1987	6.5-5	0	Aug. 1984
6.3-53	7	Aug. 1991	6.5-6	0	Aug. 1984
6.3-54	3	Aug. 1987	6.5-7	0	Aug. 1984
6.3-55	94-09	Nov. 1994	6.5-8	0	Aug. 1984
6.3-56	94-09	Nov. 1994	6.5-9	0	Aug. 1984

14	13	12	11	10	9

SYSTEM DATA

NO.	GPM	PSIG	°F	BY	REMARKS
1	4900	26	120	KAC	
2	2450	31	120	KAC	
3	2500	46	120	KAC	INJECTION
	2500	46	196	KAC	RECIRC.
4	2500	230	120	KAC	INJECTION
	2500	230	196	KAC	RECIRC.
5	1214	97	120	KAC	INJECTION
	1214	97	196	KAC	RECIRC.
6	76	97	120	KAC	INJECTION
	76	97	196	KAC	RECIRC.
7	2500	36	196	KAC	
8	90	27	105	KAC	*
9	65	31	105	KAC	**
10	2500	50	120	KAC	
11	100	7	100		
12	100	42	100		
13	50	75	100		
14	2440	50	100		

* MAXIMUM FLOW WITH BOTH PUMPS OPERATING
** MAXIMUM FLOW WITH ONE PUMP OPERATING

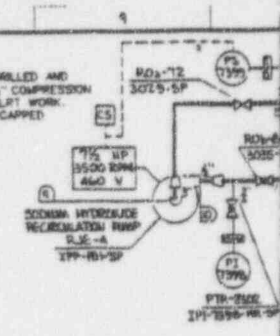
NOTES:
1. FOR PUMP CASING DRAINS FOR BOTH PUMPS SEE DETAIL "A"
2. SPECTACLE ORIFICE PLATES FOR TESTING ISOLATION CHECK VALVES.
4. [illegible] SHARED WITH SERVICE WATER FLOW INSTRUMENTATION FOR R.B. COOLING UNIT FLOW
5. THE FLANGE HAS BEEN DRILLED AND TAPPED TO ACCEPT A ¾" COMPRESSION FITTING TO FACILITATE LLRT WORK. THE FITTING SHOULD BE CAPPED AT OTHER TIMES.

(2 PLACES) (A) --- CONTAINMENT SPRAY ACTUATION TRAIN "A" REF. 1MS-41-011-8 (W DWG 108 D897 SH.8)

(2 PLACES) (B) --- CONTAINMENT SPRAY ACTUATION TRAIN "B" REF. 1MS-41-011-8 (W DWG 108 D897 SH.8)

(2 PLACES) (C) ALARM DEFEAT INTERLOCKED WITH PUMP BREAKER CIRCUIT.

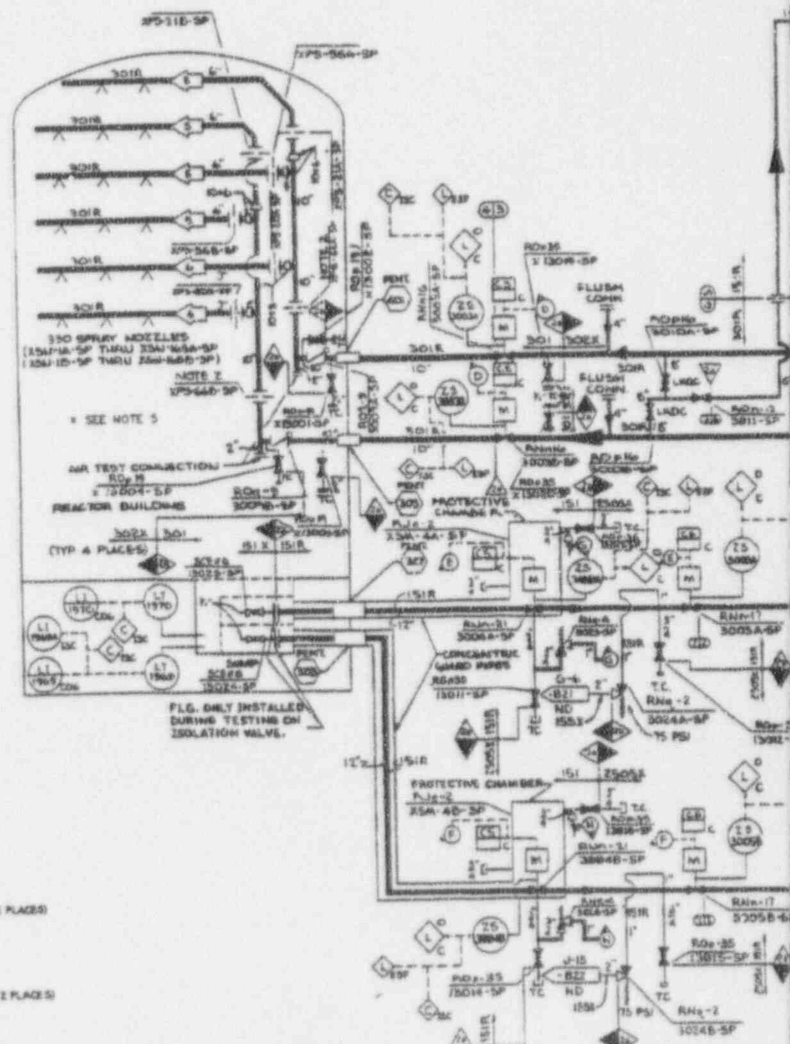
(4 PLACES) (D) PHASE "A" CONTAINMENT ISOLATION SIGNAL (OPEN VALVES)



SAFETY CLASS VERIFICATION

ORIGINATED BY	[signature]
REVIEWED BY	[signature]

NOTE:
A. TEMPORARY STRAINER FOR SYS. CLEAN UP TO BE REMOVED AFTER FINAL FLUSH.



RECIRCULATION SUMP AUTO SWITCHOVER LOGIC "TRAIN A" --- (E) (2 PLACES)

RECIRCULATION SUMP AUTO SWITCHOVER LOGIC "TRAIN B" --- (F) (2 PLACES)

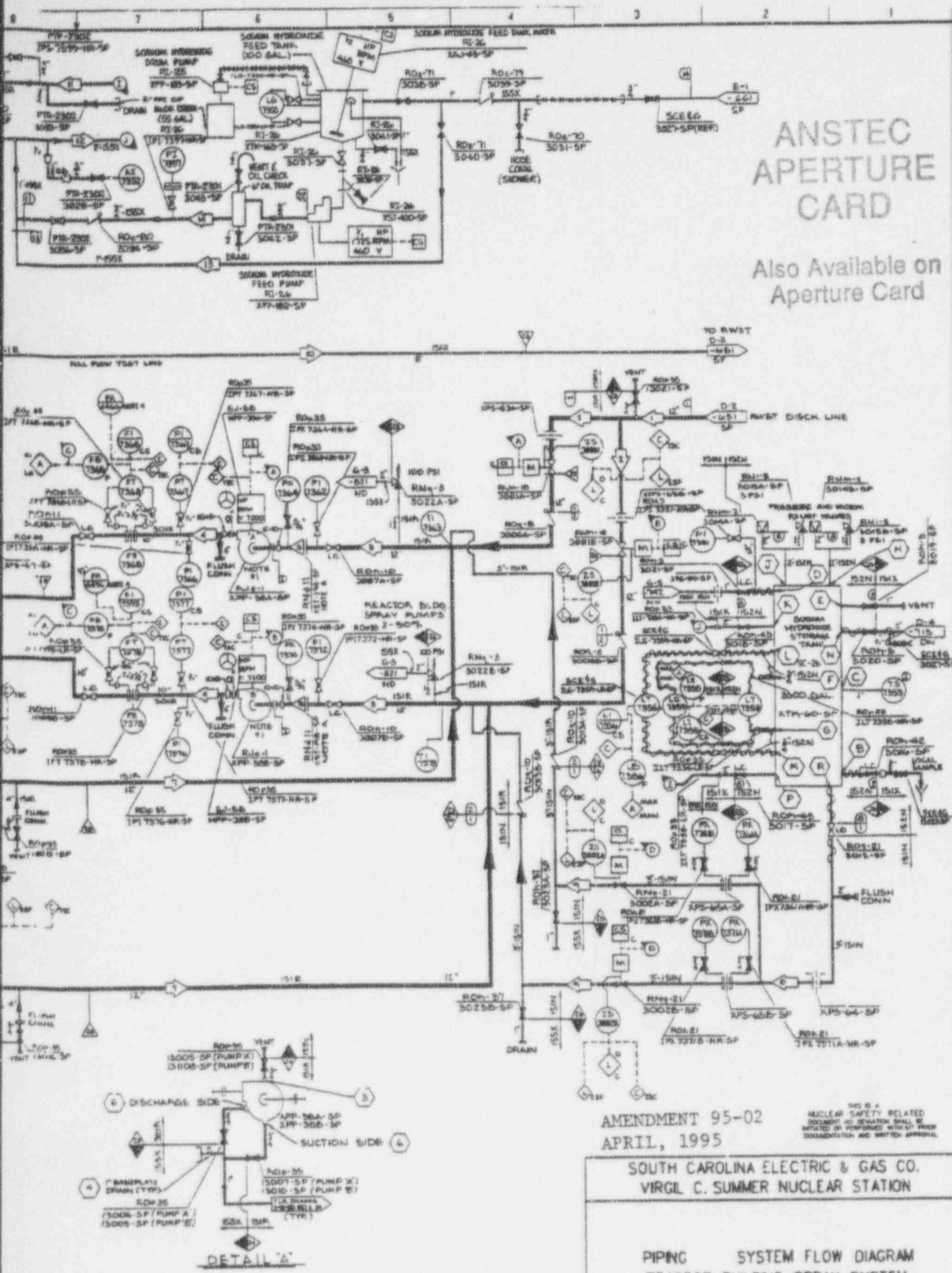
NOTE:
WHEN APPLICABLE, THE NORMAL DESIGN PRESSURES & TEMPERATURES (ESPECIALLY TEMPERATURES) ARE THE WORST CONDITIONS THAT EXIST DURING INJECTION PHASE OF SAFETY INJECTION. THE UPSET CONDITIONS ARE THE WORST CONDITIONS FOR RECIRCULATION.

DESIGN DATA

NO.	PSIG NORMAL	°F	PSIG EMERGENCY	°F		HYDROTEST PSIG	BY	CHKD	REMARKS
14	100	100	110	150		165			
13	100	100	110	150		165			
12	125 R	100	150	100		226			[illegible]
11	125 R	100	150	100		225			[illegible]
10	35	120	45	120		157.5			
9	7	120	5	120					
8	56	120	56	120		66	PLJ		[illegible]
7	ATM	120	70	250		88	[illegible]		
6	225	120	45	120		282	[illegible]		
5	45	120	45	120		57	BCD		
4	ATM	120	165	150		207	[illegible]		
3	225	120	245	250		307	BCD		
2	45	120	80	250		100	BCD		
1	30	120	35	170		44	BCD		

NOTE:
FLAG 6 "NORMAL" REPRESENTS THE DESIGN "IN SERVICE" PRESSURE. EMERGENCY 1 FOR THIS FLAG REPRESENTS AN ISOLATED CONDITION FROM PUMP DISCHARGE PRESSURE.

NOTE:
HYDROTEST TEMP. TO BE AT OR ABOVE 60°F FOR CARBON STEEL SUBSYSTEM, AND AT OR ABOVE 40°F FOR STAINLESS STEEL SUBSYSTEMS. HYDROSTATIC TESTING OF RING HEADERS & NOZZLES TO BE ACCOMPLISHED PER CODE N-58, PAR. 1619



AMENDMENT 95-02
APRIL, 1995

THIS IS A NUCLEAR SAFETY RELATED DOCUMENT. NO DEVIATION SHALL BE INITIATED OR PERFORMED WITHOUT PRIOR DOCUMENTATION AND WRITTEN APPROVAL.

SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

PIPING SYSTEM FLOW DIAGRAM
REACTOR BUILDING SPRAY SYSTEM
(D-302-661 REV. 27)
Figure 6.2-46

9506160376-03

LIST OF EFFECTIVE PAGES (LEP)

The following list delineates pages to Chapter 7 of the Virgil C. Summer Nuclear Station Final Safety Analysis Report which are currently in effect. The latest changes to pages and figures are indicated below by Amendment 94-08 in the Amendment column along with the amendment number and date for each page and figure included in the Final Safety Analysis Report.

Page/Fig. No.	Amend. No.	Date
Page 7-i	7	Aug. 1991
7-ii	94-08	Oct. 1994
7-iii	7	Aug. 1991
7-iiia	5	Aug. 1989
7-iv	94-08	Oct. 1994
7-v	94-08	Oct. 1994
7-vi	1	Aug. 1985
7-vii	0	Aug. 1984
7-viii	5	Aug. 1989
7-ix	94-08	Oct. 1994
7-x	94-08	Oct. 1994
7-xi	94-08	Oct. 1994
7-xii	95-02	Apr. 1995
7.1-1	0	Aug. 1984
7.1-2	0	Aug. 1984
7.1-3	0	Aug. 1984
7.1-4	0	Aug. 1984
7.1-5	94-08	Oct. 1984
7.1-6	6	Aug. 1990
7.1-7	0	Aug. 1984
7.1-8	0	Aug. 1984
7.1-9	0	Aug. 1984
7.1-10	0	Aug. 1984
7.1-11	0	Aug. 1984
7.1-12	0	Aug. 1984
7.1-13	0	Aug. 1984
7.1-14	0	Aug. 1984
7.1-15	0	Aug. 1984
7.1-16	7	Aug. 1991
7.1-17	0	Aug. 1984
7.1-18	0	Aug. 1984
7.1-19	0	Aug. 1984
7.1-20	0	Aug. 1984
7.1-21	7	Aug. 1991
7.1-21a	7	Aug. 1991
7.1-22	0	Aug. 1984
7.1-23	92-01	Jan. 1992
7.1-24	0	Aug. 1984
7.1-25	0	Aug. 1984
7.1-26	0	Aug. 1984
7.1-27	0	Aug. 1984
7.1-28	0	Aug. 1984
7.1-29	0	Aug. 1984
Page 7.1-30	0	Aug. 1984
7.1-31	0	Aug. 1984
7.1-32	0	Aug. 1984
7.1-33	0	Aug. 1984
7.1-34	0	Aug. 1984
7.1-35	0	Aug. 1984
7.1-36	0	Aug. 1984
7.1-37	0	Aug. 1984
7.1-38	94-08	Oct. 1994
7.1-39	94-08	Oct. 1994
7.1-40	0	Aug. 1984
7.1-41	0	Aug. 1984
7.1-42	0	Aug. 1984
7.1-43	0	Aug. 1984
Fig. 7.1-1	2	Aug. 1986
Page 7.2-1	2	Aug. 1986
7.2-2	2	Aug. 1986
7.2-3	0	Aug. 1984
7.2-4	0	Aug. 1984
7.2-5	0	Aug. 1984
7.2-6	0	Aug. 1984
7.2-7	0	Aug. 1984
7.2-8	1	Aug. 1985
7.2-9	0	Aug. 1984
7.2-10	4	Aug. 1988
7.2-11	7	Aug. 1991
7.2-12	4	Aug. 1988
7.2-12a	6	Aug. 1990
7.2-13	6	Aug. 1990
7.2-14	6	Aug. 1990
7.2-15	6	Aug. 1990
7.2-16	6	Aug. 1990
7.2-17	6	Aug. 1990
7.2-18	0	Aug. 1984
7.2-19	0	Aug. 1984
7.2-20	0	Aug. 1984
7.2-21	0	Aug. 1984
7.2-22	0	Aug. 1984
7.2-23	0	Aug. 1984
7.2-24	2	Aug. 1986
7.2-25	2	Aug. 1986
7.2-26	2	Aug. 1986

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Page 7.2-26a	2	Aug. 1986
7.2-27	0	Aug. 1984
7.2-28	0	Aug. 1984
7.2-29	7	Aug. 1991
7.2-30	7	Aug. 1991
7.2-31	0	Aug. 1984
7.2-32	0	Aug. 1984
7.2-33	0	Aug. 1984
7.2-34	4	Aug. 1988
7.2-35	0	Aug. 1984
7.2-36	1	Aug. 1985
7.2-37	0	Aug. 1984
7.2-38	1	Aug. 1985
7.2-39	7	Aug. 1991
7.2-40	7	Aug. 1991
7.2-41	7	Aug. 1991
7.2-42	0	Aug. 1984
7.2-43	0	Aug. 1984
7.2-44	6	Aug. 1990
7.2-45	6	Aug. 1990
7.2-46	6	Aug. 1990
Fig. 7.2-1(1 of 15)	0	Aug. 1984
7.2-1(2 of 15)	2	Aug. 1986
7.2-1(3 of 15)	4	Aug. 1988
7.2-1(4 of 15)	1	Aug. 1985
7.2-1(5 of 15)	0	Aug. 1984
7.2-1(6 of 15)	0	Aug. 1984
7.2-1(7 of 15)	0	Aug. 1984
7.2-1(8 of 15)	0	Aug. 1984
7.2-1(9 of 15)	7	Aug. 1991
7.2-1(10 of 15)	7	Aug. 1991
7.2-1(11 of 15)	7	Aug. 1991
7.2-1(12 of 15)	0	Aug. 1984
7.2-1(13 of 15)	0	Aug. 1984
7.2-1(14 of 15)	0	Aug. 1984
7.2-1(15 of 15)	1	Aug. 1985
7.2-2	0	Aug. 1984
7.2-3	2	Aug. 1986
Page 7.3-1	0	Aug. 1984
7.3-2	0	Aug. 1984
7.3-3	0	Aug. 1984
7.3-4	0	Aug. 1984
7.3-5	0	Aug. 1984
7.3-6	0	Aug. 1984
7.3-7	0	Aug. 1984
7.3-8	94-08	Oct. 1994
7.3-9	0	Aug. 1984
7.3-10	0	Aug. 1984
7.3-11	0	Aug. 1984
7.3-12	7	Aug. 1991
7.3-13	0	Aug. 1984
Page 7.3-14	0	Aug. 1984
7.3-15	0	Aug. 1984
7.3-16	0	Aug. 1984
7.3-17	7	Aug. 1991
7.3-17a	7	Aug. 1991
7.3-18	0	Aug. 1984
7.3-19	94-08	Oct. 1994
7.3-20	0	Aug. 1984
7.3-21	0	Aug. 1984
7.3-22	0	Aug. 1984
7.3-23	5	Aug. 1989
7.3-24	0	Aug. 1984
7.3-25	3	Aug. 1987
7.3-26	0	Aug. 1984
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7.3-30	0	Aug. 1984
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7.3-33	0	Aug. 1984
7.3-34	7	Aug. 1991
7.3-35	0	Aug. 1984
7.3-36	0	Aug. 1984
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7.3-38	0	Aug. 1984
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7.3-40	3	Aug. 1987
7.3-41	3	Aug. 1987
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7.3-47	0	Aug. 1984
Fig. 7.3-1	93-05	May 1993
7.3-2	0	Aug. 1984
7.3-3	0	Aug. 1984
Page 7.4-1	0	Aug. 1984
7.4-2	0	Aug. 1984
7.4-3	0	Aug. 1984
7.4-4	4	Aug. 1988
7.4-5	4	Aug. 1988
7.4-6	0	Aug. 1984
7.4-7	1	Aug. 1985
7.4-8	1	Aug. 1985
7.4-9	0	Aug. 1984
7.4-10	0	Aug. 1984
7.4-11	0	Aug. 1984
7.4-12	0	Aug. 1984

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7.4-14	0	Aug. 1984
7.4-15	0	Aug. 1984
7.4-16	0	Aug. 1984
7.4-17	0	Aug. 1984
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7.4-20	0	Aug. 1984
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7.4-23	0	Aug. 1984
7.4-24	0	Aug. 1984
7.4-25	0	Aug. 1984
Fig. 7.4-1	4	Aug. 1988
Notes to		
Fig. 7.4-1(1 of 3)	4	Aug. 1988
7.4-1(2 of 3)	0	Aug. 1984
7.4-1(3 of 3)	0	Aug. 1984
Fig. 7.4-2	0	Aug. 1984
Page 7.5-1	94-08	Oct. 1994
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7.5-4	Deleted	
7.5-5	Deleted	
7.5-6	Deleted	
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7.5-10	Deleted	
7.5-11	Deleted	
7.5-12	Deleted	
7.5-13	Deleted	
7.5-14	94-08	Oct. 1994
7.5-15	Deleted	
7.5-16	Deleted	
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7.5-18	Deleted	
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7.5-20	Deleted	
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7.5-45	Deleted	
7.5-46	Deleted	
7.5-47	Deleted	
7.5-48	Deleted	
7.5-49	Deleted	
7.5-50	94-08	Oct. 1994
7.5-51	94-08	Oct. 1994
7.5-52	94-08	Oct. 1994
7.5-53	94-08	Oct. 1994
7.5-54	94-08	Oct. 1994
7.5-55	94-08	Oct. 1994
7.5-56	94-08	Oct. 1994
7.5-57	94-08	Oct. 1994
7.5-58	94-08	Oct. 1994
Fig. 7.5-1	94-02	Feb. 1994
7.5-2	0	Aug. 1984
7.5-3	6	Aug. 1990
7.5-4	0	Aug. 1984
7.5-5	3	Aug. 1987
Page 7.6-1	92-02	Feb. 1992
7.6-2	92-02	Feb. 1992
7.6-3	6	Aug. 1990
7.6-4	0	Aug. 1984
7.6-5	0	Aug. 1984
7.6-6	1	Aug. 1985
7.6-7	1	Aug. 1985
7.6-8	1	Aug. 1985
7.6-9	1	Aug. 1985
7.6-10	1	Aug. 1985
7.6-11	3	Aug. 1987
7.6-12	1	Aug. 1985
7.6-13	1	Aug. 1985
Fig. 7.6-1	6	Aug. 1990
7.6-1a	6	Aug. 1990
7.6-1b	6	Aug. 1990
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Page/Fig. No.	Amend. No.	Date
Fig. 7.6-3(Deleted)	1	Aug. 1985
7.6-3a	0	Aug. 1984
7.6-4	0	Aug. 1984
7.6-5	0	Aug. 1984
7.6-6	0	Aug. 1984
7.6-7	0	Aug. 1984
7.6-8	0	Aug. 1984
7.6-9	0	Aug. 1984
7.6-10	0	Aug. 1984
Page 7.7-1	2	Aug. 1986
7.7-2	0	Aug. 1984
7.7-3	7	Aug. 1991
7.7-4	0	Aug. 1984
7.7-5	0	Aug. 1984
7.7-6	0	Aug. 1984
7.7-7	0	Aug. 1984
7.7-8	7	Aug. 1991
7.7-9	0	Aug. 1984
7.7-10	0	Aug. 1984
7.7-11	6	Aug. 1990
7.7-12	0	Aug. 1984
7.7-13	7	Aug. 1991
7.7-14	1	Aug. 1985
7.7-15	0	Aug. 1984
7.7-16	0	Aug. 1984
7.7-17	0	Aug. 1984
7.7-18	0	Aug. 1984
7.7-19	0	Aug. 1984
7.7-20	7	Aug. 1991
7.7-20a	7	Aug. 1991
7.7-21	0	Aug. 1984
7.7-22	0	Aug. 1984
7.7-23	0	Aug. 1984
7.7-24	0	Aug. 1984
7.7-25	95-02	Apr. 1995
7.7-26	95-02	Apr. 1995
7.7-27	95-02	Apr. 1995
7.7-28	95-02	Apr. 1995
7.7-29	4	Aug. 1988
7.7-30	95-02	Apr. 1995
7.7-31	0	Aug. 1984
7.7-32	0	Aug. 1984
7.7-33	0	Aug. 1984
Fig. 7.7-1	7	Aug. 1991
7.7-2	7	Aug. 1991
7.7-3	0	Aug. 1984
7.7-4	6	Aug. 1990
7.7-5	7	Aug. 1991
7.7-6	0	Aug. 1984
7.7-7	0	Aug. 1984
7.7-8	7	Aug. 1991

Page/Fig. No.	Amend. No.	Date
Fig. 7.7-9	0	Aug. 1984
7.7-10	0	Aug. 1984
7.7-11	0	Aug. 1984
7.7-12	0	Aug. 1984
7.7-13	0	Aug. 1984
7.7-14	0	Aug. 1984
7.7-15	0	Aug. 1984
Page 7.8-1	5	Aug. 1989
7.8-2	5	Aug. 1989
7.8-3	5	Aug. 1989
7.8-4	5	Aug. 1989
7.8-5	5	Aug. 1989
7.8-6	5	Aug. 1989
7.8-7	5	Aug. 1989
7.8-8	5	Aug. 1989
7.8-9	5	Aug. 1989
Fig. 7.8-1	5	Aug. 1989

7.7.3 TECHNICAL SUPPORT COMPLEX (TSC)

7.7.3.1 Description

In response to the recommendations issued post-TMI (e.g., NUREG-0578, NUREG-0585), South Carolina Gas and Electric will incorporate into the Virgil Summer Nuclear Power Plant a Technical Support Complex (TSC). This complex will improve the information available to operating and technical personnel. The 3 elements of the TSC are:

1. ON-SITE Technical Support Center (OSTS).
2. Bypass and inoperable Status Indication (BISI)
3. Safety Parameter Display System (SPDS)

The ON-SITE Technical Support Center is at a location adjacent to but separate from the control room. Key plant information can be displayed in and transmitted from the OSTS to those technical personnel who are responsible for engineering support during post accident recovery. The center has the capability to receive, process, and display analog and digital signals from both the NSSS and BOP parts of the plant.

Bypass and Inoperable Status Indication provides the operator with a clear indication of the availability of plant safety systems. It provides the operator and OTSC personnel with a continuous systems level indication of bypasses or inoperable status of the systems comprising the Engineered Safety Features.

The purpose of the safety parameter display system (SPDS) is to assist operating personnel in evaluating the safety status of the plant. The SPDS provides a continuous indication of plant parameters or derived variables which are representative of the safety status of the plant during both normal and emergency use. The primary function of the SPDS is to aid in the rapid detection of abnormal operating conditions. Secondary functions include analyzing and diagnosing the abnormality, and providing an informational basis for corrective action execution.

The TSC is located in the Control Building, elevation 463'0", separate from but next to, the control room and is capable of accommodating a minimum of 25 persons (see Figure 1.2-15). Access to the control room is available through connecting doors between the TSC and the control room. Print storage and plant information will be available in the TSC. The TSC contains the following areas:

1. Data Display Room - This contains the communications and monitoring equipment necessary to provide the engineering and management support functions during an accident condition. The Communications, monitoring, and display equipment in this area includes:

   a. Communications Network including plant telephones, dedicated lines to external parties, and radio systems.

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2. <u>SCE&G Co. Technical Area</u> - Office and communications facilities for SCE&G assigned personnel.

3. <u>NRC Office</u> - Office and communications for five (5) NRC assigned personnel.

4. <u>Operations Conference Room</u> - Conference Room facilities.

5. <u>Westinghouse Office</u> - Office and communications facilities for plant personnel to communicate with Westinghouse.

6. <u>GAI Office</u> - Office and communications facilities for plant personnel to communicate with GAI.

The TSC is habitable to the same environmental conditions as the control room for postulated accident conditions. (The TSC has the same air supply and exhaust system as the control room, (see Section 9.4.1).

Installed radiation monitors (RM-G1 and RM-A1) will detect direct radiation and airborne radioactive contaminants for both the control room and the TSC. The monitors will alarm when high radiation levels are being approached. SCE&G Co. has established in the plant's emergency procedures the necessary precautionary protective measures to be taken for high levels of radiation.

7.7.3.2 Analysis

1. The TSC is located on elevation 463'0" of the Control Building, which is a Seismic Category I structure.

2. The environmental conditions within the TSC are the same as those in the control room.

3. Installed radiation monitors (RM-G1 and RM-A1) will detect direct radiation and airborne radioactive contaminents for both the control room and the TSC. The monitors will alarm when high radiation levels are being approached.

4. Equipment within the TSC is designed to assure reliability in the recovery of data.

5. The TSC and equipment located in the TSC are not required to initiate actuation of safety related systems. Loss of the TSC or any equipment within the TSC will not prevent safe shutdown of the plant.

7.7.4 CRITICAL SYSTEMS LEAK MONITORING SYSTEM

7.7.4.1 Description

An acoustical type leak monitoring system is provided to detect through the wall and valve seat leakage. Sensors for this system are located in the following locations:

a. Downstream of the pressurizer safety valves

b. Downstream of the reactor vessel head vent valves

c. On the feedwater lines to the steam generator

d. On the emergency feedwater lines to the steam generator.

The sensors for the system are located inside the reactor building, with all conditioning components located outside.

A leak through a valve seat generates metal borne acoustic waves which are detected by acoustic transducers mounted on the piping adjacent to the valves. The transducers convert the acoustic waves into electrical signals which are amplified and then transmitted to the leak detection system.

The control room is provided with indication which relates to the size of the leak and an alarm which alerts the operator of the occurrence of a leak. The system is provided with multiple sensors to enable the plant operator to determine which pressurizer safety valve or reactor vessel head vent valve is open. Multiple sensors also aide in determining the approximate location of a through wall leak in the feedwater or emergency feedwater lines to the steam generators.

7.7.4.2 Analysis

The critical systems leak monitoring system is powered from a vital instrument bus. The system will be qualified to IEEE 323 and IEEE 344. Seismic and environmental qualification is discussed in Section 3.10 and 3.11, respectively.

7.7.5 REACTOR VESSEL LEVEL INSTRUMENTATION SYSTEM

This section deleted by Amendment 4.

7.7.6 CORE SUBCOOLING MONITOR

This section deleted by Amendment 1, August 1985.

7.7.7 REFERENCES

1. Lipchak, J. B. and Stokes, R. A., "Nuclear Instrumentation System," WCAP-8255, January, 1974.

2. "Calculation of Distance Factors for Power and Test Reactor Sites," J. J. Dinunno, et. al, U. S. Atomic Energy Commission, Washington, D. C., March, 1962.

LIST OF FIGURES (Cont.)

LIST OF EFFECTIVE PAGES (LEP)

The following list delineates pages to Chapter 8 of the Virgil C. Summer Nuclear Station Final Safety Analysis Report which are currently in effect. The latest changes to pages and figures are indicated below by Amendment 94-05 in the Amendment column along with the amendment number and date for each page and figure included in the Final Safety Analysis Report.

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8-ii	3	Aug. 1987	Fig. 8.2-5(Deleted)	0	Aug. 1984
8-iii	5	Aug. 1989	8.2-6(Deleted)	0	Aug. 1984
8-iv	0	Aug. 1984	8.2-7(Deleted)	0	Aug. 1984
8-v	5	Aug. 1989	Page 8.3-1	0	Aug. 1984
8-vi	0	Aug. 1984	8.3-2	93-05	May 1993
8-vii	0	Aug. 1984	8.3-3	94-05	June 1993
8-viia	3	Aug. 1987	8.3-4	2	Aug. 1986
8-viii	95-02	Apr. 1995	8.3-5	93-05	May 1993
8-ix	93-10	Dec. 1993	8.3-6	93-05	May 1993
8-x	93-06	Jul. 1993	8.3-7	6	Aug. 1990
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8.1-2	4	Aug. 1988	8.3-9	93-05	May 1993
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8.1-6	0	Aug. 1984	8.3-13	92-02	Feb. 1992
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8.1-9	0	Aug. 1984	8.3-16	0	Aug. 1984
Fig. 8.1-1	5	Aug. 1989	8.3-17	0	Aug. 1984
Page 8.2-1	93-05	May 1993	8.3-18	1	Aug. 1985
8.2-2	93-05	May 1993	8.3-19	0	Aug. 1984
8.2-3	93-05	May 1993	8.3-20	0	Aug. 1984
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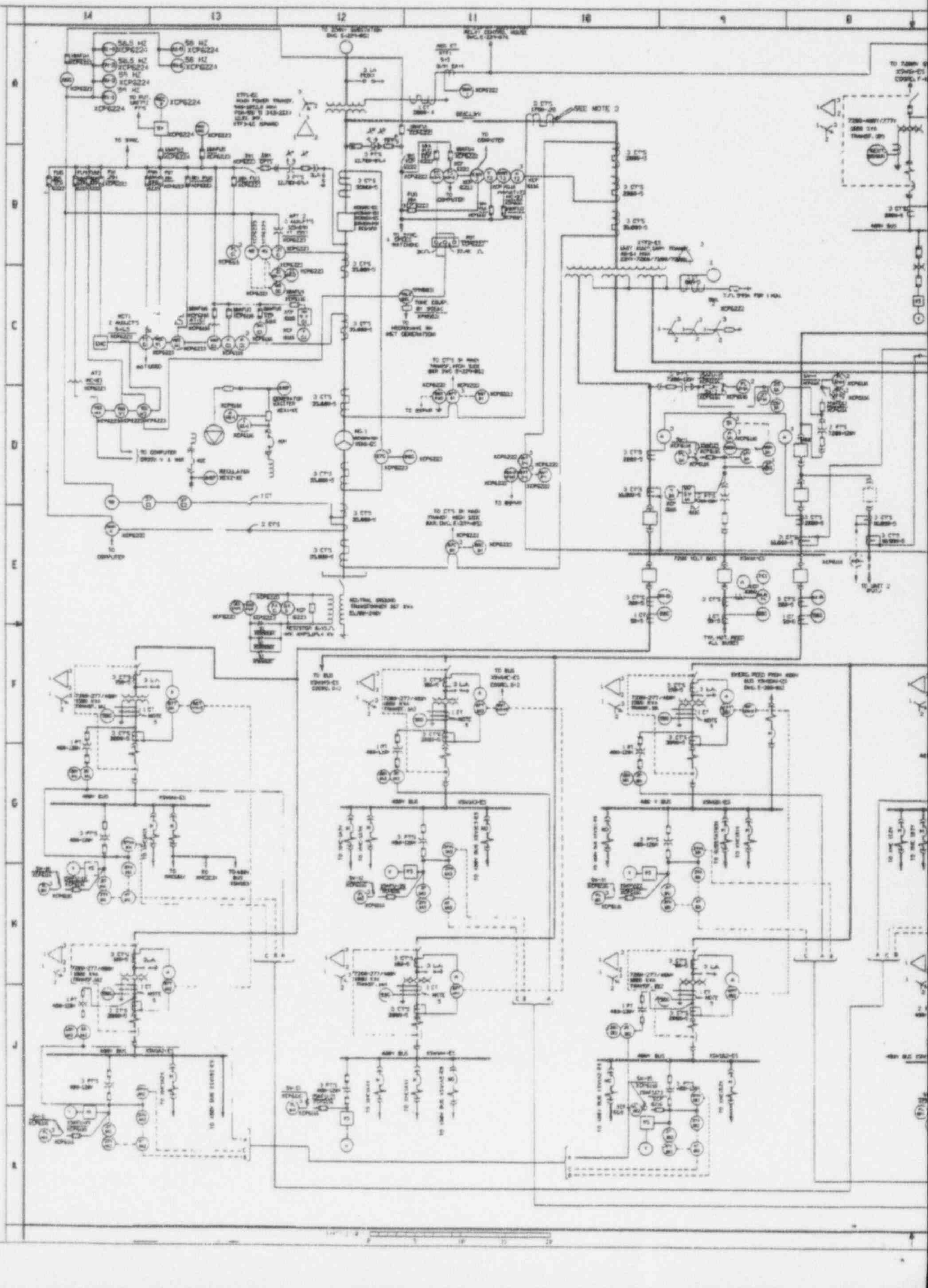
8.2-2c	5	Aug. 1989	8.3-32	92-02	Feb. 1992
8.2-2d	0	Aug. 1984	8.3-33	92-02	Feb. 1992
8.2-3	95-02	Apr. 1995	8.3-34	3	Aug. 1987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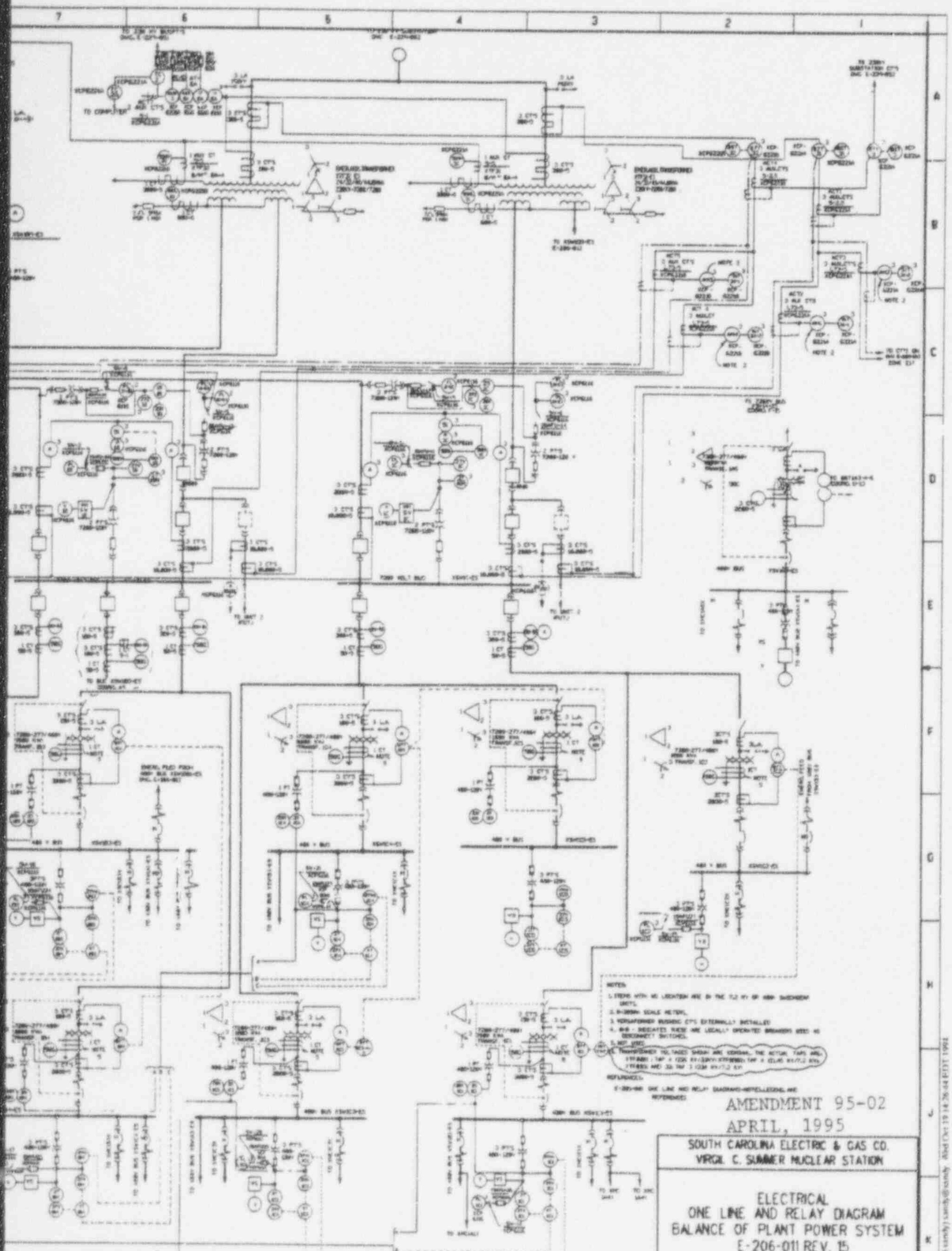

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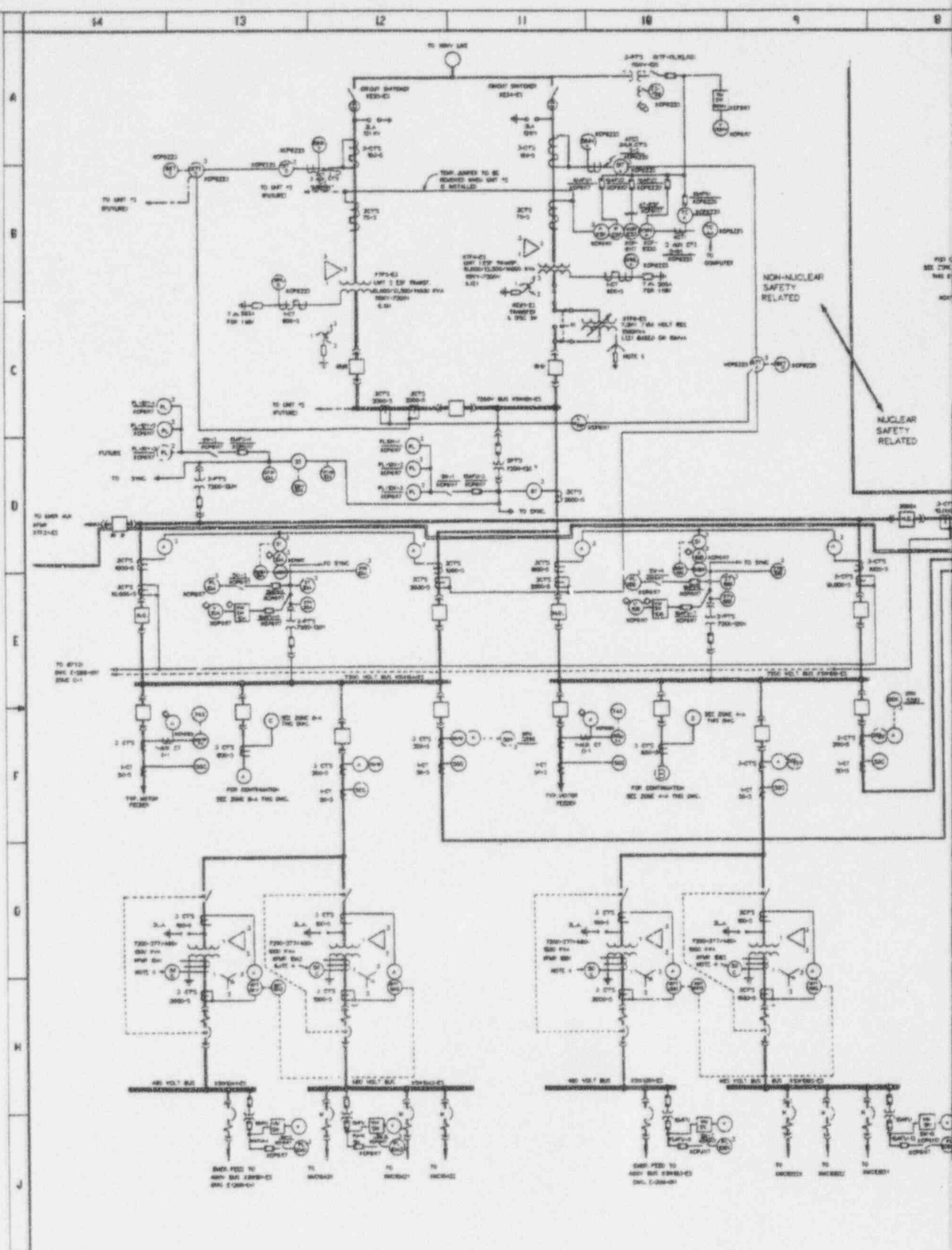

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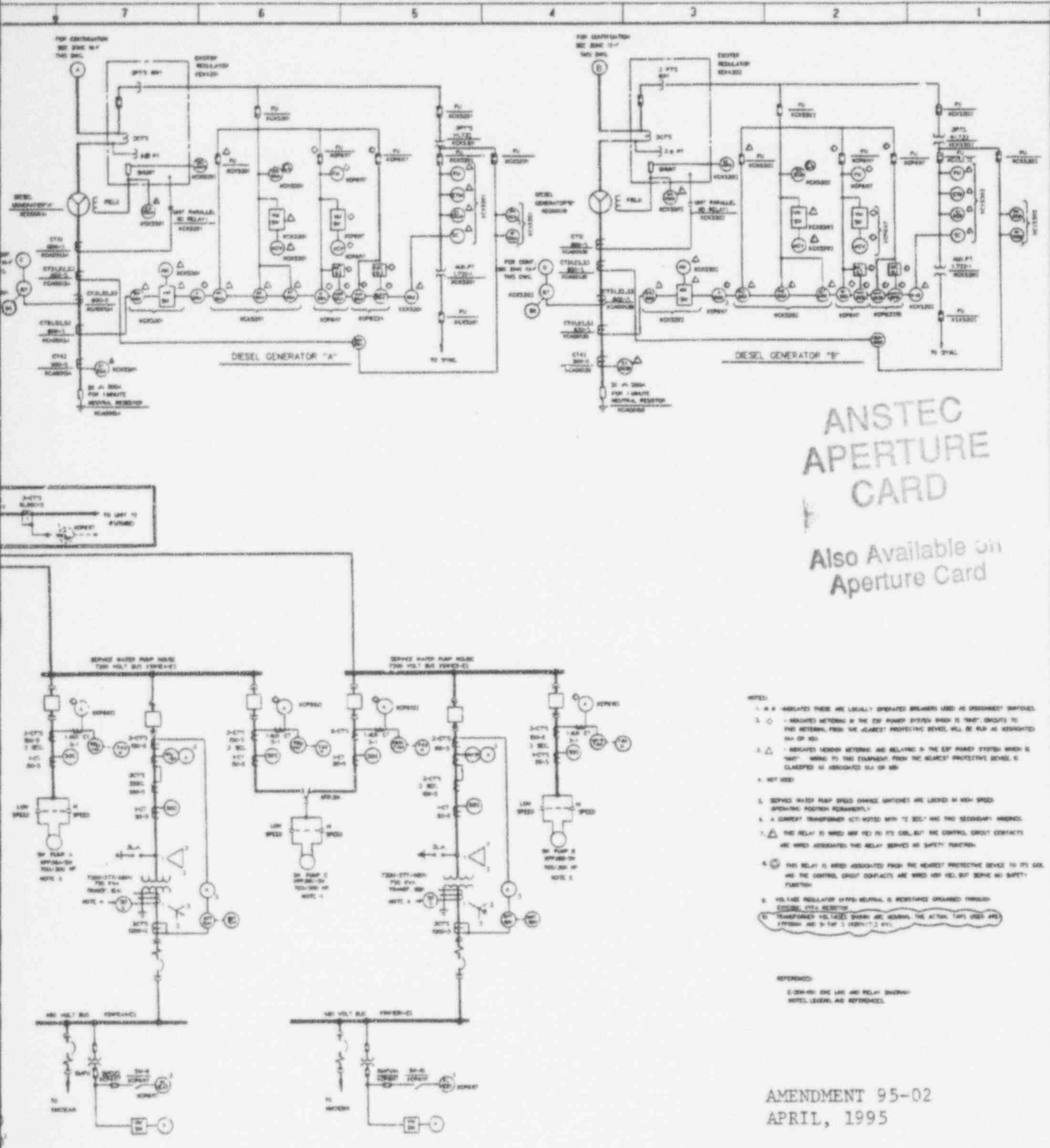

AMENDMENT 95-02
APRIL, 1995

SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

ELECTRICAL
ONE LINE AND RELAY DIAGRAM
ENGINEERED SAFETY FEATURES POWER SYSTEM
E-206-012 REV. 26
Figure 8.2-4

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LIST OF EFFECTIVE PAGES (LEP)

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9.4-3	94-10	Dec. 1994	9.5-18	0	Aug. 1984
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9.4-5	94-10 (Corr)	Dec. 1994	9.5-20	0	Aug. 1984
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9.4-9	93-09	Nov. 1993	9.5-24	0	Aug. 1984
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9.4-10a	93-03	Mar. 1993	9.5-26	0	Aug. 1984
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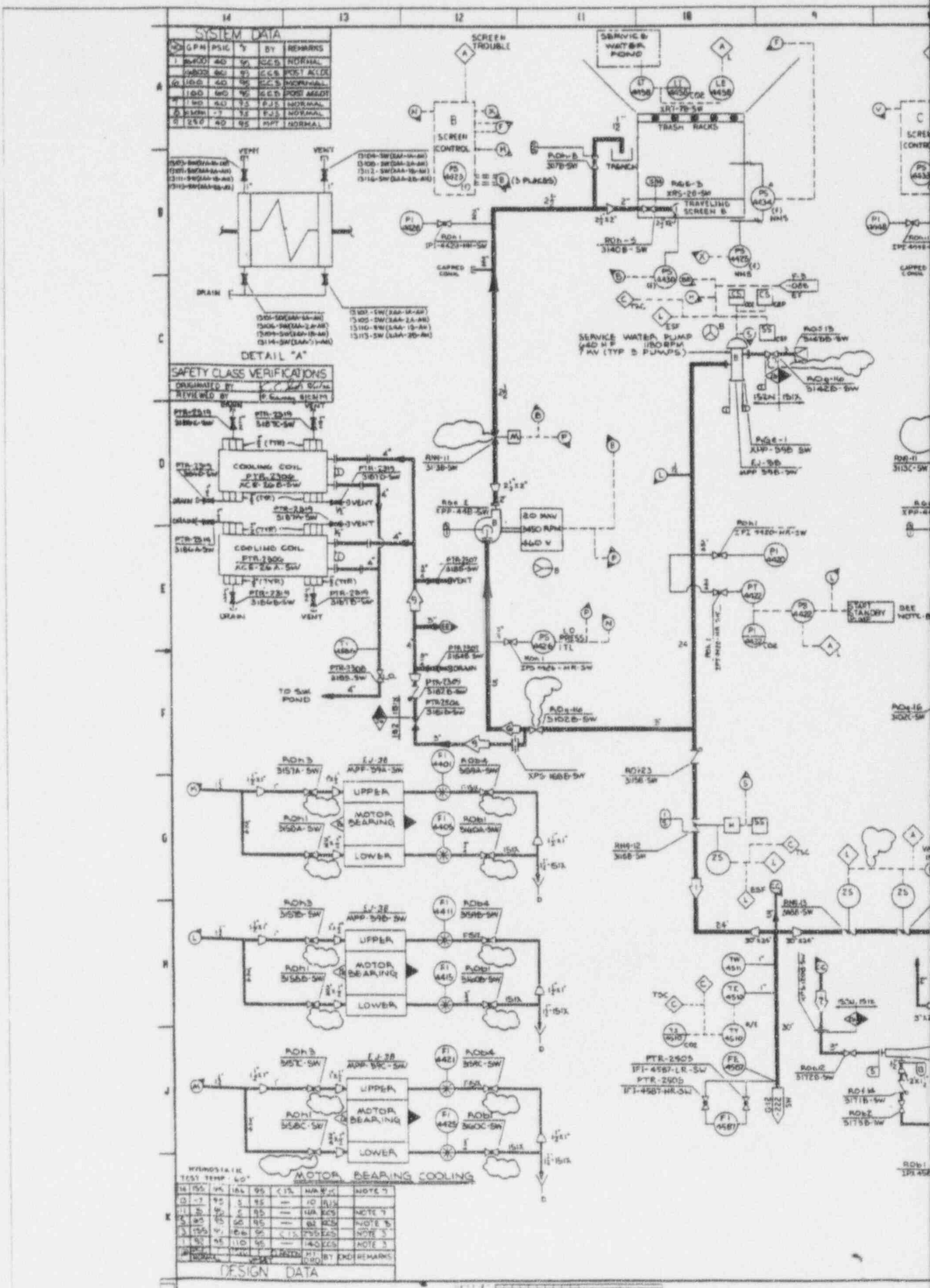
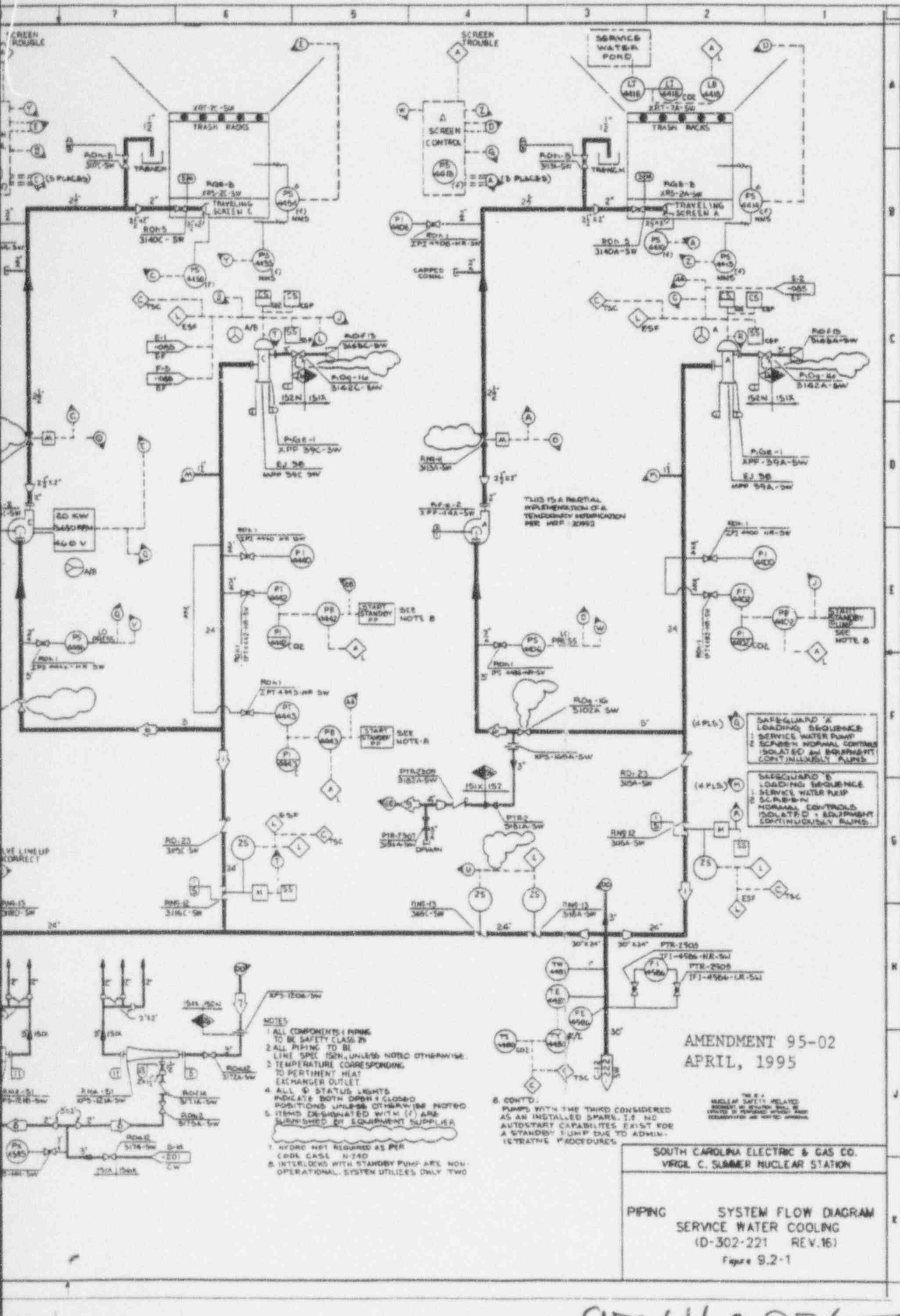


SYSTEM DATA
SCREEN TROUBLE
SERVICE WATER POND
TRASH RACKS
TRAVELING SCREEN B
SCREEN CONTROL
DETAIL "A"
SAFETY CLASS VERIFICATIONS
COOLING COIL
SERVICE WATER PUMP
TO SW POND
UPPER
MOTOR BEARING
LOWER
MOTOR BEARING COOLING
DESIGN DATA

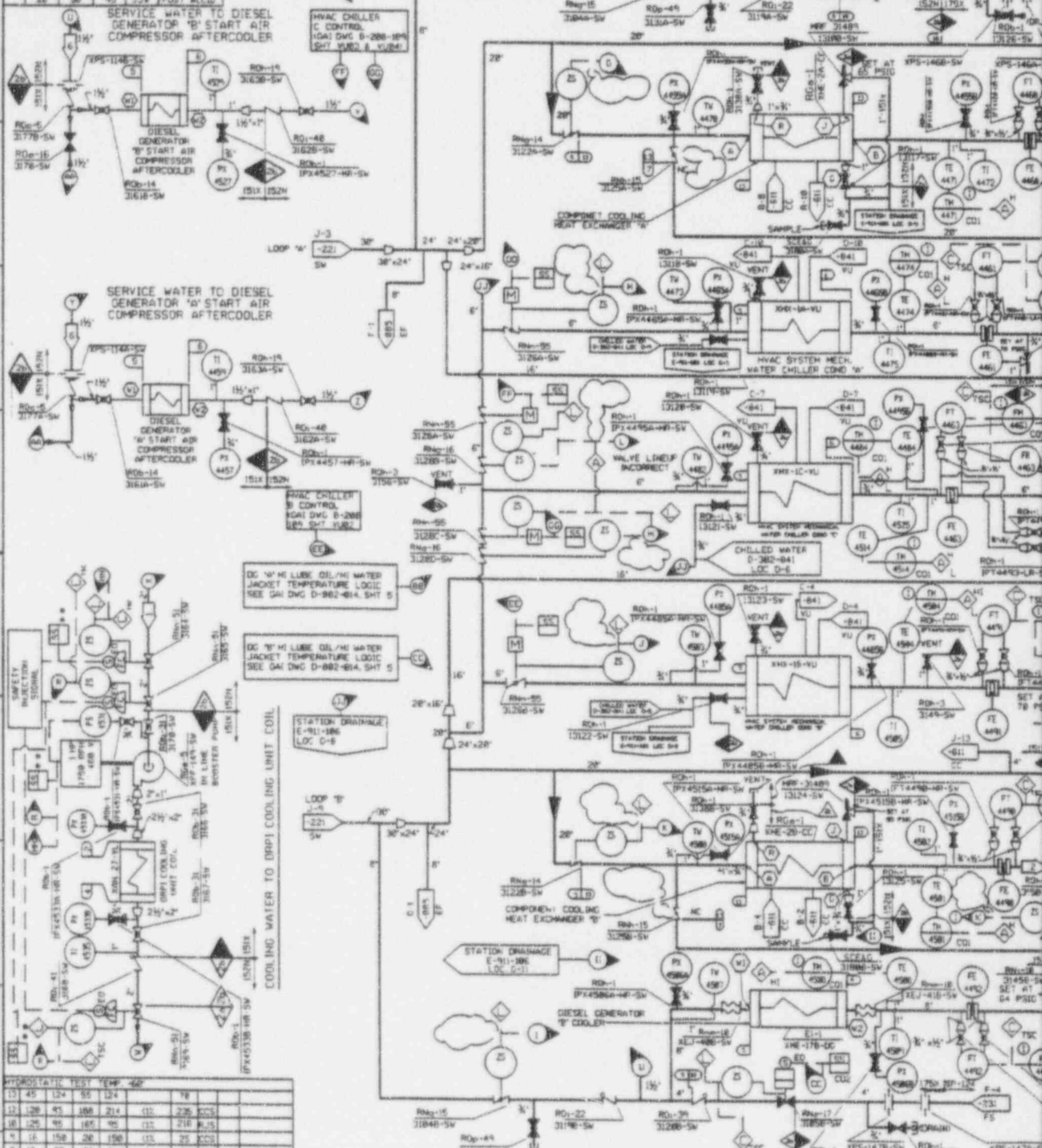


9506160376-06

	14	13	12	11	10	9	8

SYSTEM DATA

(ID)	GPM	PSID	°F	BY	REMARKS
1	35	50	85	JJV	NORMAL
2	13,750	35	124		NORMAL
	9000	50	124		SHUTDOWN & BP POST ACCID
3	1050	35	116		NORMAL
	1000	50	116		POST ACCID
4	1000	35	105		NORMAL
	990	50	105		POST ACCID
5	2500	160	95		BLACK OUT
6	20	35	95	JJV	NORMAL
	20	50	95	JJV	POST ACCID

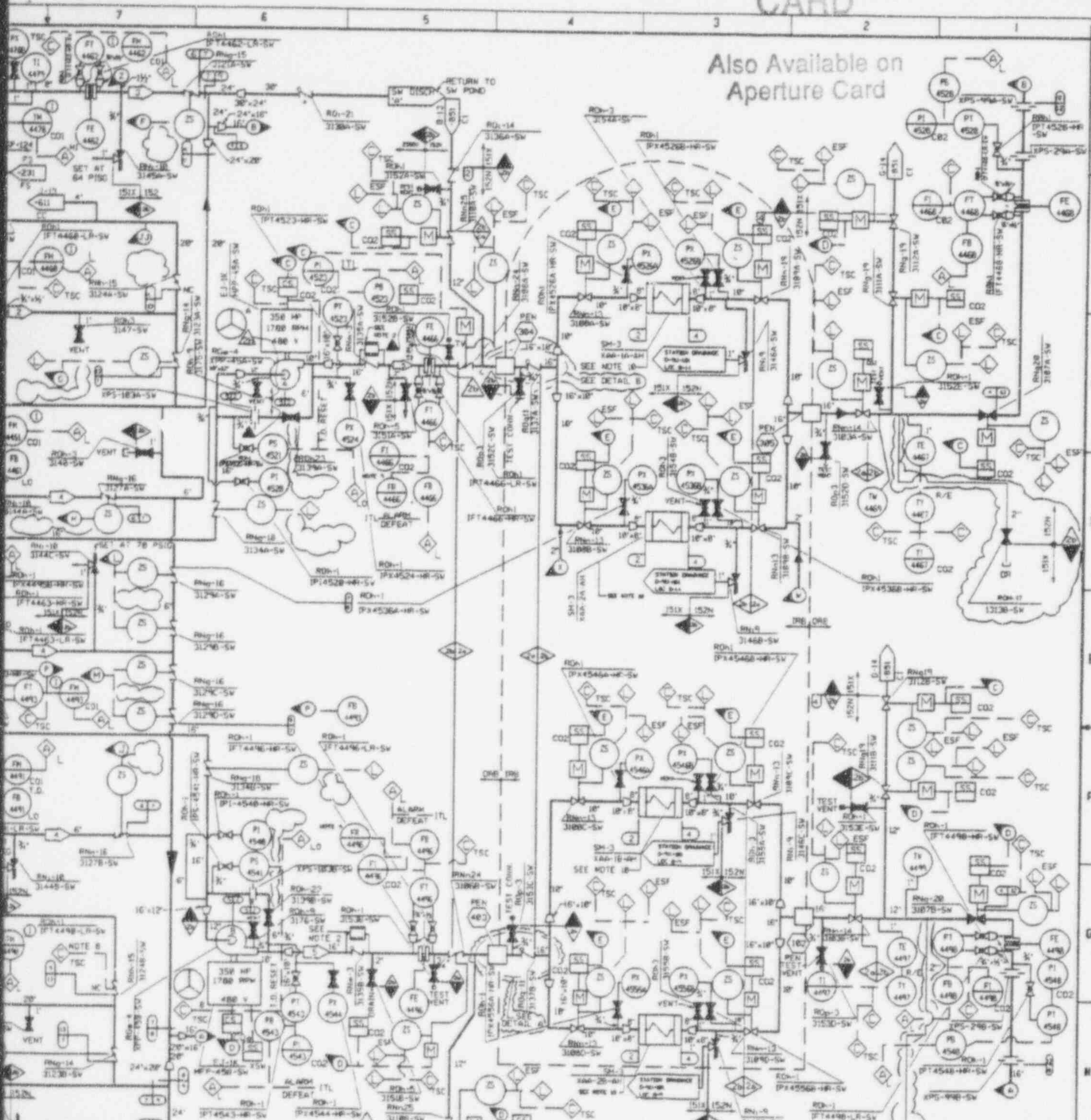


HYDROSTATIC TEST TEMP. 60°

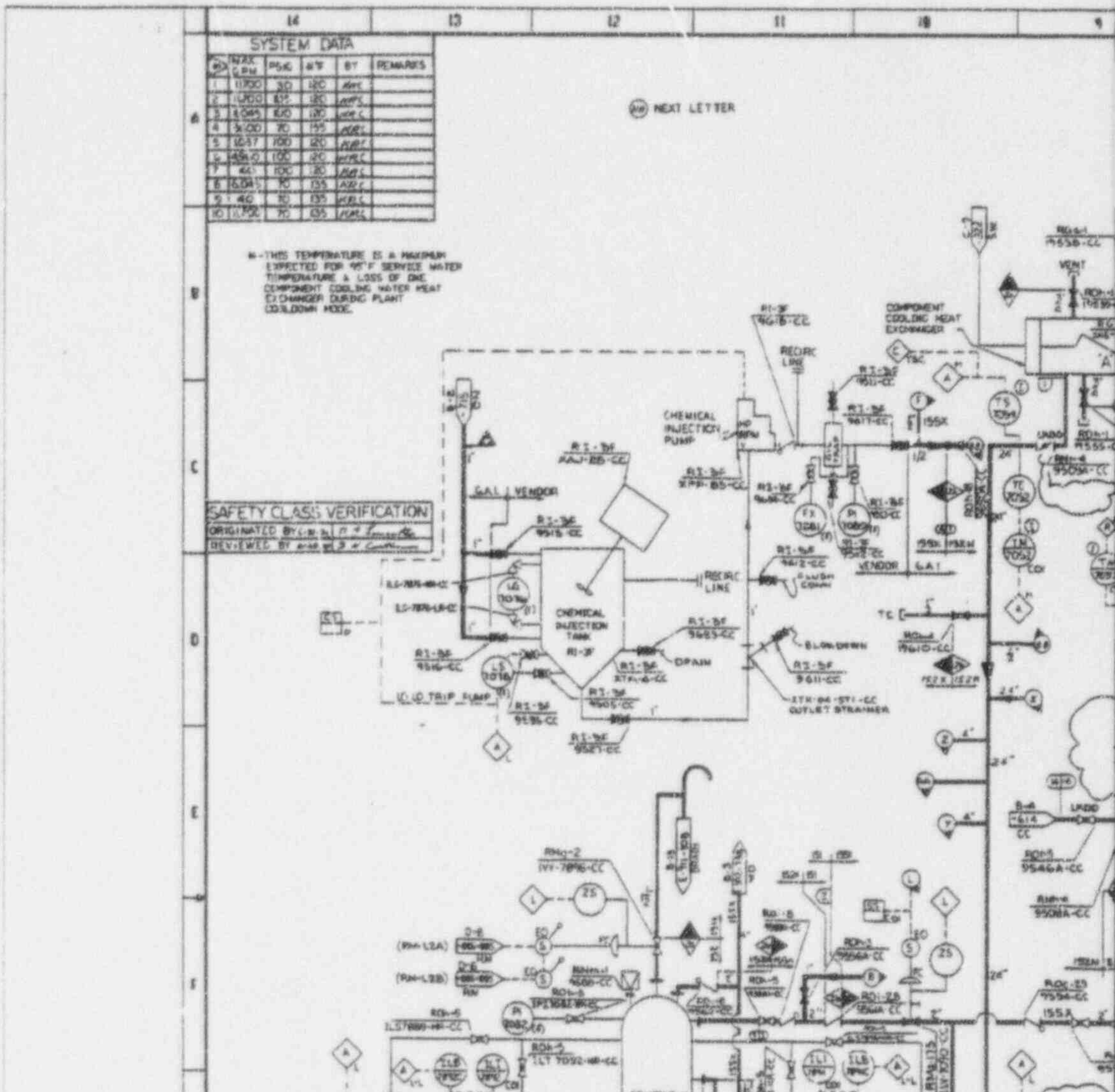
13	45	124	55	124		78			
12	120	95	188	214	(1)	235	CCS		
10	125	95	165	95	(1)	218	RJS		
9	16	150	20	150	(1)	25	CCS		
8	16	95	20	214	(1)	25	CCS		
7	16	124	20	124		25	CCS		
6	65	124	65	124		82	CCS		
5	65	95	65	95		82	CCS		NOTE 3
4	120	95	185	214	(1)	235	CCS		NOTE 3
2	160	95	185	95	(1)	235	CCS		
	PSIG	F	PSIG	F	DURATION	HYDRO	BY	CHKD	REMARKS
(ID)	NORMAL		UPSET						

DESIGN DATA

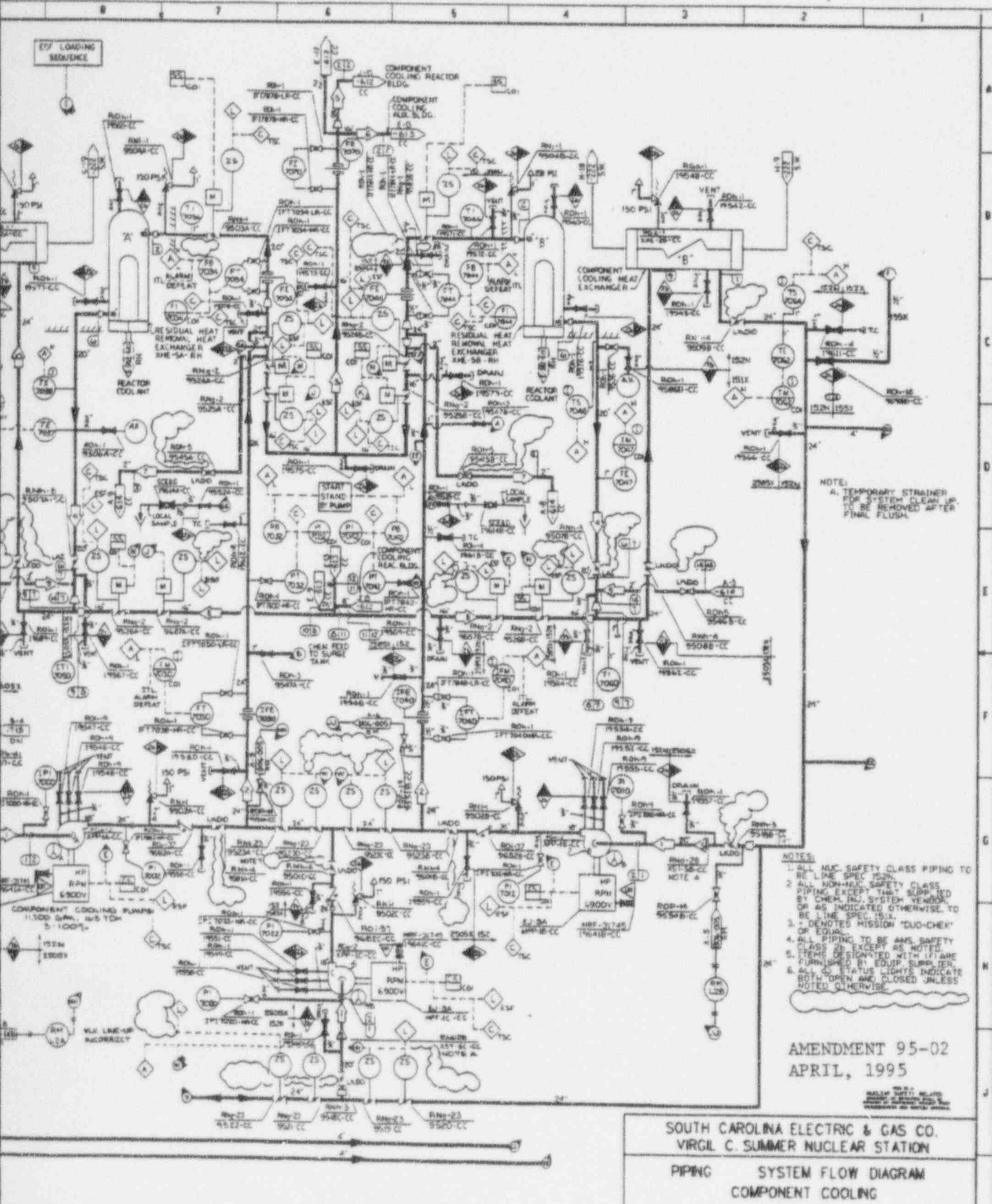
NOTES:
1. ALL PIPING TO BE LINE SPEC 152N. EXCEPT AS NOTED.
2. CHECK VALVE W/CONTROLLABLE DASH POTS.
3. TEMP CORRESPONDING TO PERTINENT HEAT EXCHANGER OUTLET.
4. CEP-CONTROL ROOM EVACUATION PANEL.
5. ALL STATUS LIGHT INDICATE BOTH OPEN AND CLOSED POSITIONS.
6. * DENOTES MISSION DUO CHECK OR EQUAL.
7. ** INDICATES SWITCHES, ALARMS AND INDICATING LIGHTS ARE LOCATED ON THE HVAC CONTROL BOARD (ICP-6210-AH) IN THE MAIN CONTROL ROOM.
9. RECORDER SHARED WITH REACTOR BLDG SPRAY PUMP FLOW INSTRUMENTATION.
10. FOR VENTS AND DRAINS ON XAA-1A, 1B, -2A & 2B-AA SEE DETAIL 'A' ON DWG. D-302-221.



9506160376-07



#	MAX GPM	PSIG	°F	BY	REMARKS
1	11700	30	120	[illegible]	
2	11700	135	120	[illegible]	
3	4045	100	120	[illegible]	
4	5100	70	135	[illegible]	
5	1257	100	120	[illegible]	
6	4560	100	120	[illegible]	
7	40	100	120	[illegible]	
8	16,045	70	135	[illegible]	
9	40	70	135	[illegible]	
10	11,750	70	135	[illegible]	



9506160376-08

14 | 13 | 12 | 11 | 10

SYSTEM DATA

⟨⟩	GPM	PSIG	°F	BY	REMARKS
1	40	100	120	[illegible]	
2	15	90	125	[illegible]	
3	5	90	140	[illegible]	
4	40	85	158	[illegible]	

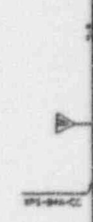
* THIS TEMPERATURE IS A MAXIMUM EXPECTED FOR 95° SERVICE WATER TEMPERATURE & LOSS OF ONE COMPONENT COOLING WATER HEAT EXCHANGER DURING COOLDOWN MODE

SAFETY CLASS VERIFICATION	
ORIGINATED BY	[illegible]
REVIEWED BY	[illegible]

CC	19500	19615
CC	9500	9499
SYSTEM SUPPLY	FIRST NO	LAST NO

VALVE NUMBERING

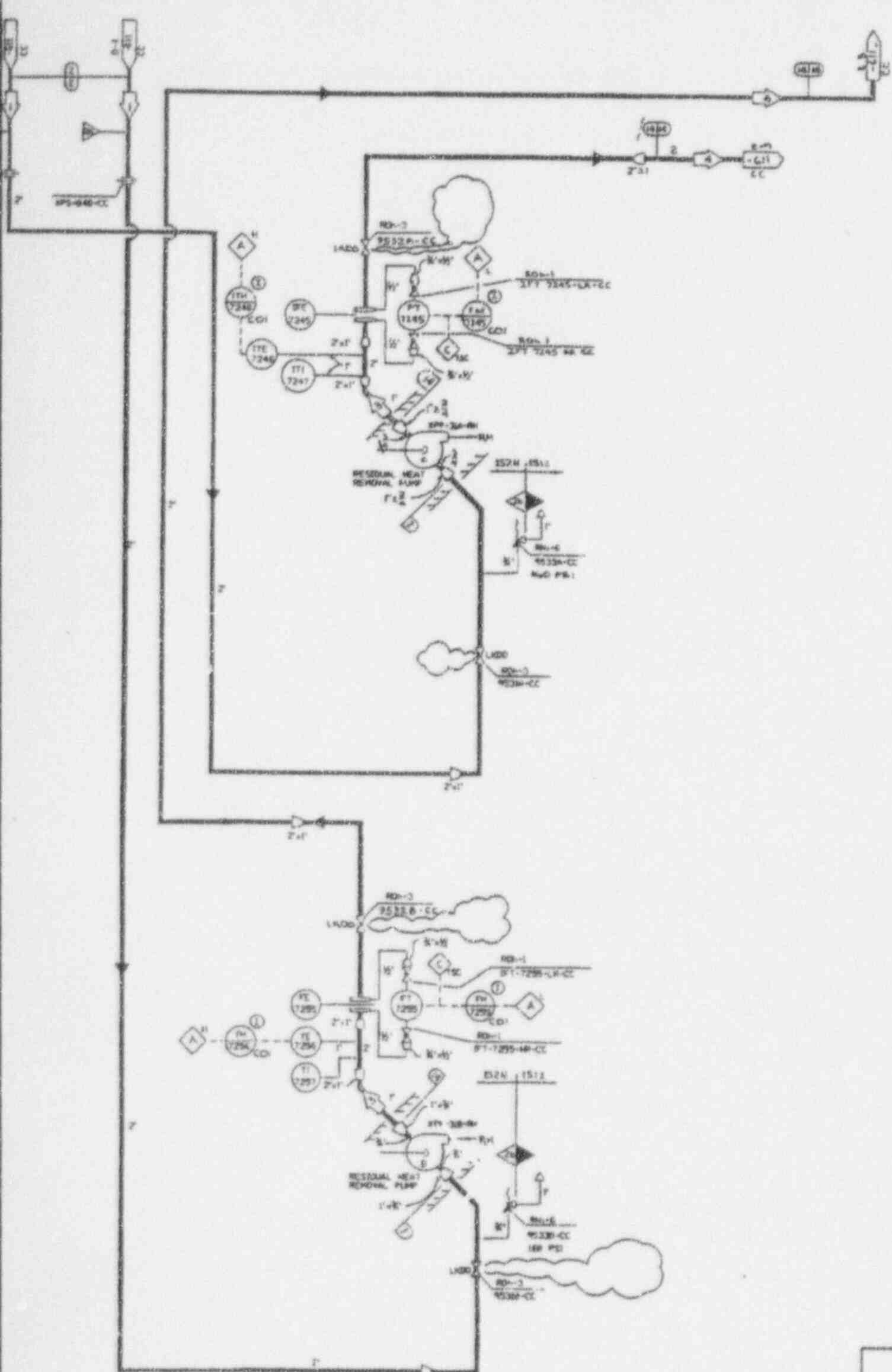
[illegible] DWG. [illegible]



HYDRO TEMP. COLD WATER

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
⟨⟩	PSIG	°F	PSIG	°F	[illegible]	BY DRG	BY	CHKD	REMARKS
	NORMAL		UPSET						

DESIGN DATA



NOTES:
1. ALL NUCLEAR SAFETY CLASS PIPING TO BE LINE SPEC 152N.
2. ALL NON-NUCLEAR SAFETY CLASS PIPING TO BE LINE SPEC 151X.
3. ALL PIPING TO BE ANS SAFETY CLASS 2A EXCEPT AS NOTED.

AMENDMENT 95-02
APRIL, 1995

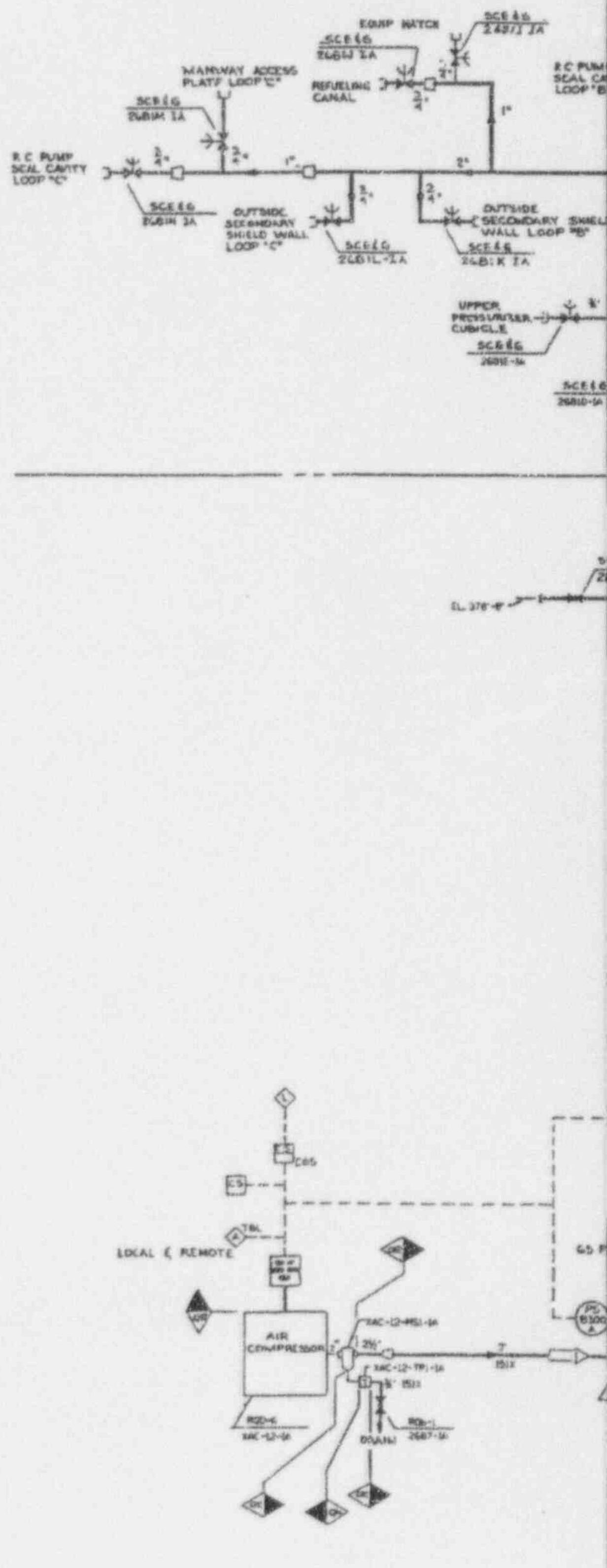
SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

PIPING SYSTEM FLOW DIAGRAM
COMPONENT COOLING SYSTEM TO NSSS PUMPS
(D-302-614 REV.10)
Figure 9.2-7

14	13	12	11	10	9

SYSTEM DATA

⇨	SCFM	PSIG	°F	DP	REMARKS
1	480	120	100	3:1	



SAFETY CLASS VERIFICATION

ORIGINATED BY

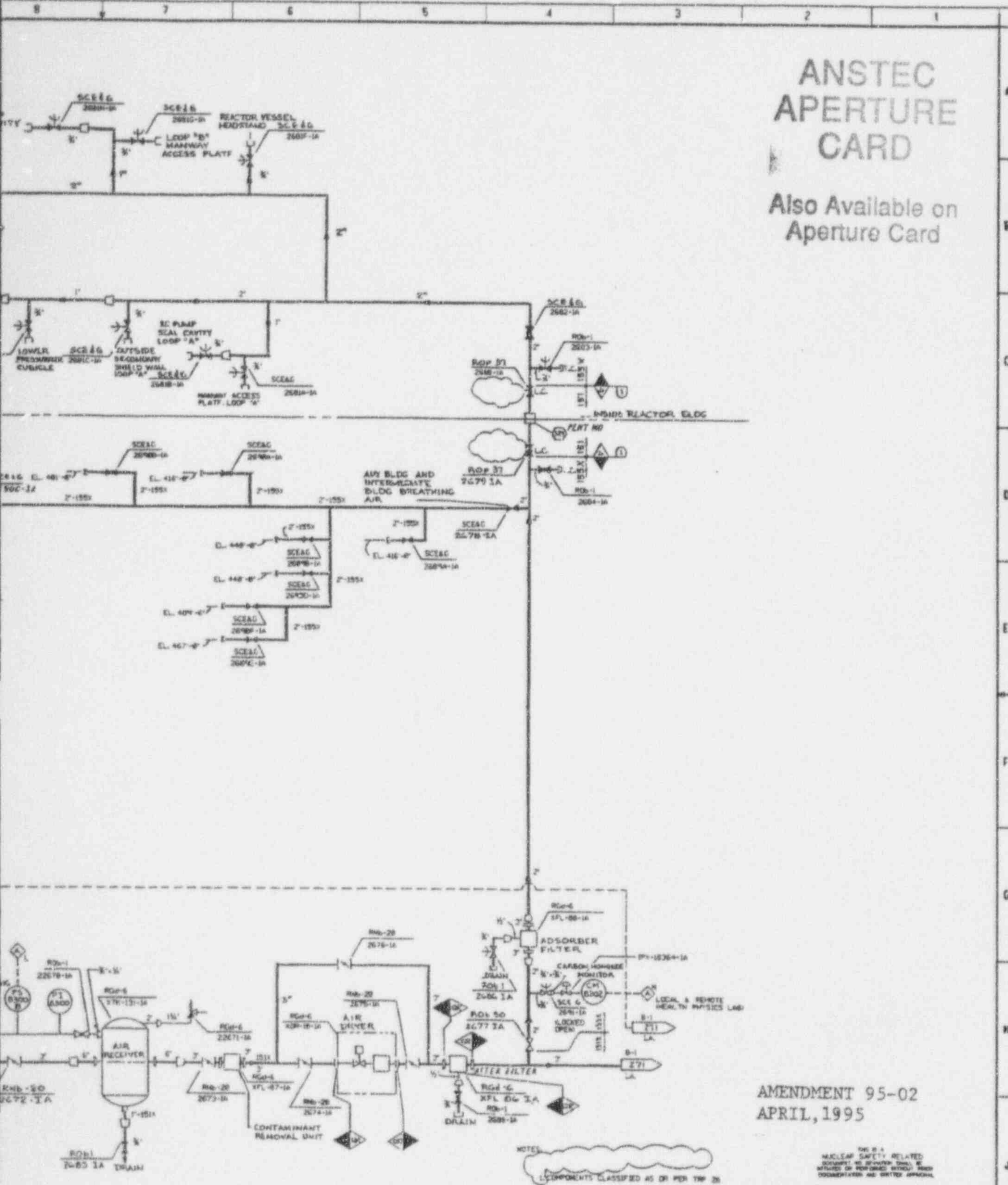
REVIEWED BY

VALVE NUMBERING

SYSTEM SUFFIX	FIRST NO	LAST NO
3A	22670	22671
2A	2672	2691

DESIGN DATA

	NORMAL PSIG	NORMAL °F	UPSET PSIG	UPSET °F	UPSET DURA.	HY-DRO	TY	CONST	REMARKS
1	120	100	125	150	[illegible]	175	2A		PNEUM TEST

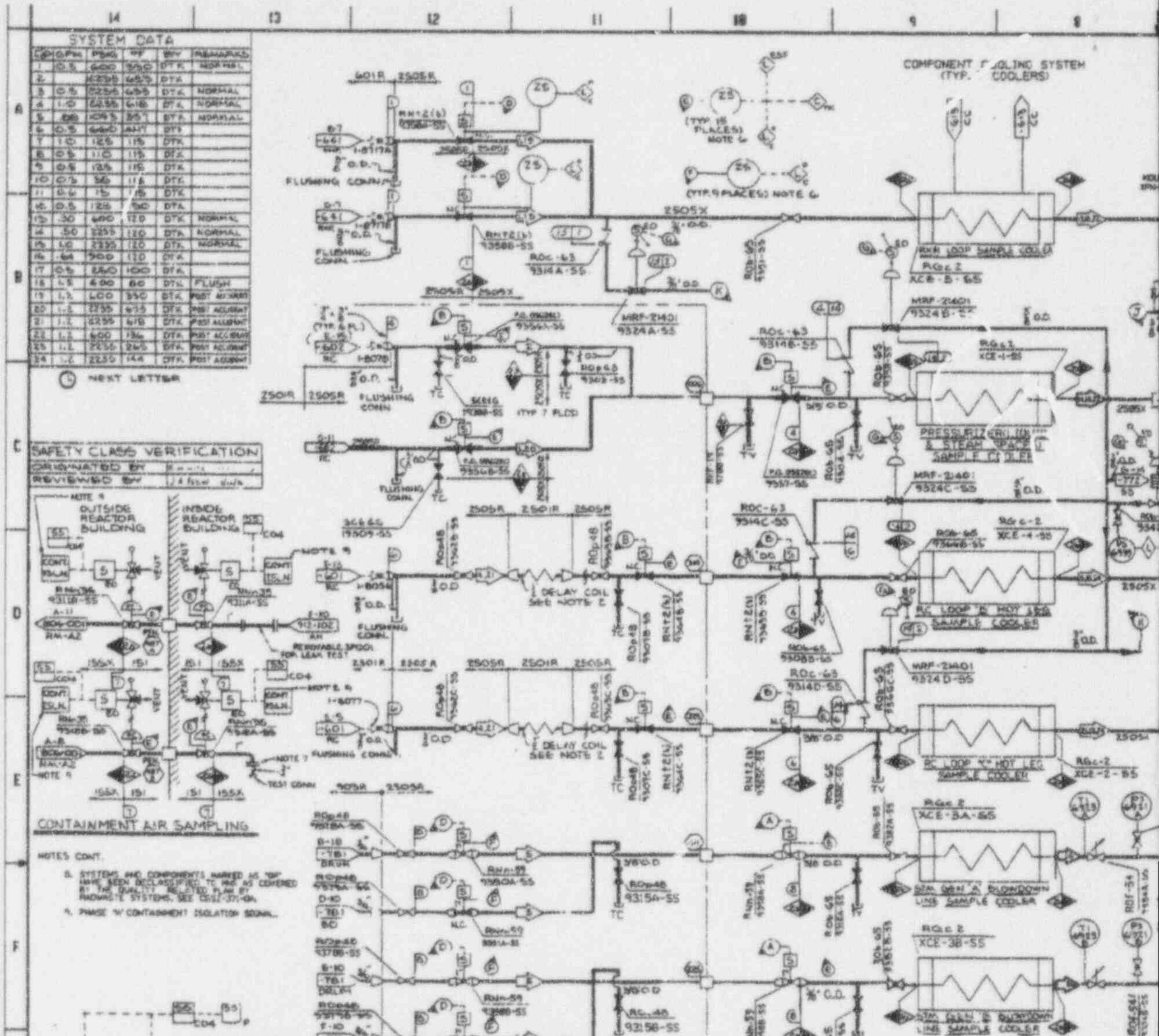


AMENDMENT 95-02
APRIL, 1995

SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

PIPING SYSTEM FLOW DIAGRAM
INSTRUMENT AIR BACKUP
(D-302-274 REV. 7)
Figure 9.3-3A

9506160376-10



SYSTEM DATA

CD	GPM	PSIG	°F	BY	REMARKS
1	0.3	600	350	DTK	NORMAL
2		2235	653	DTK	
3	0.5	2235	653	DTK	NORMAL
4	1.0	2235	618	DTK	NORMAL
5	.86	1095	357	DTK	NORMAL
6	0.5	660	AMT	DTK	
7	1.0	125	115	DTK	
8	0.5	110	115	DTK	
9	0.5	125	115	DTK	
10	0.3	36	115	DTK	
11	0.6	15	115	DTK	
12	0.5	126	130	DTK	
13	.30	600	120	DTK	NORMAL
14	.50	2235	120	DTK	NORMAL
15	1.0	2235	120	DTK	NORMAL
16	.64	900	120	DTK	
17	0.5	260	100	DTK	
18	1.5	400	60	DTK	FLUSH
19	1.2	600	350	DTK	POST ACCIDENT
20	1.2	2235	653	DTK	POST ACCIDENT
21	1.2	2235	618	DTK	POST ACCIDENT
22	1.2	600	136	DTK	POST ACCIDENT
23	1.2	2235	265	DTK	POST ACCIDENT
24	1.2	2230	144	DTK	POST ACCIDENT

(L) NEXT LETTER

SAFETY CLASS VERIFICATION

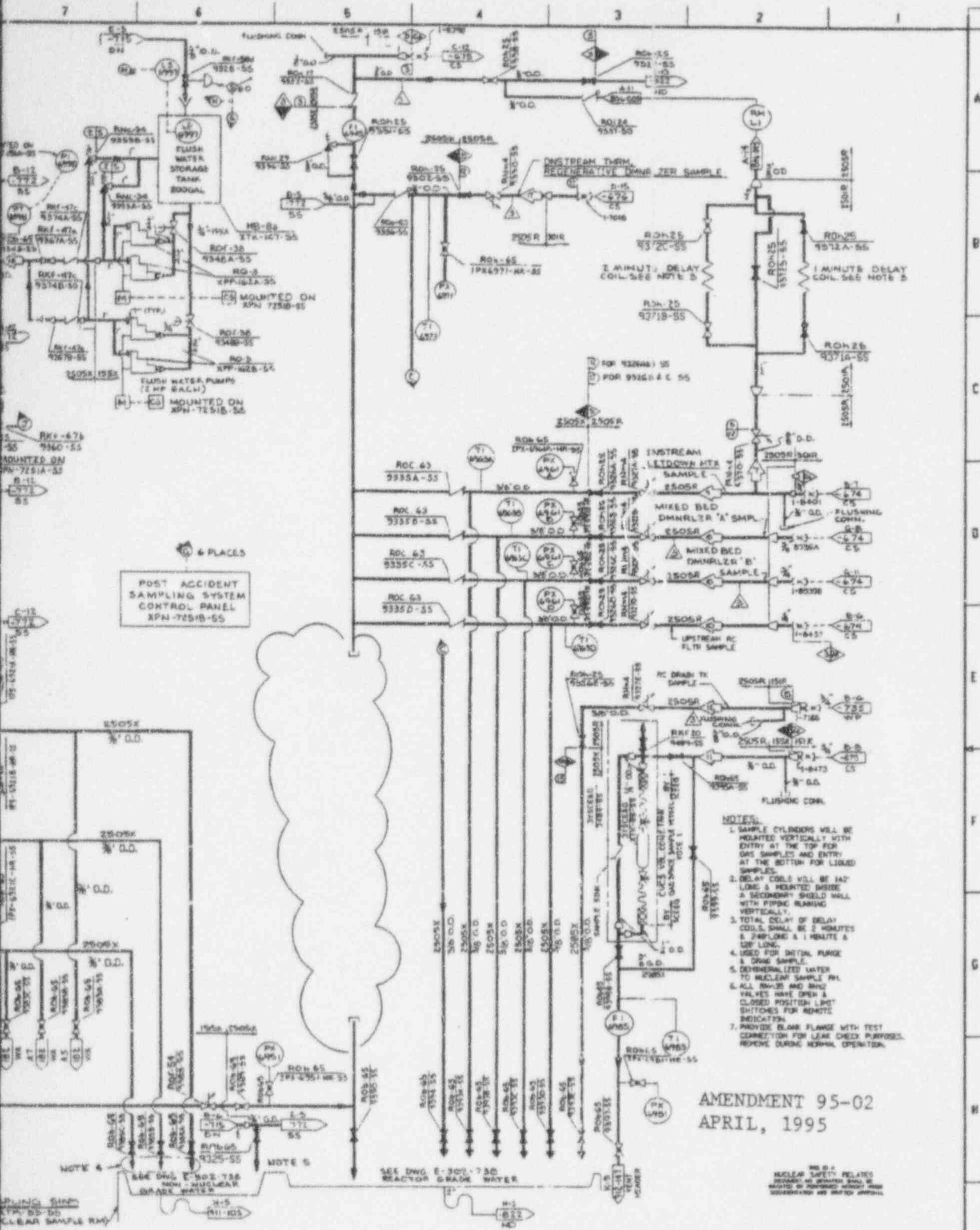
ORIGINATED BY	[illegible]
REVIEWED BY	[illegible]

HYDRO TEST TEMP 40°F MIN.

CD	PSIG (NORMAL)	°F (NORMAL)	PSIG (UPSET)	°F (UPSET)	DURATION	LMCD	HYDRO	BY	REMARKS
15	225	130	173	150	< 1%	PLL	216	PLL	
14	2235	120	2485	120	< 1%		3107		
13	525	120	600	120	< 1%		750		
12	250	115	300	250	< 1%	PLL	375	PLL	
11	250	115	300	160	< 1%	PLL	375	PLL	
10	660	120	700	120	< 1%	PLL	875	PLL	
9									
8	1185	600	1304	600	< 1%	PLL	1630	PLL	
7	ATM	120	66	283	< 1%	DTK	85	DTK	& & #
6	2235	653	2485	664	< 1%	PLL	3107	PLL	
5	ATM	120	5	120	< 1%	DTK	ATM	DTK	&
4	2235	653	2485	664	< 1%	PLL	3107	PLL	
3	16	115	75	250	< 1%	PLL	95	PLL	
2	620	120	690	120	< 1%	DTK	930	DTK	
1	535	350	600	350	< 1%	PLL	750	PLL	& &

DESIGN DATA

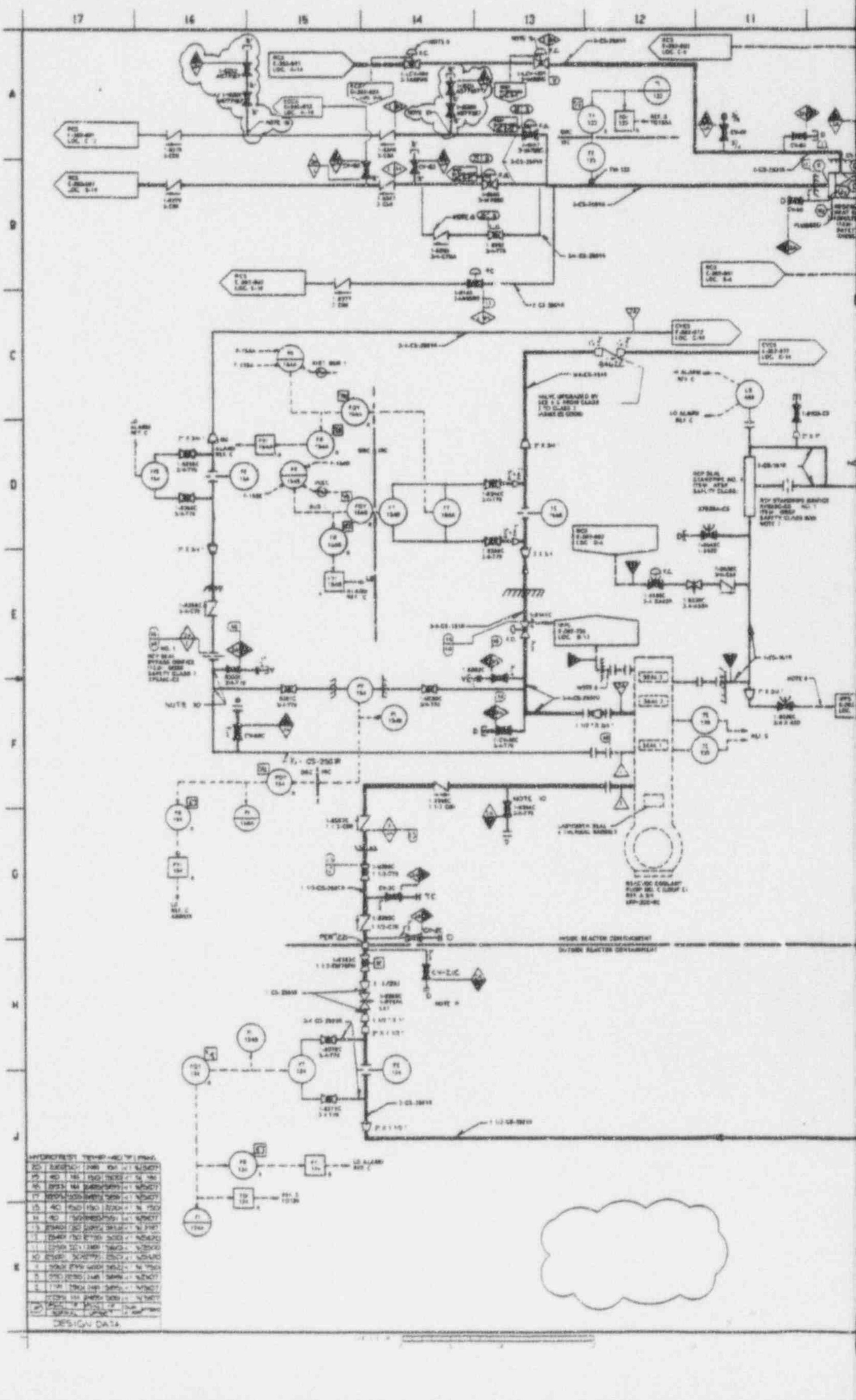
& STANDARD WATER HYDROTEST
&& AT NORMAL 100% POWER RHR SYS. IS NOT IN OPERATION
&&& HYDROTEST TEMP. 50°F MIN.



AMENDMENT 95-02
APRIL, 1995

SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

D-302-771 REV. 29
NUCLEAR SAMPLING
Figure 9.3-4



17
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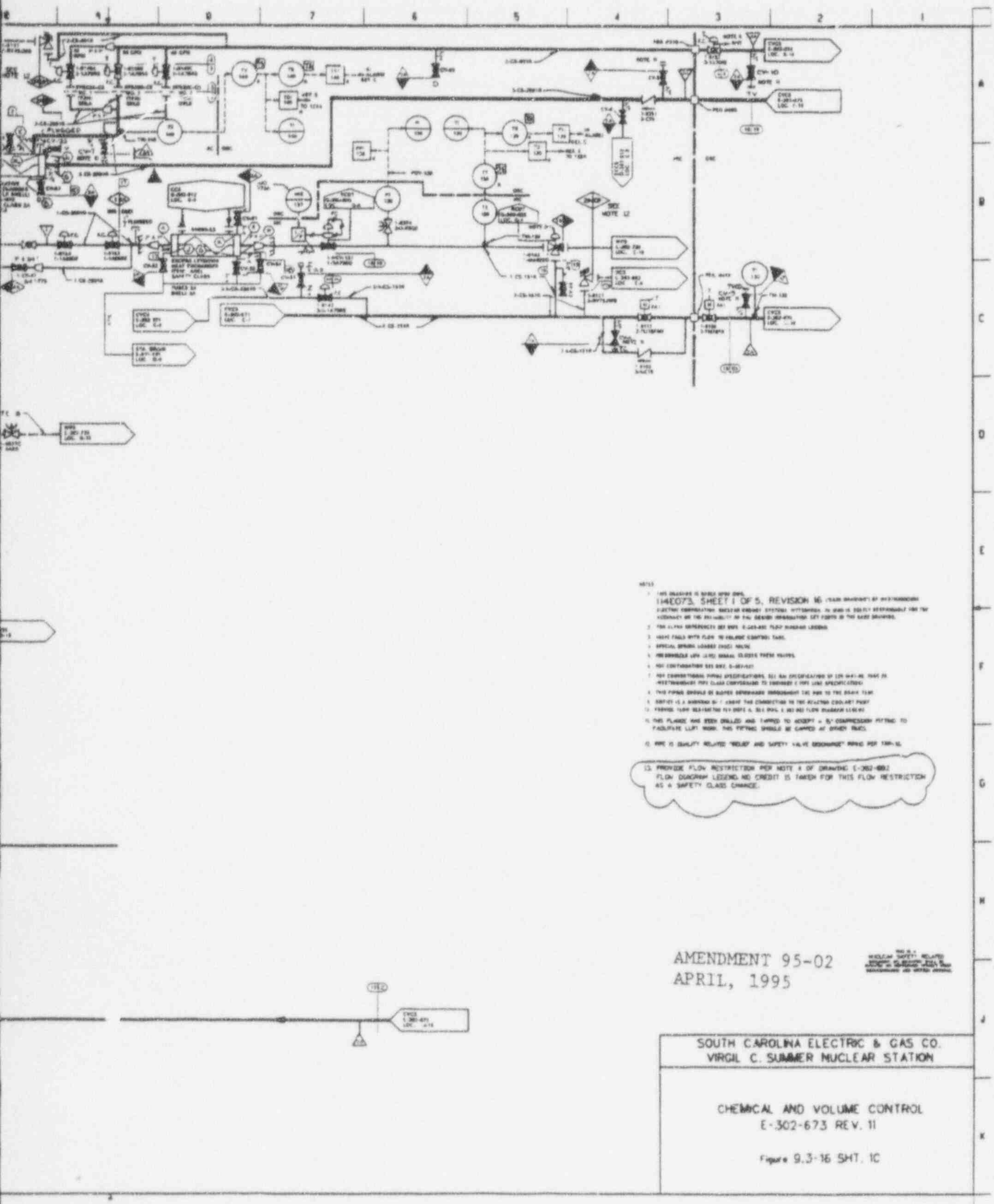
NOTE 10
DESIGN DATA



9506160376-12

2. Two laboratory hood exhaust fans and a chemical storage area exhaust fan.

3. Twelve electric unit heaters in the chemical storage and general floor areas.

4. Ductwork connecting the air handling unit with the sample room and the water treating laboratory and for supply and exhaust of the laboratory hoods.

5. Instrumentation and control devices to perform the following functions:

   a. Automatically operate the condensing unit and the air handling unit heating coil in response to a room thermostat.

   b. Automatically place the outside, return and relief dampers under control of the outside and return mixture temperature controller or at a fixed minimum position in accordance with outside temperature.

   c. Automatically prevent or permit the condensing unit to operate in accordance with outside temperature.

   d. Control electric unit heaters with integral thermostats.

   e. Automatically close hood inlet dampers when the entering air is below a set temperature.

The air handling unit operates continuously. The laboratory hood and chemical storage area exhaust fans are operated as required from local control stations. System components are supplied from non-Class 1E power sources.

9.4.7.2.10 CRDM Cooling Water System

The main components of this system include:

1. One CRDM cooler rack assembly which is an air to water heat exchanger.

2. One CRDM cooling water industrial cooler, including two electric heaters, eight forced convection fans, and four circulation pumps.

3. One expansion tank to control thermally induced water volume changes.

4. Two 100% circulating water pumps, including a bypass line with a chemical feed tank.

5. Four motor operated containment isolation valves, including two check valves on bypass lines on the Reactor Building Side.

The system is designed to remove heat from the containment air used to cool the Control Rod Drive Mechanism (CRDM) and dissipate this heat to the atmosphere via the Industrial Cooler.

The system can operate continuously while the plant is in operation. System components are powered from non-Class 1E power sources, except for the motor operators on the containment isolation valves, which are supplied from the Class 1E power sources.

9.4.7.2.11 Turbine Building Switchgear Rooms Chilled Water System

The main components of this system include:

1. One air-cooled, electric motor drive, reciprocating water chiller.

2. One primary water pump.

3. Two 100% capacity secondary water pumps.

4. Chilled water piping system including a compression tank, an air separator, a chemical feed tank, and valves.

5. Chilled Water Coils - one coil in each of two redundant turbine building switchgear rooms air handling units. Each coil has two connections.

6. Instrumentation and control devices to perform the following functions:

   a. Control the chiller. Included in a factory-furnished, factory-wired controls are a positive-acting timer to prevent short cycling of the compressors and to delay restart after shutdown, high and low pressure refrigerant safety pressurestats to stop the compressors, a multiple-step water temperature controller, a chilled water safety thermostat, circuit breakers, motor contactors, control relays, a control circuit ON-OFF switch, and a chilled water flow switch. The chiller is energized automatically when primary flow is established.

   b. Control the primary pump. The pump is started by a remote manual switch. The pump will shutdown on a chiller malfunction.

   c. Control the secondary pumps. These pumps are redundant and each is wired to run only with its respective air handling unit. The active pump is controlled by one of three parallel-wired room thermostats.

   d. Indicate locally the level of water in the compressor tank and alarm of low level in the control.

   e. Alarm in the control room of low water flow.

   f. Indicate locally the temperature of water entering and leaving the chiller and provide a computer high temperature alarm and CRT display in the control room of water leaving the chiller.

   g. Indicate locally the pressure of water entering and leaving each pump.

Under normal conditions, the primary pump continuously circulates water in the primary pipe loop. This water is maintained at 45°F by the chiller which loads/unloads and cycles automatically under its self contained controls. The secondary pump circulates water between the primary loop and the chilled water coils identified in Section 9.4.4.2.1, subitem 4. It cycles upon demand of room thermostats.

Additionally, this system can provide chilled water to the CRDM Switchgear Room cooling coils via a booster pump in the event that chilled water is unavailable to these coils. This system can be provided chilled water from the non-nuclear safety related chilled water system. The system is non-nuclear safety class.

9.4.7.2.12 Non-nuclear Safety Related Chilled Water System

The main components of this system include:

1. One air-cooled, electric motor driven reciprocating water chiller.
2. Two 100% capacity chilled water circulating pumps.
3. One chilled water booster pump.
4. Chilled water piping system including an atmospheric expansion tank, provisions for chemical sample and feed, and provisions for balancing the system.
5. Chilled water cooling coils for the following areas:
   a. CRDM Switchgear Room.
   b. Controlled Access Area.
   c. SAS/Computer Room.
   d. Computer Room.
   e. BOP Charger Area.
6. Instrumentation and control devices to perform the following functions:
   a. Cause an alarm at a local panel and a common trouble alarm in the control room upon detection of either low chilled water flow, high chilled water temperature, or low expansion tank level.
   b. Provide local indication of system flow.
   c. Provide interlocks which shut the chiller down on low system flow.
   d. Indicate water temperature locally at the pipe supply and return headers and at the inlet and outlet of each cooling coil.

e. Provide thermowells for local testing in the supply and return headers at the chiller.

f. Indicate water pressure locally at the suction and discharge of each pump.

g. Provide the means for determining pressure drop across each system cooling coil.

h. Provide local indication of expansion tank level.

i. Provide a remote means for filling the system.

j. Provide a local panel at the fill station to indicate "Normal," "Low," and "Fill Complete" expansion tank level with status lights.

Under normal conditions, the system provides chilled water via redundant circulating pumps to the cooling coils listed in Section 9.4.1.2.3, 9.4.1.2.4, 9.4.1.2.6, 9.4.6.2.1, and 9.4.6.2.3. The chiller loads/unloads and cycles automatically to maintain chilled water temperature at 45°F. This system can be aligned to provide a backup source of chilled water to the Turbine Building Switchgear Rooms cooling coils. In the event that chilled water is unavailable to the CRDM Switchgear Room cooling coils, the booster pump can be aligned to the Turbine Building Switchgear Rooms Chilled Water System to provide a backup source of cooling to the CRDM Switchgear Room.

9.4.7.3 Safety Evaluation

The service building ventilation system, industrial system, industrial cooling water system, substation relay house cooling system, penetration access areas ventilation system, miscellaneous pump room systems and lube oil room systems, water treating area laboratory heating and cooling system, and turbine building switchgear rooms chilled water system perform no safety function. The CRDM Cooling Water System performs no safety function except for the containment isolation valves where motor operators are supplied by Class 1E power supplies. They do provide acceptable temperature levels in the various buildings.

Additionally, the substation battery room exhaust fan in the substation relay house cooling system prevents the occurrence of any appreciable hydrogen concentration in the battery room.

The diesel generator building ventilation system, service water pumphouse ventilation system, and chilled water system do perform safety functions since total loss of the heat removal capability of any one of these systems could produce conditions affecting the safety of the plant. These systems are designed with redundant equipment and piping systems and are so arranged, serviced, and maintained such that complete loss of system function or system cooling is highly unlikely. Each of the safety class systems is located in equipment rooms accessible for maintenance but not subject to floods, weather, external missiles, main steam line break effects, jet impingement,

TABLE 9.4-5 (Continued)

DESIGN BASES FOR MISCELLANEOUS BUILDING VENTILATION AND COOLING SYSTEMS

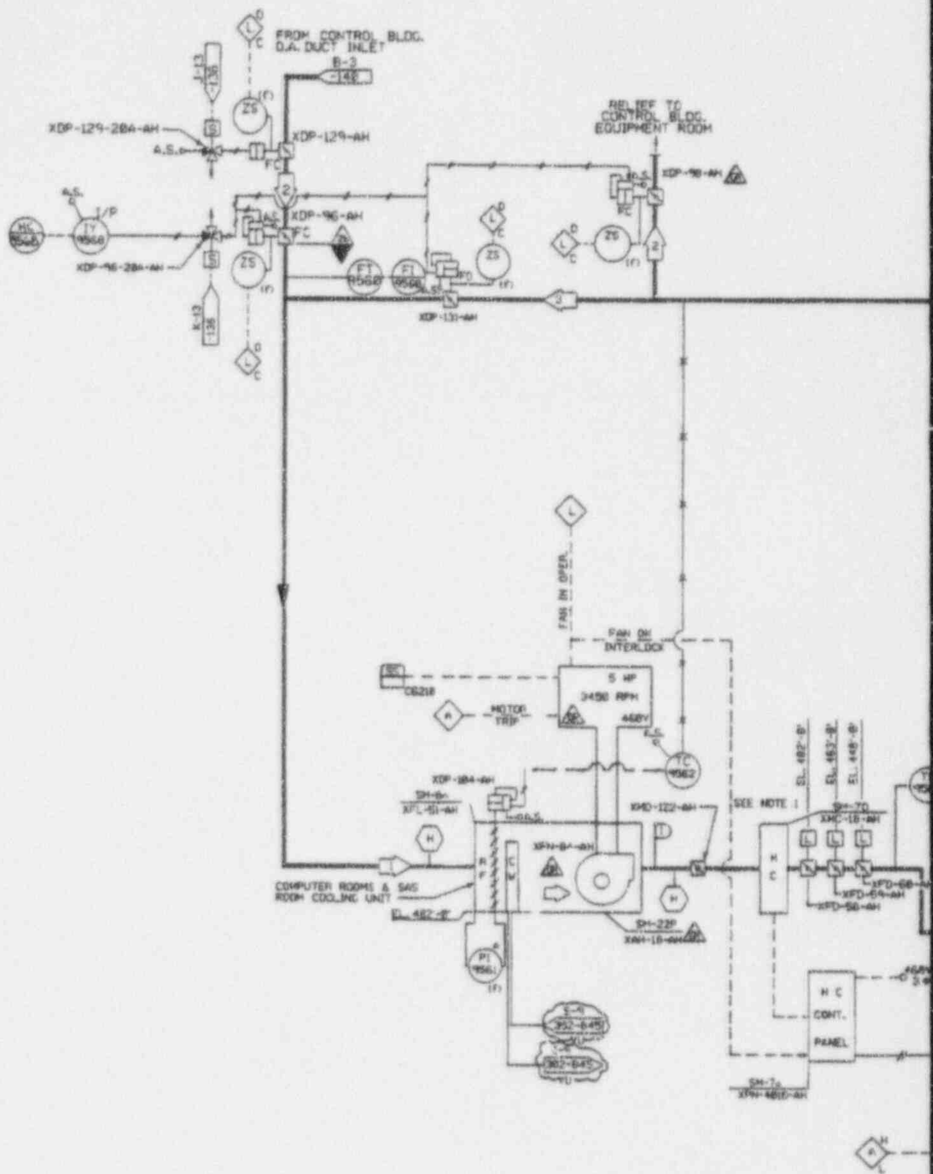
System	System Function	Conditions Maintained	Safety Class	Seismic Category
Chilled Water System	Provides continuous supply of chilled water to cooling coils for systems located in the control, auxiliary, intermediate, and turbine buildings.	Chilled water supplied at 45°F	2b	I
Industrial Cooling Water System	Operates continuously when normal power is available to provide means for rejecting reactor building and boron thermal regeneration system heat loads.	85°F maximum discharge water temperature	NNS	None
Substation Relay House Cooling System	Operates continuously to maintain relay room temperature and provide continuous exhaust of the substation battery room.	75°F	NNS	None
Non-nuclear Safety Related Chilled Water System	Operates continuously when normal power is available to supply chilled water to cooling coils for systems located in the control and intermediate buildings.	Chilled water supplied at 45°F	NNS	None

TABLE 9.4-6

REACTOR BUILDING COOLING AND FILTERING SYSTEMS FUNCTIONS, SAFETY CLASS AND SEISMIC CATEGORY

System	Function	Safety Class	Seismic Category
Reactor Building Cooling System	Normally: remove all reactor building heat, circulate cooled air to dome and into lower elevations. Post accident: depressurize and circulate.	2b	I
Reactor Building Purge Supply and Exhaust System	Supply tempered air to the reactor building and exhaust reactor building atmosphere through high efficiency filters to the purge exhaust vent.	NSS (2a for purge isolation valves only)	I (plenums and purge isolation valves only)
Alternate Reactor Building Purge System	Supply filtered air to the reactor building and exhaust reactor building atmosphere through high efficiency filters to the purge exhaust vent.	NSS (2a for purge isolation valves only)	I (purge isolation valves only)
Reactor Building Charcoal Cleanup System	Filter reactor building atmosphere for pre-access cleanup.	NNS	I (fans and plenums only)
Reactor Building Reactor Compartment Cooling System	Supply cooled air to the reactor compartment with resultant air flow around the vessel, nozzles, neutron detectors, and supports.	NNS	I (fans only)
Reactor Building Secondary Compartment Cooling System	Supply cooled air to the steam generators compartments.	NNS	None
Reactor Building Refueling Water Surface System	Maintain air flow across the refueling canal surface during refueling operations.	NNS	None
Reactor Building CRDM Shroud Cooling System	Draw cooled air through the shroud for heat removal.	NNS	I
Reactor Building Elevator Machine Room System	Draw air through the machine room for heat removal.	NNS	None

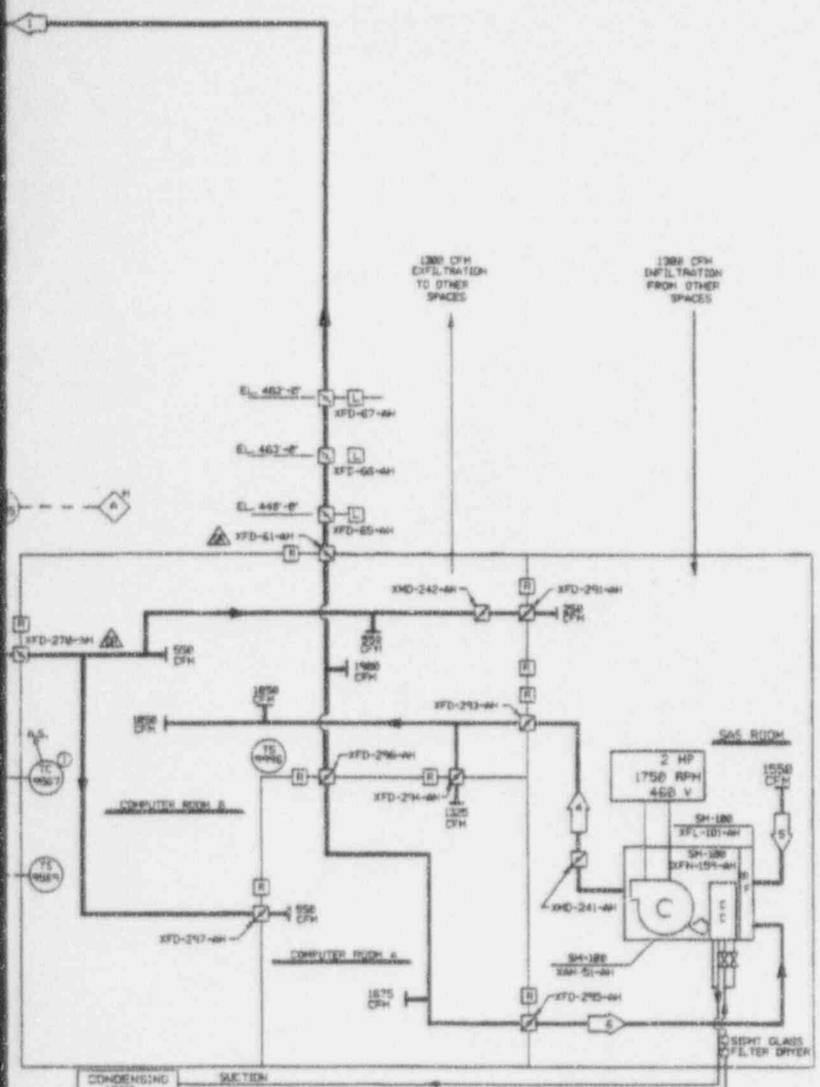
SYS. OPER. DATA		
◇	AIR FLOW CFM	
1	1980	
2	380	
3	1528	
4	3425	
5	1958	
6	1875	



SAFETY CLASS VERIFICATION	
ORIGINATED BY	[illegible]
REVIEWED BY	[illegible]

COMPUTER ROOMS & SAS ROOM COOLING UNIT

	1980	55.0
◇	AIR FLOW CFM	AIR TEMP °F
SYS. DESIGN DATA		



NOTE:

1. HEATING COIL INCLUDES OVERTEMP & LOW FLOW PROTECTIVE DEVICES.
2. (F) INDICATES INSTR. IS FURNISHED WITH EQUIPMENT.
3. FOR SAFETY CLASSIFICATION OF INSTR., SEE THE INSTR. LIST.
4. EXCEPT WHERE OTHERWISE NOTED, ALL ALARMS & INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM.
5. COIL FACE DAMPERS FAIL OPEN AND COIL BYPASS DAMPERS FAIL CLOSED.
6. ALL EQUIPMENT IDENTIFIED AS OR TO BE PER TRP-31

ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY, EXCEPT AS NOTED

AMENDMENT 94-10
DECEMBER, 1994

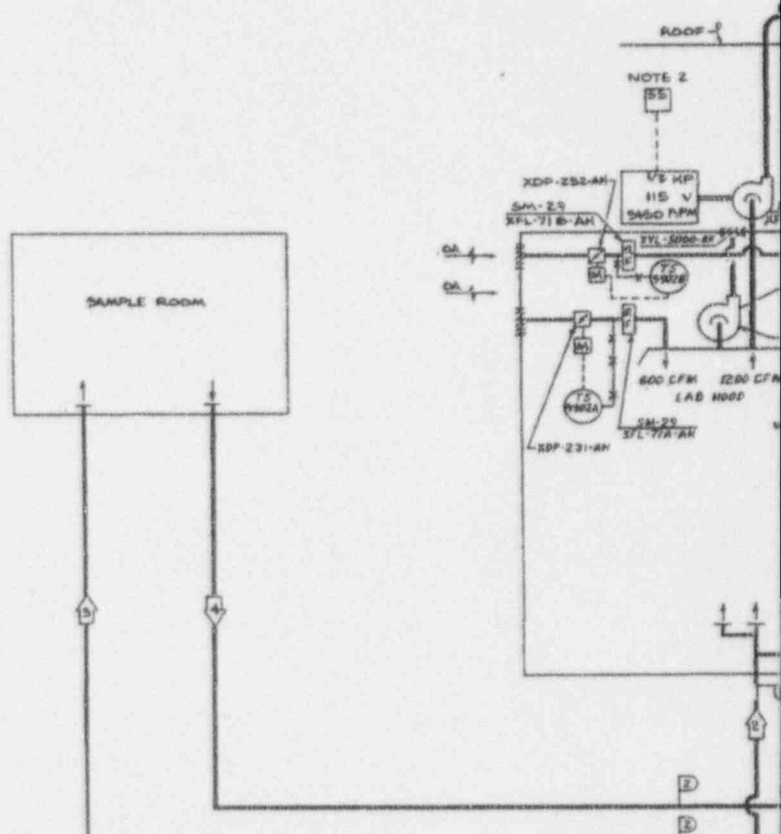
SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

Building Service System Flow Diagram
Computer Rooms and SAS Room Cooling Unit
(Dwg. No. D-912-154 REV. 14)

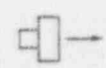
Figure 9.4-5

9506160376-13

SYSTEM OPERATING DATA			
◇	AIR FLOW -CFM-	AIR TEMP. °F	
1	4800	50-75	
2	3360	50-75	
3	1440	50-75	
4	1440	50-75	
5	2160	50-75	
6	3600	50-75	



WATER TREATING A...
HEATING & COO...



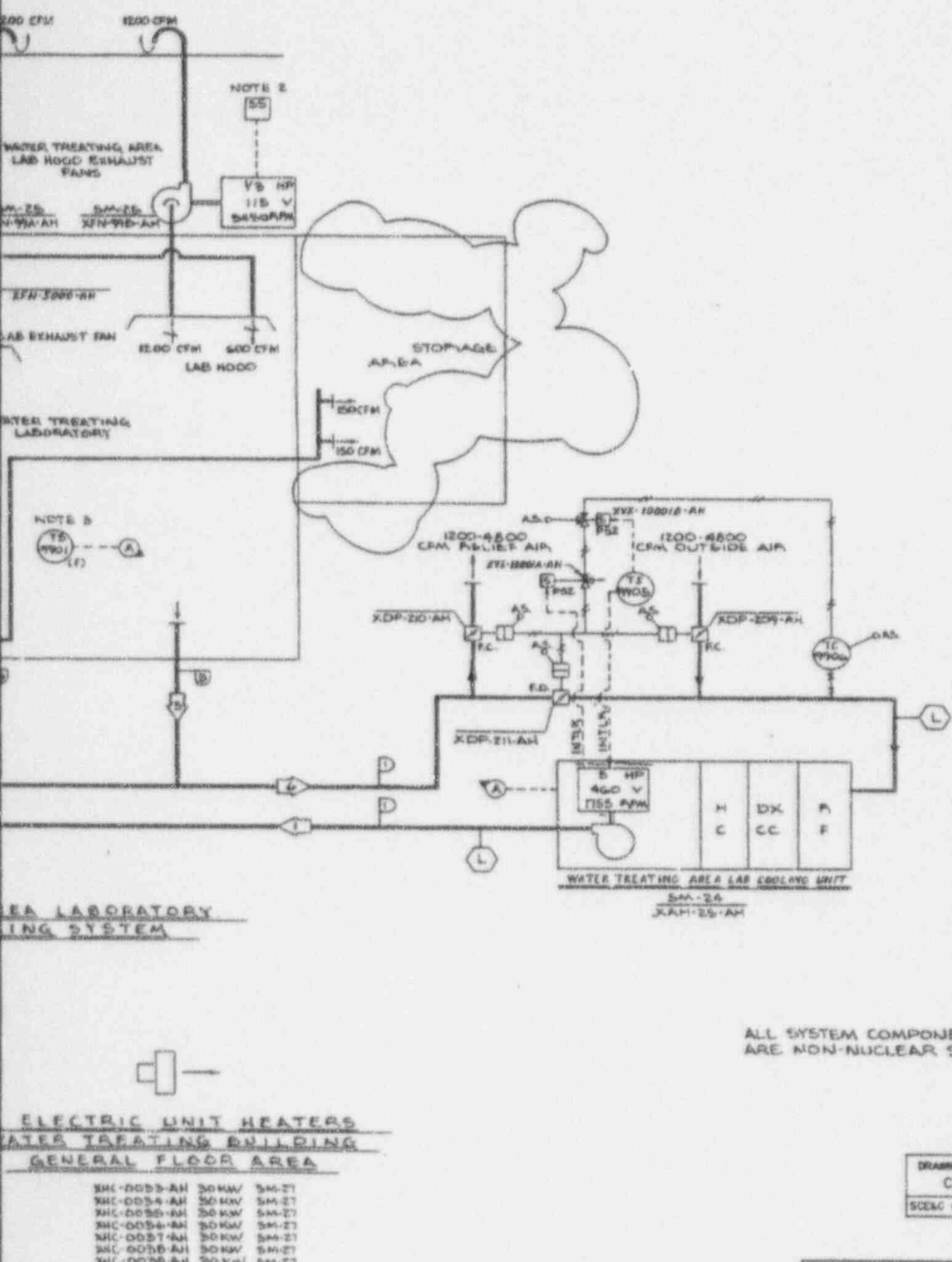
6 ELECTRIC UNIT HEATERS
CHEMICAL STORAGE AREA

XHC-0040-AH 7½ KW SM-28
XHC-0042-AH 7½ KW SM-28
XHC-0043-AH 7½ KW SM-28
XHC-0044-AH 7½ KW SM-28
XHC-0045-AH 7½ KW SM-28

3	3360	50-75				
2	1440	50-75				
1	4800	50-75				
◇	AIR FLOW -CFM-	AIR TEMP.				
	NORMAL					
SYSTEM DESIGN DATA						

ANSTEC
APERTURE
CARD

Also Available on
Aperture Card



NOTES:-
1. (F) INDICATES INSTRUMENT IS FURNISHED WITH THE EQUIPMENT.
2. SELECTOR SWITCHES FOR LAB HOOD EXHAUST FANS ARE LOCATED ON THE RESPECTIVE HOODS.
3. COMBINATION HEATING, COOLING, FAN THERMOSTAT LOCATED IN LAB.
4. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.

ALL SYSTEM COMPONENTS
ARE NON-NUCLEAR SAFETY CLASS

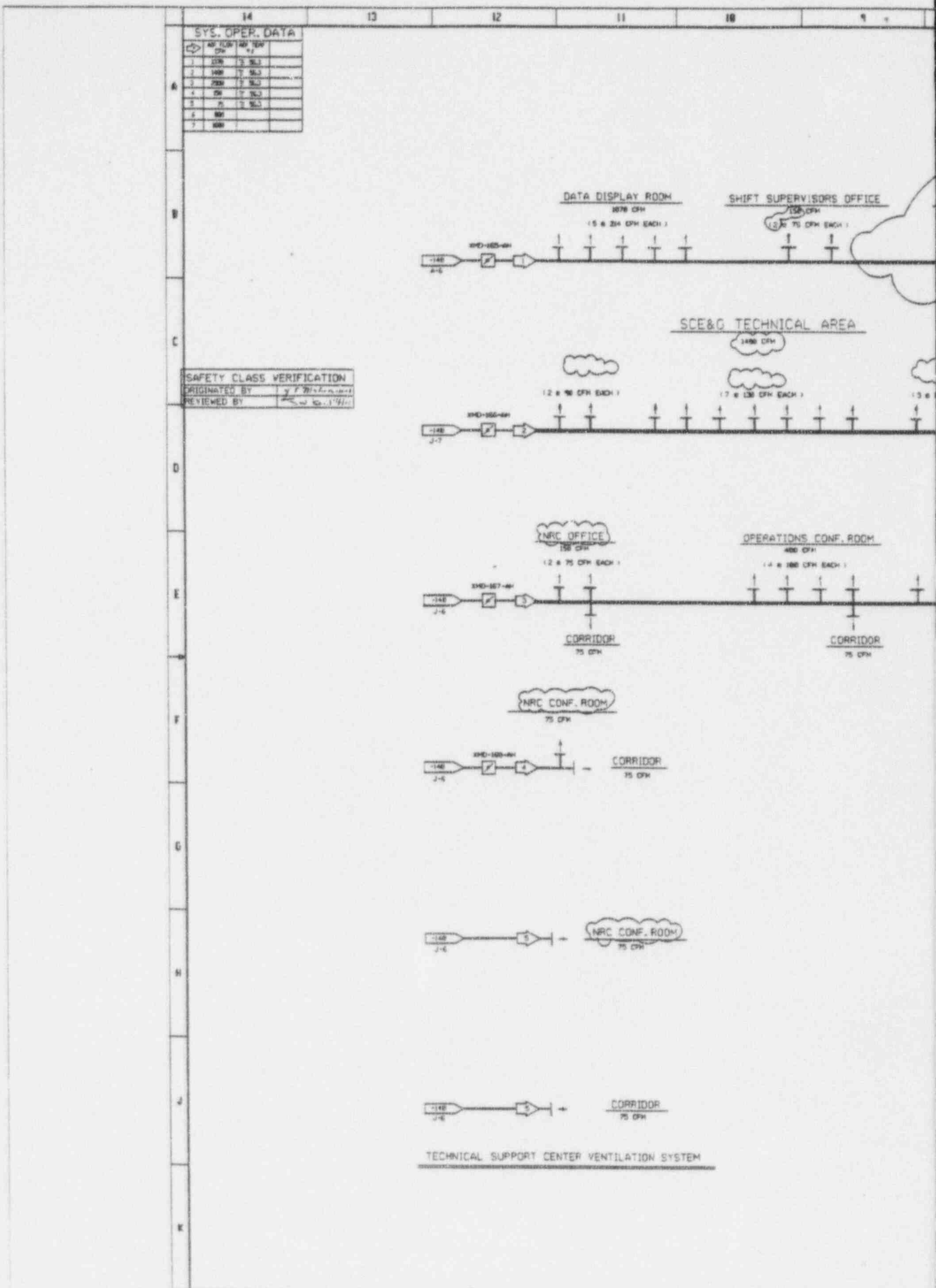
DRAWING LEGIBILITY
CLASS 1
SCE&G CAD ENHANCED

AMENDMENT 95-02
APRIL, 1995

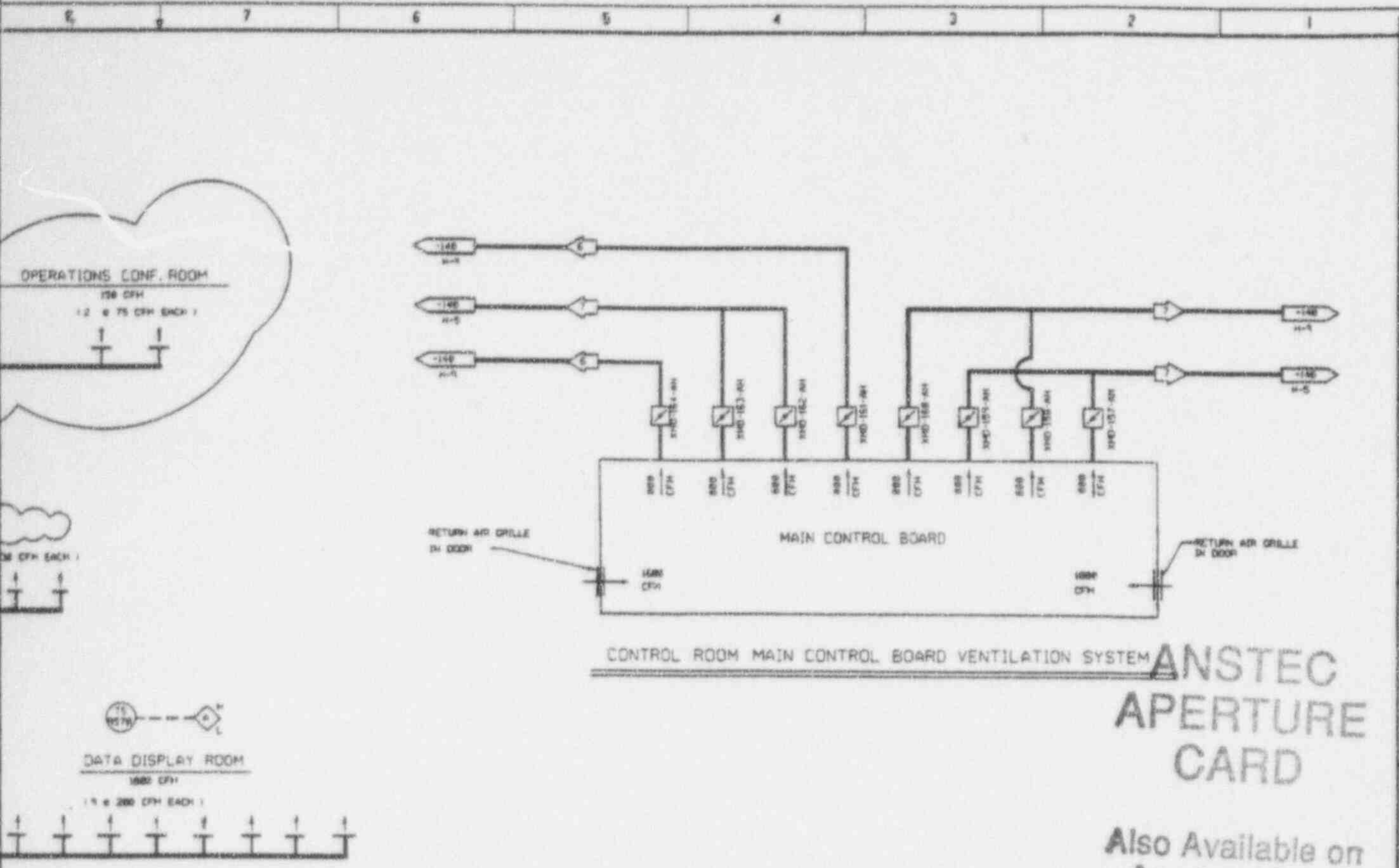
SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

WATER TREATING AREA LABORATORY HEATING
AND COOLING SYSTEM
DWG. NO. D-912-153 REV. 6
Figure 9.4-26c

9506160376-14



SYS. OPER. DATA
SAFETY CLASS VERIFICATION
ORIGINATED BY
REVIEWED BY
DATA DISPLAY ROOM
SHIFT SUPERVISORS OFFICE
SCE&G TECHNICAL AREA
1400 CFM
NRC OFFICE
150 CFM
(2 @ 75 CFM EACH)
OPERATIONS CONF. ROOM
400 CFM
(4 @ 100 CFM EACH)
CORRIDOR
75 CFM
NRC CONF. ROOM
75 CFM
TECHNICAL SUPPORT CENTER VENTILATION SYSTEM



AMENDMENT 95-02
APRIL, 1995

ALL SYSTEM COMPONENTS
ARE SAFETY CLASS 2B

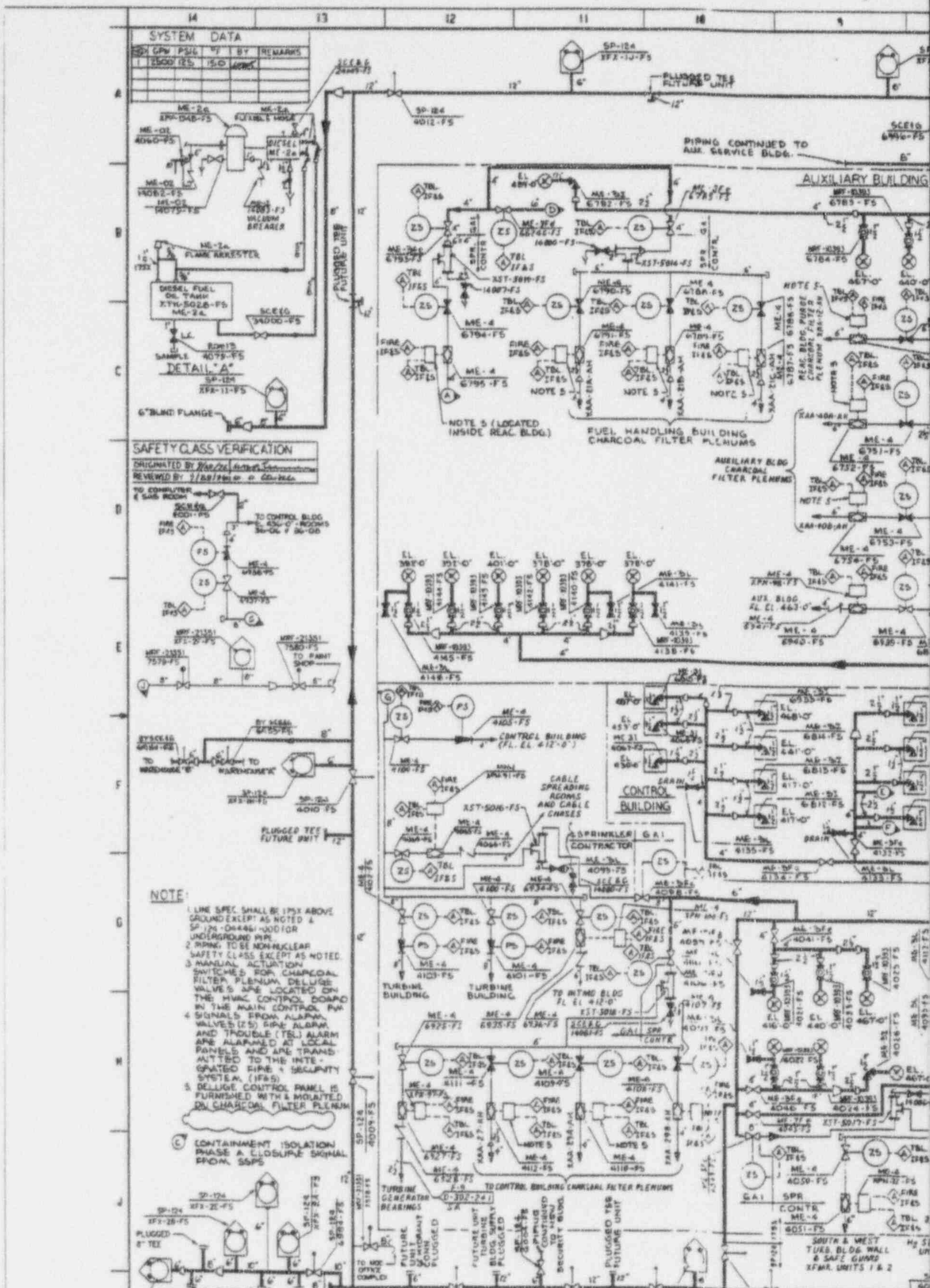
SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

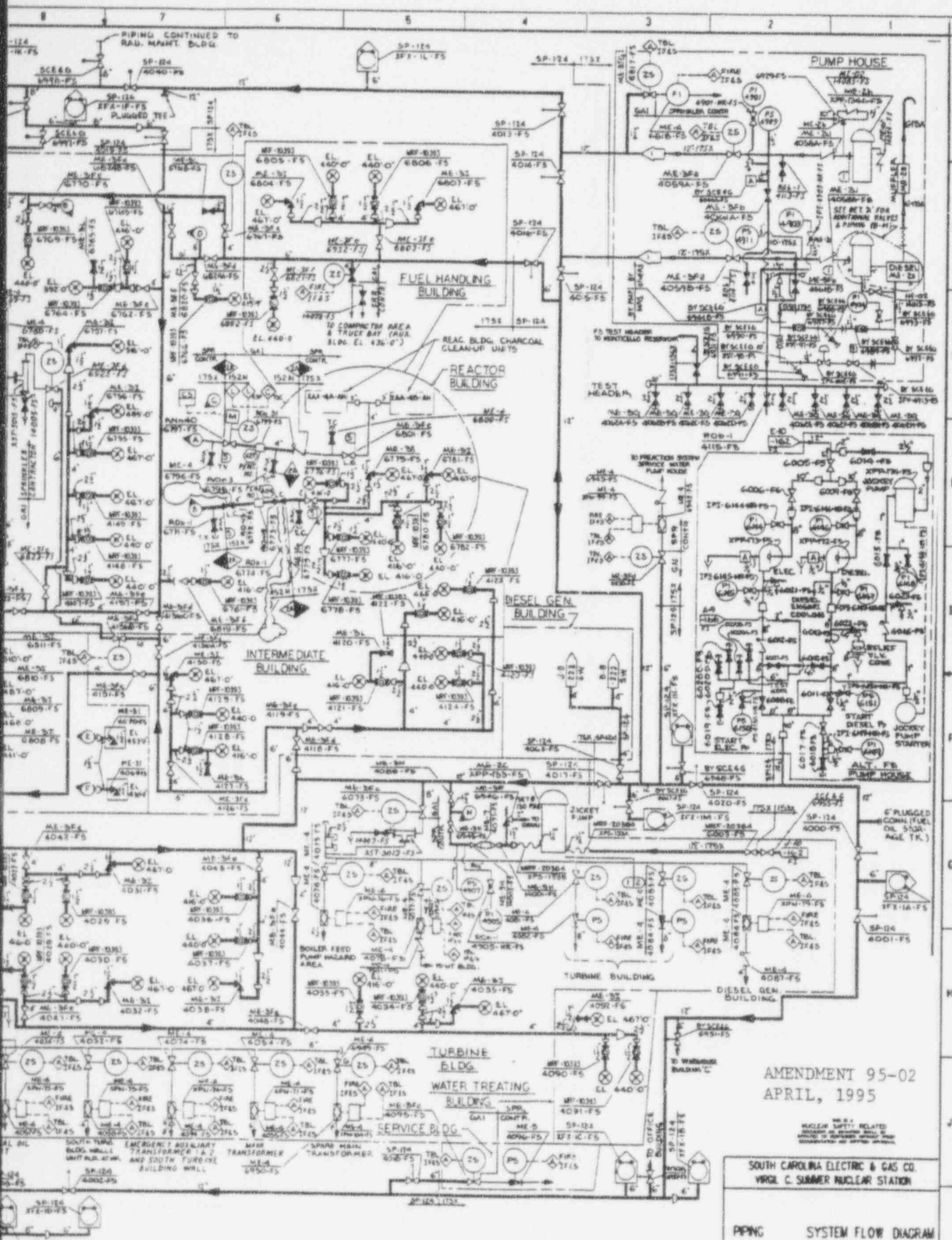
BUILDING SERVICE SYSTEM FLOW DIAGRAM

TECHNICAL SUPPORT CENTER AND
MAIN CONTROL BOARD
VENTILATION SYSTEM

D-912-141 REV. 4

Figure 9.4-33


SYSTEM DATA
SAFETY CLASS VERIFICATION
DETAIL "A"
DIESEL FUEL OIL TANK
FLAME ARRESTER
VACUUM BREAKER
6" BLIND FLANGE
PIPING CONTINUED TO AUX. SERVICE BLDG.
AUXILIARY BUILDING
NOTE 5 (LOCATED INSIDE REAC. BLDG.)
FUEL HANDLING BUILDING CHARCOAL FILTER PLENUMS
AUXILIARY BLDG CHARCOAL FILTER PLENUMS
PLUGGED TEE FUTURE UNIT
CONTROL BUILDING
CABLE SPREADING ROOMS AND CABLE CHASES
SPRINKLER CONTRACTOR
TURBINE BUILDING
TURBINE GENERATOR BEARINGS
TO CONTROL BUILDING CHARCOAL FILTER PLENUMS
FUTURE 12" CONN PLUGGED
NOTE:
1. LINE SPEC SHALL BE 1P5X ABOVE GROUND EXCEPT AS NOTED & SP-124-044461-000 FOR UNDERGROUND PIPE.
2. PIPING TO BE NON-NUCLEAR SAFETY CLASS EXCEPT AS NOTED.
3. MANUAL ACTUATION SWITCHES FOR CHARCOAL FILTER PLENUM DELUGE VALVES ARE LOCATED ON THE HVAC CONTROL BOARD IN THE MAIN CONTROL RM.
4. SIGNALS FROM ALARM VALVES (ZS) FIRE ALARM AND TROUBLE (TBL) ALARM ARE ALARMED AT LOCAL PANELS AND ARE TRANSMITTED TO THE INTEGRATED FIRE & SECURITY SYSTEM (IFSS).
5. DELUGE CONTROL PANEL IS FURNISHED WITH & MOUNTED ON CHARCOAL FILTER PLENUM.
CONTAINMENT ISOLATION PHASE A CLOSURE SIGNAL FROM SSPS
SOUTH & WEST TURB. BLDG WALL & SAFE GUARD XFMR. UNITS 1 & 2
DESIGN DATA



AMENDMENT 95-02
APRIL, 1995

SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

PIPING SYSTEM FLOW DIAGRAM
FIRE SERVICE
(D-302-231 REV. 26)
Figure 9.5-1

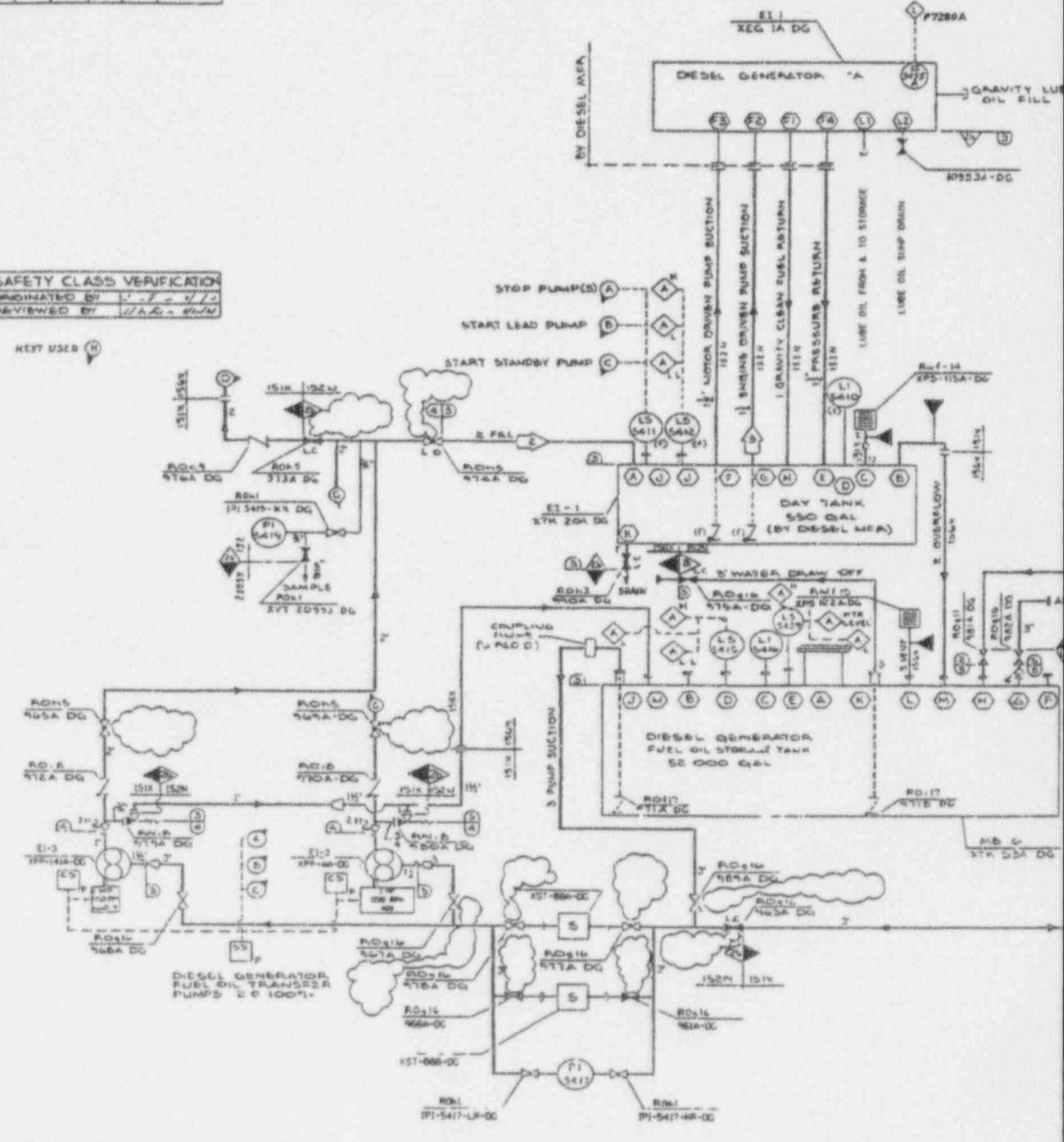
9506160376-16

14	13	12	11	10	9

SYSTEM DATA

⬭	GPM	PSIG	°F	BY	REMARKS
1	250	35	70	MRC	[illegible]
2	6	5	70	RBG	
3	5	0	70	HMG	[illegible]

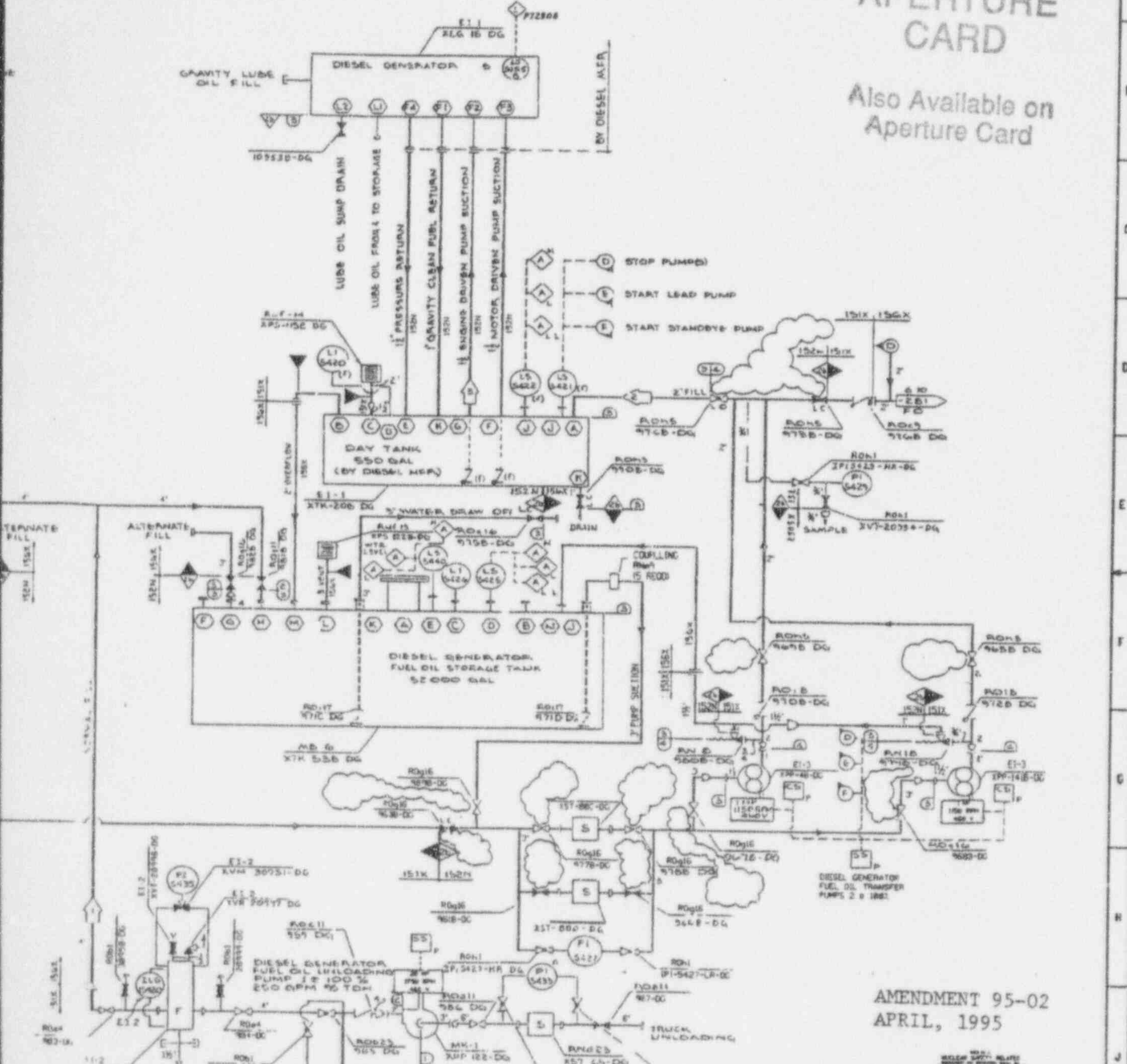
SAFETY CLASS VERIFICATION	
ORIGINATED BY	[illegible]
REVIEWED BY	[illegible]



NOTES:
1. LINE SPEC TO BE 152N UNLESS NOTED OTHERWISE
2. INDIVIDUAL COMPONENTS MAY BE SHOP HYDROTESTED TO THE PRESS INDICATED.
3. FIELD PRESS. TESTING OF THE COMPLETED SYS., OR PORTIONS THEREOF, SHALL BE BY PNEUMATIC TESTING AT THE PRESS INDICATED.
4. ITEMS DESIGNATED WITH (F) ARE FURNISHED BY EQUIPMENT SUPPLIER.

⬭	NORMAL PSIG	NORMAL °F	UPSET PSIG	UPSET °F	PNEUMATIC PSIG	PSIG HY-DRO	BY	CHKD	REMARKS
5	65	70	60	70	75	90	MTC		FUEL OIL
4	30	70	70	70	85	105	MRC		FUEL OIL
3	0	70	0	70	5	5	MRC		FUEL OIL
2	40	70	60	70	75	90	HRC		FUEL OIL
1	5	70	15	70	20	25	MRC		FUEL OIL

DESIGN DATA



AMENDMENT 95-02
APRIL, 1995

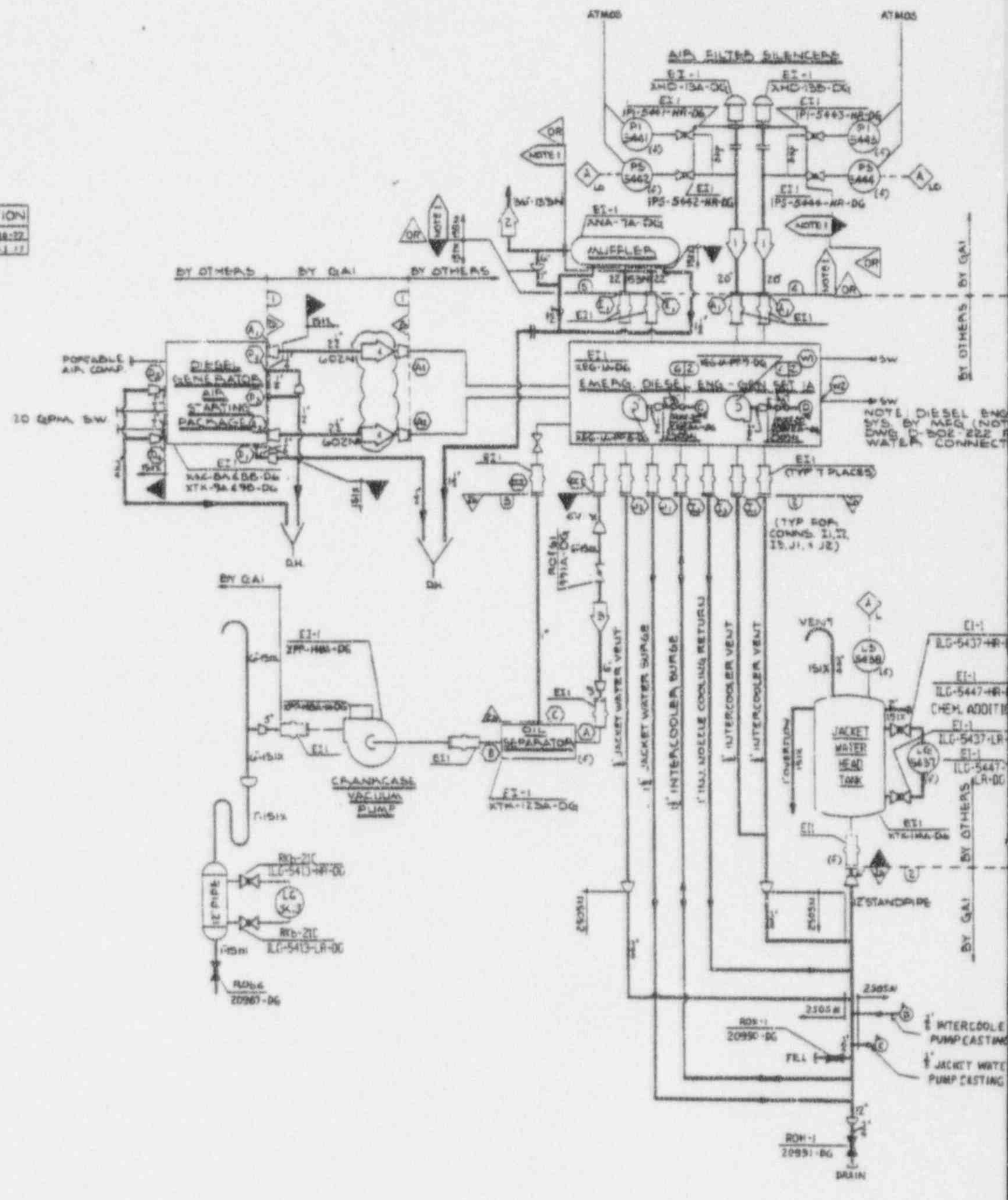
SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

PIPING SYSTEM FLOW DIAGRAM
DIESEL GENERATOR-FUEL OIL
(D-302-351 REV. 8)
Figure 9.5-2

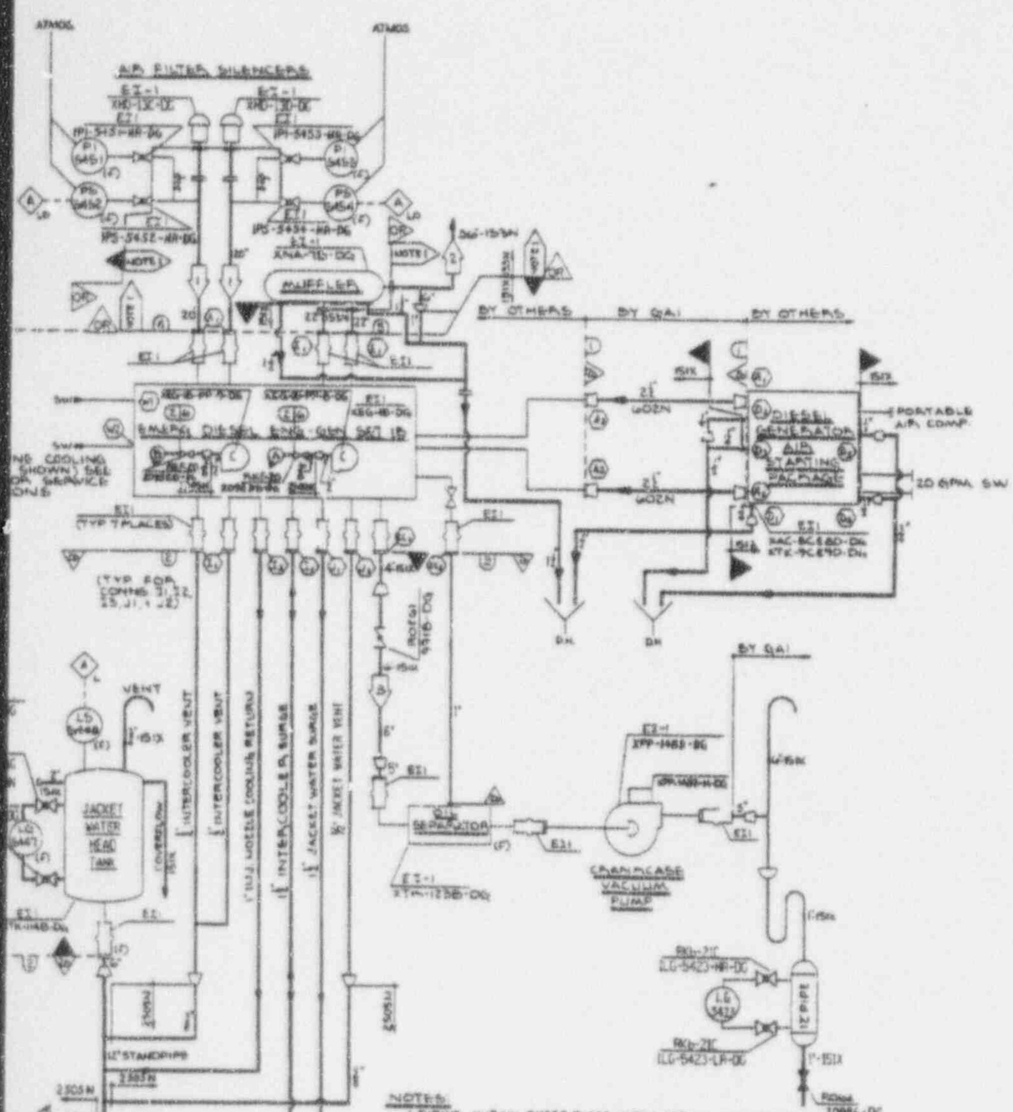
9506160376-17

SYSTEM DATA					
[illegible]	ID/HR	PSIG	°F	BY	REMARKS
1	[illegible]	0	70	EJA	[illegible]
2	[illegible]	4	850	EJA	-
3	[illegible]	0	180	EJA	-
4		415	88	[illegible]	

SAFETY CLASS VERIFICATION	
ORIGINATED BY	[illegible]
REVIEWED BY	[illegible]



6	40	175	100	200		125	RJS		
5	5	850	5	850		-	RJS		NOTE 6
4	0	70	0	100		-	RJS		NOTE 6
3	0	160	0	175		[illegible]	RJS		LUBE OIL
2	10	175	10	200		[illegible]	RJS		
1	450	130	450	130	510	640	EJA		START AIR
[illegible]	PSIG	°F	PSIG	°F	MAWP PSIG	PSIG HYDRO	BY	[illegible]	
	NORMAL		UPSET						
DESIGN DATA									



NOTES:

1. PIPING WITHIN THESE FLAGS IS TO MEET ALL REQUIREMENTS, EXCEPT FOR STAMPING & HYDROSTATIC TESTING, OF ASME CODE SECTION III CLASS 3, AND IS SPECIFICALLY INCLUDED IN THE SCOPE OF SPECIFICATION SP-546-044461-000.
2. INDIVIDUAL COMPONENTS MAY BE SHOP HYDRO-TESTED TO THE PRESSURE INDICATED.
3. FIELD PRESS. TESTING OF THE COMPLETED SYS. OR PORTIONS THEREOF SHALL BE BY PNEUMATIC TESTING AT THE PRESSURE INDICATED.
4. ITEMS DESIGNATED WITH (F) ARE FURNISHED BY THE DIESEL GENERATOR SUPPLIER.
5. ALL PIPING TO BE ANS SAFETY CLASS 2b EXCEPT AS NOTED.
6. LINE SPEC TO BE 152N UNLESS NOTED OTHERWISE.
7. HYDROTEST NOT REQD. AS PER CODE CASE N-240.

AMENDMENT 95-02
APRIL, 1995

SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

DIESEL GENERATOR
MISCELLANEOUS SERVICES
D-302-353 REV. 9

Figure 9.5-11

9506160376-18

LIST OF FIGURES (Continued)

LIST OF EFFECTIVE PAGES (LEP)

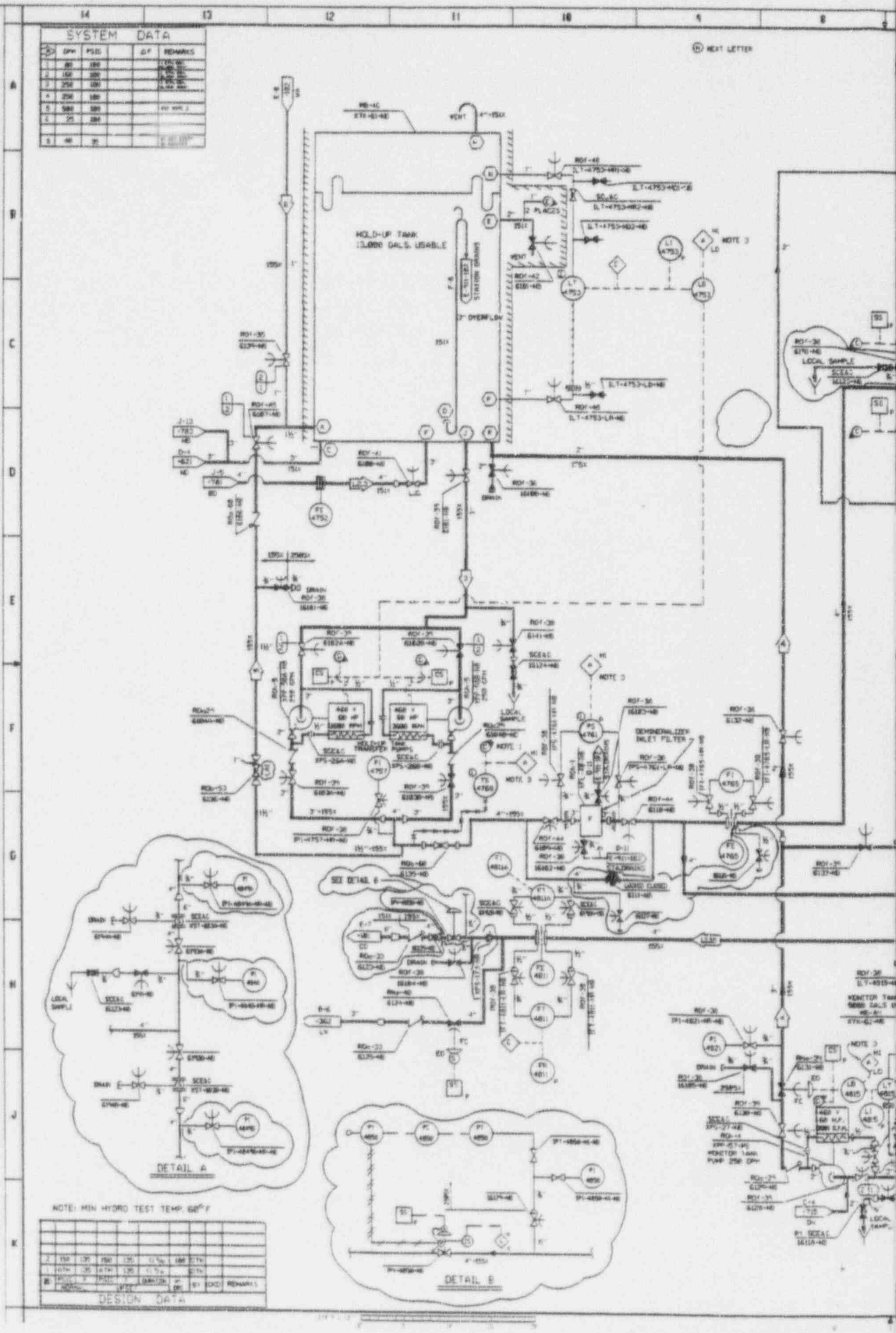
The following list delineates pages to Chapter 10 of the Virgil C. Summer Nuclear Station Final Safety Analysis Report which are currently in effect. The latest changes to pages and figures are indicated below by Amendment 94-10 in the Amendment column along with the amendment number and date for each page and figure included in the Final Safety Analysis Report.

Page/Fig. No.	Amend. No.	Date
Page 10-i	0	Aug. 1984
10-ii	7	Aug. 1991
10-iii	94-02	Feb. 1994
10-iv	94-02	Feb. 1994
10-v	3	Aug. 1987
10-vi	95-02	Apr. 1995
10-vii	95-02	Apr. 1995
10.1-1	0	Aug. 1984
10.1-2	0	Aug. 1984
10.1-3	0	Aug. 1984
10.1-4	0	Aug. 1984
Fig. 10.1-1(1 of 2)	0	Aug. 1984
10.1-1(2 of 2)	0	Aug. 1984
10.1-2	0	Aug. 1984
10.1-3	0	Aug. 1984
Page 10.2-1	0	Aug. 1984
10.2-2	0	Aug. 1984
10.2-3	0	Aug. 1984
10.2-4	0	Aug. 1984
10.2-5	0	Aug. 1984
10.2-6	94-02	Feb. 1994
10.2-7	0	Aug. 1984
10.2-8	94-02	Feb. 1994
10.2-9	1	Aug. 1985
10.2-10	0	Aug. 1984
10.2-11	0	Aug. 1984
Fig. 10.2-1	0	Aug. 1984
10.2-2	0	Aug. 1984
10.2-3	0	Aug. 1984
10.2-4	0	Aug. 1984
10.2-5	94-07	Aug. 1994
Page 10.3-1	0	Aug. 1984
10.3-2	0	Aug. 1984
10.3-3	0	Aug. 1984
10.3-4	6	Aug. 1990
10.3-5	6	Aug. 1990
10.3-6	94-09	Nov. 1994
10.3-7	94-09	Nov. 1994
10.3-8	6	Aug. 1990
10.3-9	0	Aug. 1984
10.3-10	0	Aug. 1984
10.3-11	0	Aug. 1984

Page/Fig. No.	Amend. No.	Date
Page 10.3-12	0	Aug. 1984
10.3-13	94-02	Feb. 1994
10.3-14	6	Aug. 1990
10.3-15	6	Aug. 1990
Fig. 10.3-1	94-01	Jan. 1994
10.3-2	93-01	Jan. 1993
10.3-3	0	Aug. 1984
10.3-4	94-02	Feb. 1994
Page 10.4-1	0	Aug. 1984
10.4-2	3	Aug. 1987
10.4-3	0	Aug. 1984
10.4-4	94-02	Feb. 1994
10.4-5	0	Aug. 1984
10.4-6	0	Aug. 1984
10.4-7	0	Aug. 1984
10.4-8	94-02	Feb. 1994
10.4-9	0	Aug. 1984
10.4-10	0	Aug. 1984
10.4-11	0	Aug. 1984
10.4-12	0	Aug. 1984
10.4-13	3	Aug. 1987
10.4-14	3	Aug. 1987
10.4-15	0	Aug. 1984
10.4-16	0	Aug. 1984
10.4-17	3	Aug. 1987
10.4-18	3	Aug. 1987
10.4-18a	3	Aug. 1987
10.4-19	0	Aug. 1984
10.4-20	0	Aug. 1984
10.4-21	0	Aug. 1984
10.4-22	7	Aug. 1991
10.4-23	2	Aug. 1986
10.4-24	1	Aug. 1985
10.4-25	0	Aug. 1985
10.4-26	94-08	Oct. 1994
10.4-26a	5	Aug. 1989
10.4-27	5	Aug. 1989
10.4-28	94-09	Nov. 1994
10.4-29	94-09	Nov. 1994
10.4-29a	5	Aug. 1989
10.4-30	91-1	Sep. 1991
10.4-30a	91-1	Sep. 1991

Page/Fig. No.	Amend. No.	Date
Page 10.4-31	0	Aug. 1984
10.4-31a	5	Aug. 1989
10.4-32	0	Aug. 1984
10.4-33	0	Aug. 1984
10.4-34	4	Aug. 1988
10.4-34a	4	Aug. 1988
10.4-35	4	Aug. 1988
10.4-36	5	Aug. 1989
10.4-37	5	Aug. 1989
10.4-38	4	Aug. 1988
10.4-39	4	Aug. 1988
10.4-40	0	Aug. 1984
10.4-41	0	Aug. 1984
10.4-42	0	Aug. 1984
10.4-43	0	Aug. 1984
10.4-44	0	Aug. 1984
10.4-45	94-02	Feb. 1994
10.4-46	94-02	Feb. 1994
10.4-47	94-02	Feb. 1994
10.4-48	0	Aug. 1984
10.4-49	0	Aug. 1984
10.4-50	0	Aug. 1984
10.4-51	3	Aug. 1987
10.4-52	0	Aug. 1984
10.4-52a	3	Aug. 1987
10.4-53	0	Aug. 1984
10.4-54	0	Aug. 1984
10.4-55	0	Aug. 1984
10.4-56	0	Aug. 1984
10.4-57	0	Aug. 1984
10.4-58	94-09	Nov. 1994
10.4-59	0	Aug. 1984
10.4-60	0	Aug. 1984
10.4-61	0	Aug. 1984
Fig. 10.4-1	94-02	Feb. 1994
10.4-3	94-02	Feb. 1994
10.4-4(1 of 3)	94-02	Feb. 1994
10.4-4(2 of 3)	94-02	Feb. 1994
10.4-4(3 of 3)	94-02	Feb. 1994
10.4-4a	94-02	Feb. 1994
10.4-4b	0	Aug. 1984
10.4-5	93-03	Mar. 1993
10.4-6	93-01	Jan. 1993
10.4-7	0	Aug. 1984
10.4-7a	7	Aug. 1991
10.4-8	94-09	Nov. 1994
10.4-8a	6	Aug. 1990

Page/Fig. No.	Amend. No.	Date
Fig. 10.4-9	93-11	Dec. 1993
10.4-10	7	Aug. 1991
10.4-11	7	Aug. 1991
10.4-12	93-10	Dec. 1993
10.4-13	94-10	Dec. 1994
10.4-14	95-02	Apr. 1995
10.4-15	0	Aug. 1984
10.4-16	95-02	Apr. 1995
10.4-17	93-01	Jan. 1993



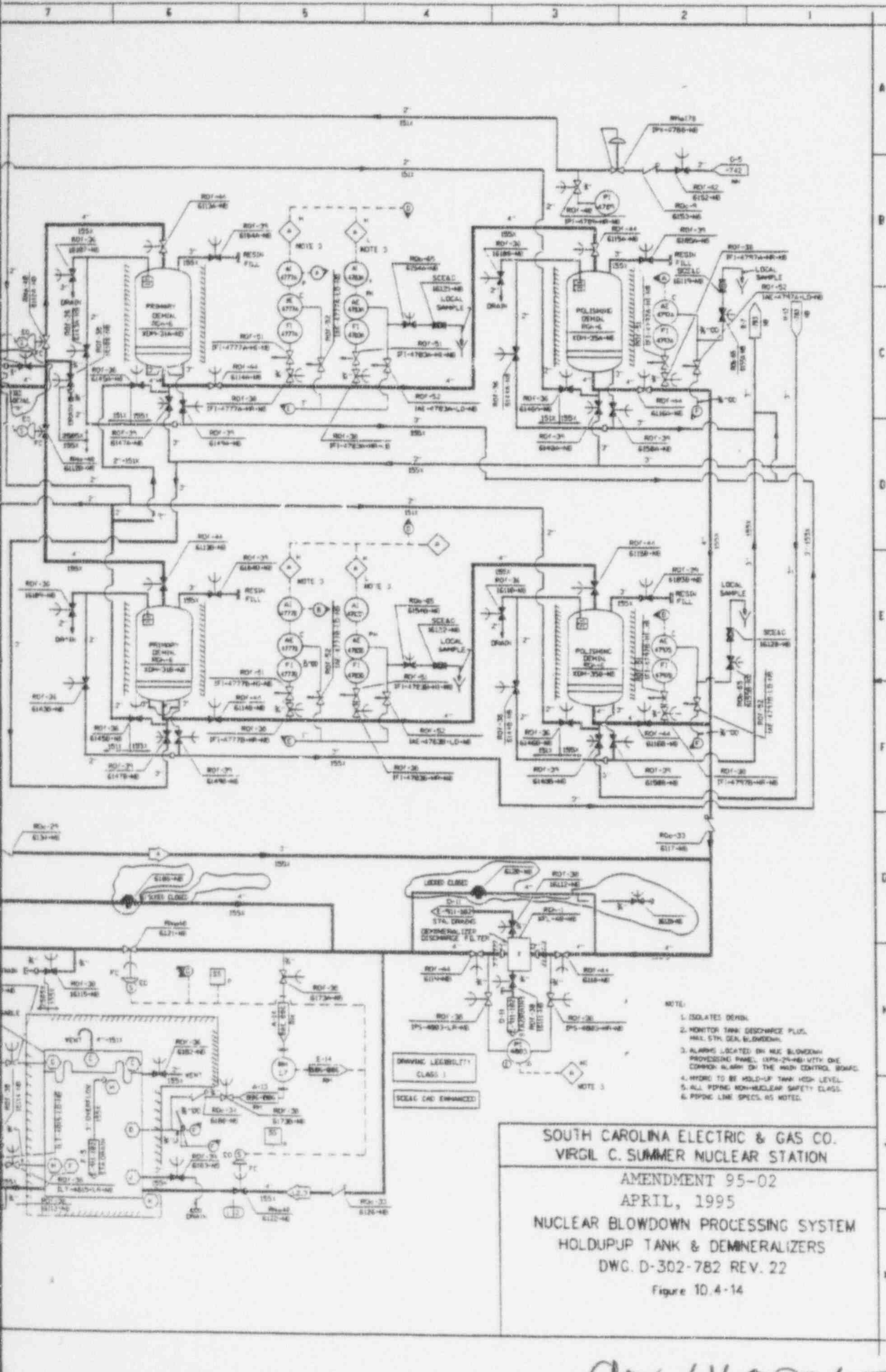
SYSTEM DATA

#	GPM	PSIG		ΔP	REMARKS
1	80	180			[illegible]
2	150	180			[illegible]
3	250	180			[illegible]
4	250	180			
5	500	180			[illegible] NOTE 2
6	25	180			
8	40	35			[illegible]

NOTE: MIN HYDRO TEST TEMP. 60° F

2	150	135	150	135	[illegible]	180	STM		
1	ATM	135	ATM	135	[illegible]		STM		
#	PSIG	°F	PSIG	°F	DURATION	°F DP	BY	CKD	REMARKS
	NORMAL		UPSET						

DESIGN DATA



SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

AMENDMENT 95-02
APRIL, 1995

NUCLEAR BLOWDOWN PROCESSING SYSTEM
HOLDUPUP TANK & DEMINERALIZERS
DWG. D-302-782 REV. 22

Figure 10.4-14

ANSTEC APERTURE CARD

Also Available on Aperture Card

9506160376-19

14	13	12	11	10	9

SYSTEM DATA

(ID)	GPM	PSIG	°F	REMARKS	NOTE
1	550	18	95	SAFE SHUTDOWN WITH	2
2	550	1238	95	TDEF PUMP, MAIN STEAM	—
3	90	1330	95	P=1120 PSIG, FLOW TO 2/3 S/G TURBINE AT 4200 RPM	1
1	465	18	95	SAFE SHUTDOWN WITH	2
2	465	196	95	TDEF PUMP, MAIN STEAM P=80 PSIA, FLOW TO 2/3 S/G	—
3	35	196	95	TURBINE AT ~ 1850 RPM	1
4	518	18	95	SAFE SHUTDOWN WITH	2
5	518	1315	95	ONE MDEF. PUMP MAIN STEAM, P=1120 PSIG, FLOW	—
6	92	1315	95	TO 2/3 S/G'S	1
4	538	26	95	NORMAL STARTUP/SHUT-DOWN WITH 2 MDEF. PUMPS	3
5	538	1290	95	MAIN STEAM P=872 PSIG,	—
5	87½	1290	95	FLOW TO 2/3 S/G'S	1
7	6	1290	95	SAMPLE	—
8	295	1130	95	NORMAL STARTUP/SHUTDOWN	4

SYSTEM DATA NOTES:

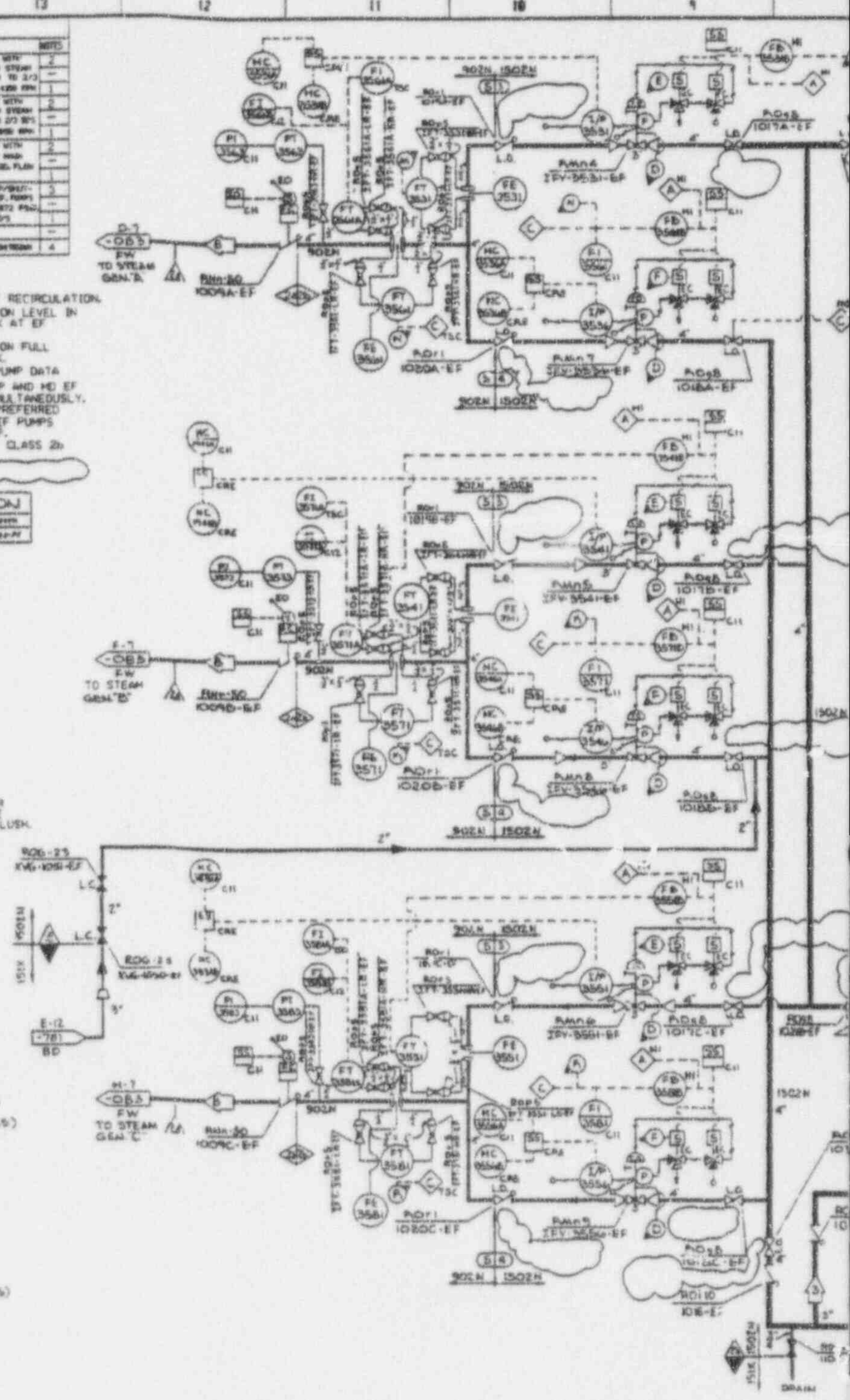
1. CONTINUOUS MINIMUM FLOW RECIRCULATION.
2. SUCTION PRESSURE BASED ON LEVEL IN CONDENSATE STORAGE TANK AT EF SUCTION NOZZLE.
3. SUCTION PRESSURE BASED ON FULL CONDENSATE STORAGE TANK.
4. REFER TO (ID) 4,5,6 FOR PUMP DATA
5. DATA BASED ON TDEF PUMP AND MD EF PUMP NOT OPERATING SIMULTANEOUSLY.
6. CONDENSATE STORAGE IS PREFERRED SOURCE OF SUCTION FOR EF PUMPS SW LOOPS PROVIDE BACKUP.
7. ALL PIPING TO BE SAFETY CLASS 2b EXCEPT AS NOTED.

SAFETY CLASS VERIFICATION	
ORIGINATED BY	[signature]
REVIEWED BY	[signature]

NOTE:

A. TEMPORARY STRAINER FOR SYSTEM CLEAN UP, TO BE REMOVED AFTER FINAL FLUSH.

B. SEE DWG. D-302-811 FOR TURBINE CONTROLS



MOTOR DRIVEN E.F. PUMP FLOW CONTROL VALVES

VALVE OPEN SIGNAL
1. 2/3 LO-LO SG LEVEL
2. ESFLS SIGNAL

(3 PLCS)

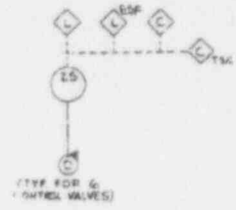
TURBINE DRIVEN E.F. PUMP FLOW CONTROL VALVES

VALVE OPEN SIGNAL
1. 2/3 LO-LO SG LEVEL IN ANY 2 SG
2. UNDERVOLTAGE ON DIESEL BUSES

(3 PLCS)

NOTES: DESIGN DATA

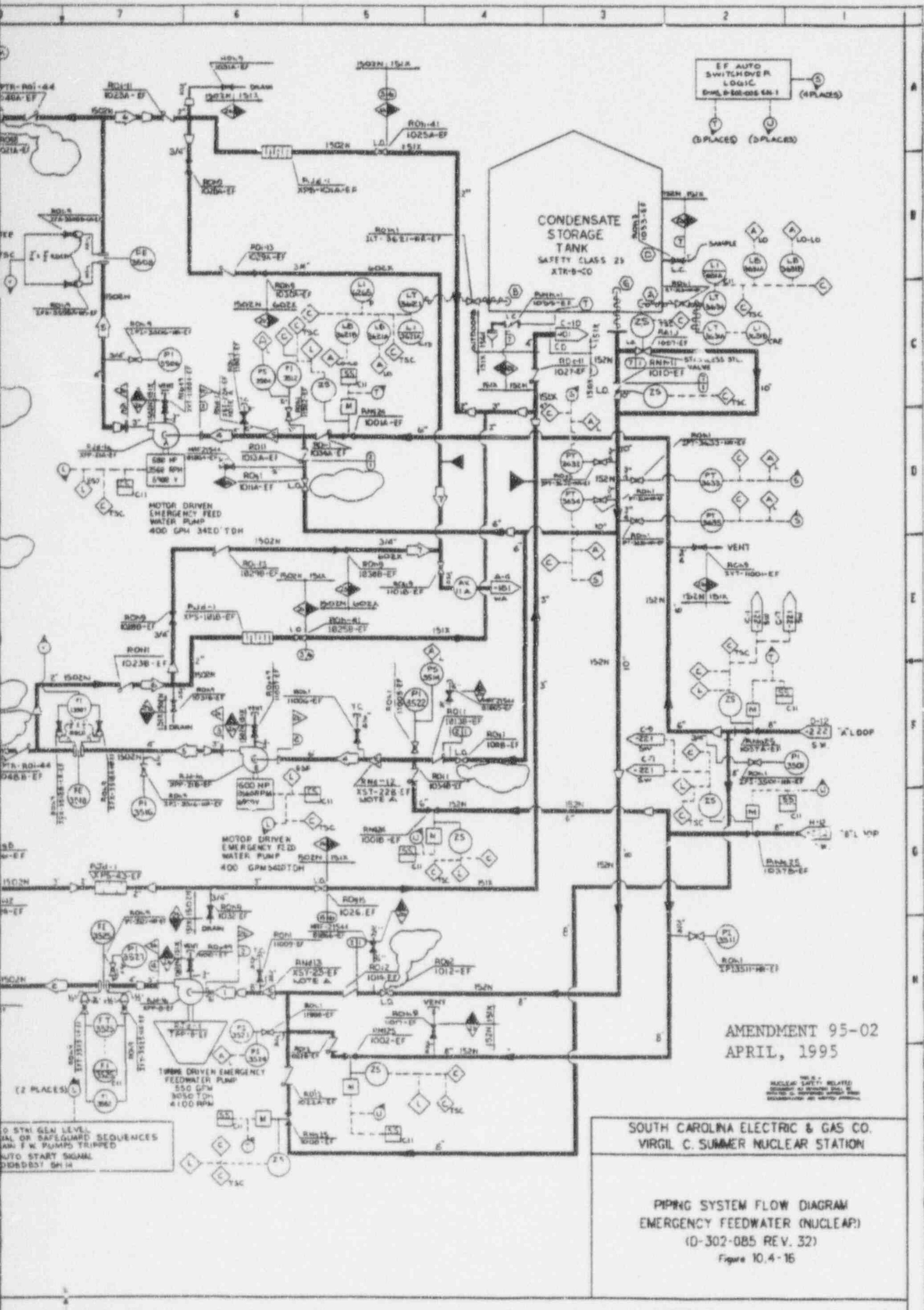
1. ALL UPSET CONDITIONS HAVE DURATIONS OF LESS THAN 1% OF THE DESIGN LIFE OF THE SYS
2. HYDRO TEST PRESS FOR (ID) IS SET BY HYDRO TEST PRESS FOR STM GEN SECONDARY SIDE BY (S)
3. HYDRO NOT REQUIRED AS PER CODE CASE N-240



HYDROSTATIC TEST TEMP. 60 °F

7	ATMOS	95	ATMOS	60	<1%	NOTE 3		NORMAL
6	40	95	40	60	<1%	60		NORMAL
5	1220	95	1360	60	<1%	1430		
4	1875	95	2250	60	<1%	2350		
3	1680	95	1715	60	<1%	2100		
2	50	95	65	60	<1%	82		NORMAL
1	27	95	27	60	<1%	35		NORMAL
(ID)	PSIG	°F	PSIG	°F	DURATION	PSIG	BY	REMARKS
	NORMAL		UPSET			HYDRO	(DD)	

DESIGN DATA



9506160376-20

LIST OF EFFECTIVE PAGES (LEP)

The following list delineates pages to Chapter 11 of the Virgil C. Summer Nuclear Station Final Safety Analysis Report which are currently in effect. The latest changes to pages and figures are indicated below by Amendment 94-10 in the Amendment column along with the amendment number and date for each page and figure included in the Final Safety Analysis Report.

Page/Fig. No.	Amend. No.	Date	Page/Fig. No.	Amend. No.	Date
Page 11-i	7	Aug. 1991	Page 11.2-12	3	Aug. 1987
11-ii	6	Aug. 1990	11.2-13	0	Aug. 1984
11-iii	6	Aug. 1990	11.2-14	3	Aug. 1987
11-iv	0	Aug. 1984	11.2-15	0	Aug. 1984
11-v	0	Aug. 1984	11.2-16	3	Aug. 1987
11-vi	0	Aug. 1984	11.2-17	3	Aug. 1987
11-vii	0	Aug. 1984	11.2-18	0	Aug. 1984
11-viii	0	Aug. 1984	11.2-19	3	Aug. 1987
11-ix	95-02	Apr. 1995	11.2-20	3	Aug. 1987
11-x	95-02	Apr. 1995	11.2-21	2	Aug. 1986
11-xi	95-02	Apr. 1995	11.2-22	0	Aug. 1984
11.1-1	0	Aug. 1984	11.2-23	0	Aug. 1984
11.1-2	0	Aug. 1984	11.2-24	0	Aug. 1984
11.1-3	0	Aug. 1984	11.2-25	0	Aug. 1984
11.1-4	0	Aug. 1984	11.2-26	0	Aug. 1984
11.1-5	2	Aug. 1986	11.2-27	0	Aug. 1984
11.1-6	0	Aug. 1984	11.2-28	0	Aug. 1984
11.1-7	0	Aug. 1984	11.2-29	0	Aug. 1984
11.1-8	0	Aug. 1984	11.2-30	0	Aug. 1984
11.1-9	0	Aug. 1984	11.2-31	0	Aug. 1984
11.1-10	0	Aug. 1984	11.2-32	0	Aug. 1984
11.1-11	6	Aug. 1990	11.2-33	0	Aug. 1984
11.1-12 (Deleted)	6	Aug. 1990	11.2-34	0	Aug. 1984
11.1-13	0	Aug. 1984	11.2-35	0	Aug. 1984
11.1-14	0	Aug. 1984	11.2-36	0	Aug. 1984
11.1-15	0	Aug. 1984	11.2-37	0	Aug. 1984
11.1-16	0	Aug. 1984	11.2-38	7	Aug. 1991
11.1-17	0	Aug. 1984	11.2-39	7	Aug. 1991
11.1-18	0	Aug. 1984	11.2-40	0	Aug. 1984
11.1-19	0	Aug. 1984	11.2-41	0	Aug. 1984
11.2-1	0	Aug. 1984	11.2-42	0	Aug. 1984
11.2-2	0	Aug. 1984	11.2-43	0	Aug. 1984
11.2-3	3	Aug. 1987	11.2-44	0	Aug. 1984
11.2-4	3	Aug. 1987	11.2-45	0	Aug. 1984
11.2-5	2	Aug. 1986	11.2-46	3	Aug. 1987
11.2-6	0	Aug. 1984	11.2-47	3	Aug. 1987
11.2-7	3	Aug. 1987	11.2-48	3	Aug. 1987
11.2-8	0	Aug. 1984	11.2-49	3	Aug. 1987
11.2-9	92-08	Aug. 1992	11.2-50	3	Aug. 1987
11.2-9a	5	Aug. 1989	11.2-51	3	Aug. 1987
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11.2-58	0	Aug. 1984	11.3-31	0	Aug. 1984
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11.2-62	0	Aug. 1984	11.3-35	0	Aug. 1984
11.2-63	0	Aug. 1984	11.3-36	0	Aug. 1984
11.2-64	0	Aug. 1984	11.3-37	0	Aug. 1984
11.2-65	0	Aug. 1984	Fig. 11.3-1	0	Aug. 1984
11.2-66	0	Aug. 1984	11.3-2	0	Aug. 1984
11.2-67	0	Aug. 1984	11.3-3	0	Aug. 1984
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11.3-9	0	Aug. 1984	11.4-11	0	Aug. 1984
11.3-10	0	Aug. 1984	11.4-12	0	Aug. 1984
11.3-11	0	Aug. 1984	11.4-13	0	Aug. 1984
11.3-12	93-10	Dec. 1993	11.4-14	0	Aug. 1984
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11.3-16	0	Aug. 1984	11.4-18	0	Aug. 1984
11.3-17	0	Aug. 1984	Fig. 11.4-1	0	Aug. 1984
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11.5.6 STORAGE

Compactable waste, filled containers of compacted waste, and spent filter cartridges are stored in the shielded areas of the radwaste area or in a location determined by the Manager of Health Physics and Radwaste Services. Contaminated hardware and tools may also be stored in these rooms. Solidified waste, after solidification is complete, and dewatered resins, once dewatering is complete, may be shipped off-site for immediate burial at a licensed facility. Primary spent resins will normally have at least a one month decay period while being held in the spent resin storage tank. Evaporator bottoms and secondary blowdown resins do not normally require a decay period.

If solidified waste and/or dewatered resins require storage for any reason, they will be stored in the radiation control area outside the truck access on the storage pad (see Figure 1.2-25) or in a location determined by the Manager of Health Physics and Radwaste Services. The storage pad is approximately 40 feet wide by 120 feet long and is sloped toward a hold-up trench. Waste stored in the storage area will be shielded as required by portable shields and/or casks used for shipment.

Storage areas for solidified waste, dewatered resins, and compacted waste are sufficient, based on the estimates presented in Section 11.5.4, to accommodate greater than 30 days waste generation.

11.5.7 SHIPMENT

Shipment, in accordance with applicable regulations, is made as necessary--dependent upon operational considerations and storage area availability.

The primary activity determination method will be to sample the waste stream (resins and liquid waste) during transfer to a process container and analyze the sample using the appropriate counting instrumentation. An isotopic determination is made of the radionuclides present and the activity of each. Summation of the individual activities is used to calculate the Curie content of the processed container.

For cases where the primary method cannot be used, an alternate technique will be implemented. The alternate method entails using the dose rate of the packaged waste in order to calculate the Curie content. The calculation considers the waste characteristics, geometry of the waste package, characteristics of the container and solidification media (if applicable), and the average gamma energy. For spent cartridge filters, this alternate method will be used to determine the Curie content. The appropriate counting instrumentation is used to analyze samples taken from the process stream to identify radionuclides present and the average gamma energy.

11.5.8 POTENTIAL FOR RELEASES

11.5.8.1 Potential for Release during Container Filling

The filling operation may be terminated via visual inspection using a remote monitor/television camera. Termination is accomplished by closing valves MOV-2 and MOV-5.

There is no airborne release to the atmosphere in the fill areas. Air in the container and gas, if any, from the waste entering the container are vented to the building exhaust, through a local filter, or through a portable ventilation unit. Only one line feeds waste to the container. This is flushed with water as the final phase of the fill cycle.

If leaks of any kind or spills are observed, the operation in progress can be immediately terminated. Any spill which may occur will be contained by permanent curbing in the solidification area.

Except for the curb in the solidification area, there are no physical barriers in the immediate fill areas to contain spills. Spills from the shipping container would need to be drained to a specific location or container as determined by the type of material spilled.

The floor surfaces have a special nonporous finish to permit decontamination of the surface, if required.

11.5.8.2 Potential for Release from Storage Tanks

11.5.8.2.1 Waste Evaporator Concentrates Tank

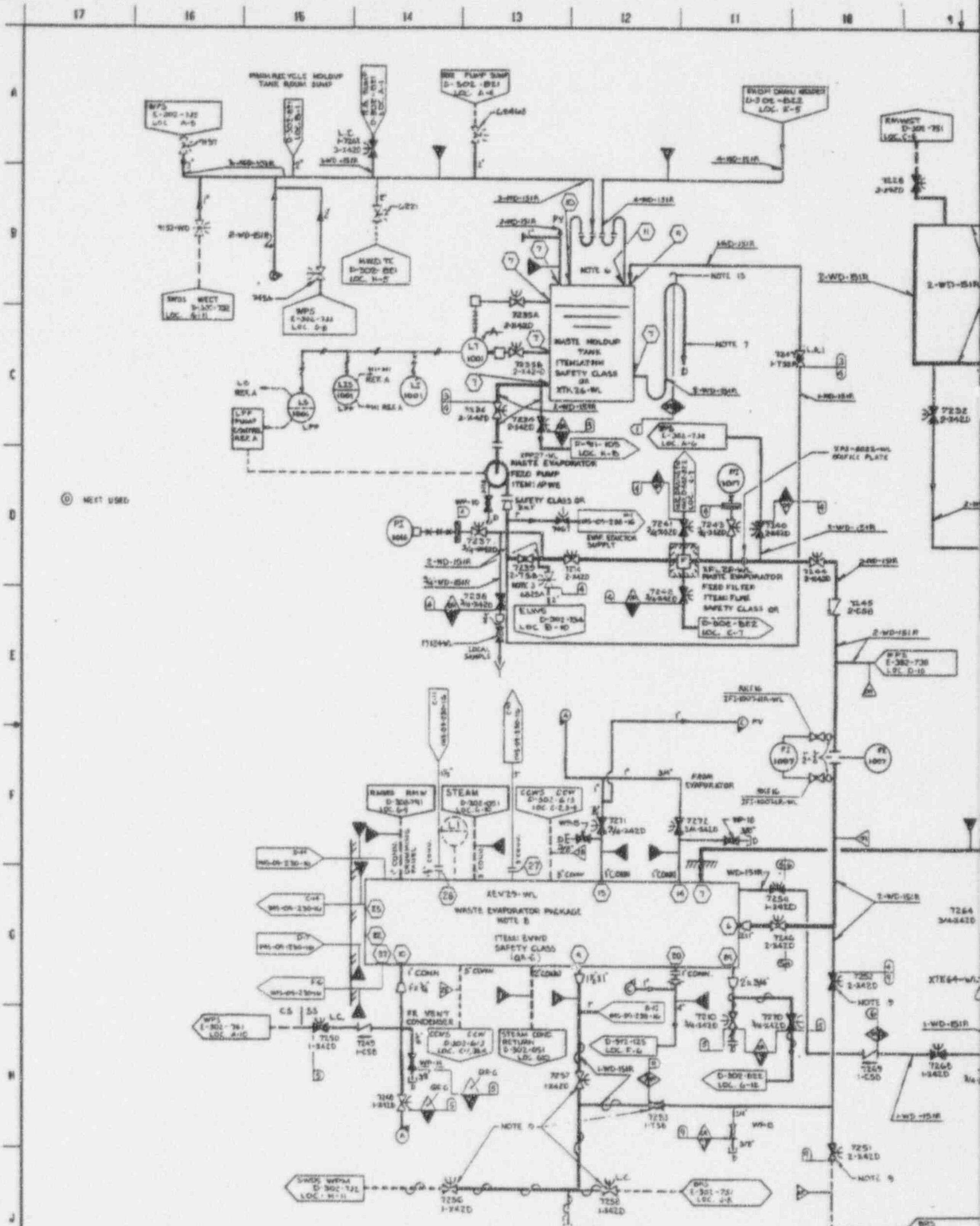
Essentially all radioactive gases are stripped from the concentrates in the waste evaporator. A normally closed vent is ducted to the auxiliary building exhaust system. A water seal, set for 2 feet of water, vents to the waste evaporator concentrates tank cubicle which is serviced by the auxiliary building exhaust system.

Overflow is not anticipated since waste evaporator concentrates tank capacity is sufficient for storage of the expected volume of concentrates generated by one year of normal operation. However, an overflow is directed to the waste holdup tank. Level indicators actuate alarms at the solid waste system control panel prior to tank overflow.

Floor drains in the cubicles for this tank and for the waste evaporator concentrates tank transfer pump drain to the floor drain tank. By appropriate valving, the concentrates can be pumped from the floor drain tank to either the waste holdup tank, waste evaporator, waste evaporator concentrates tank, or directly to the drumming station area for solidification.

11.5.8.2.2 Chemical Drain Tank

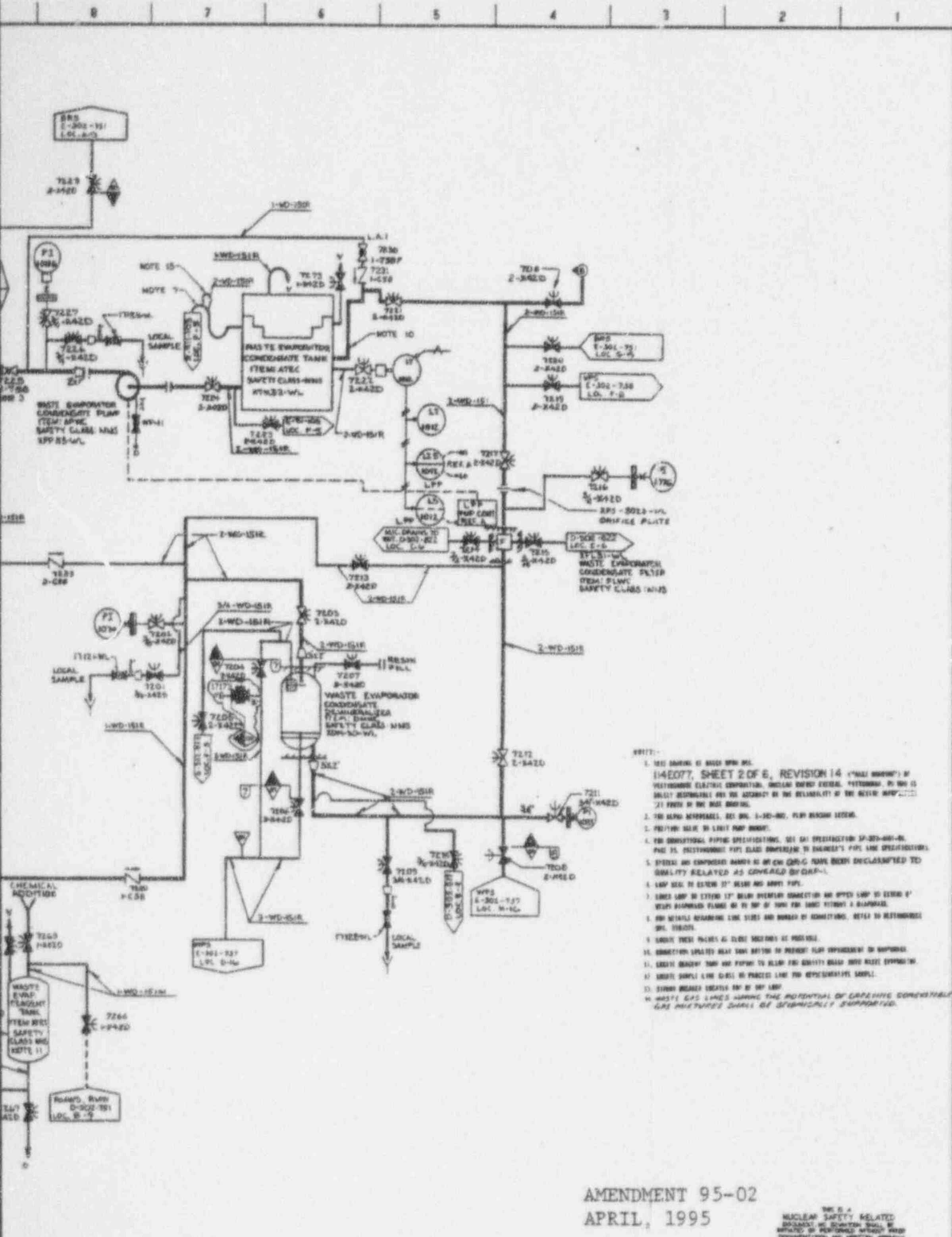
This tank is vented to the building exhaust system. A high level alarm is provided on the solid waste system control panel. Overflow, or leakage, if it occurs, is directed to the auxiliary building sump by a floor drain. The



§ STANDING WATER HYDROTEST W/WASTE HOLDUP TK. FILLED TO HIGH LEVEL POINT

9	5	100	140	150	175	5" (MIN)
8	110	140	150	140	165	[illegible]
7	20	140	150	150	130	[illegible]
6	50	170	60	170	60	[illegible]
5	5	200	15	225	17	[illegible]
4	110	100	110	100	136	[illegible]
3	VAC	100	5	100	4	[illegible]
1	5	120	100	120	125	[illegible]
D	PSIG	°F	PSIG	°F	PSIG	°F
	NORMAL		UPSET		HYDROTEST	

DESIGN DATA



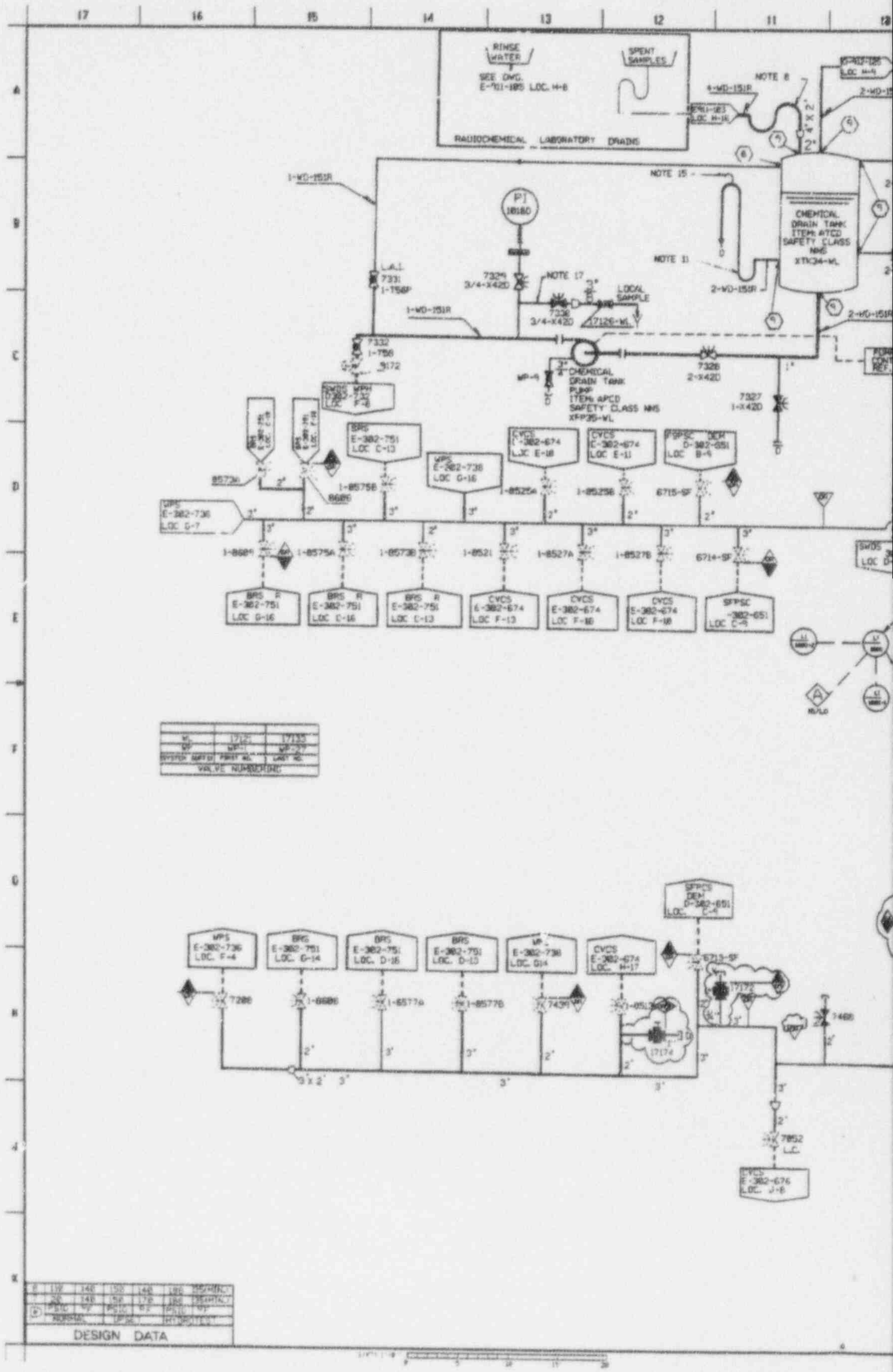
AMENDMENT 95-02
APRIL, 1995

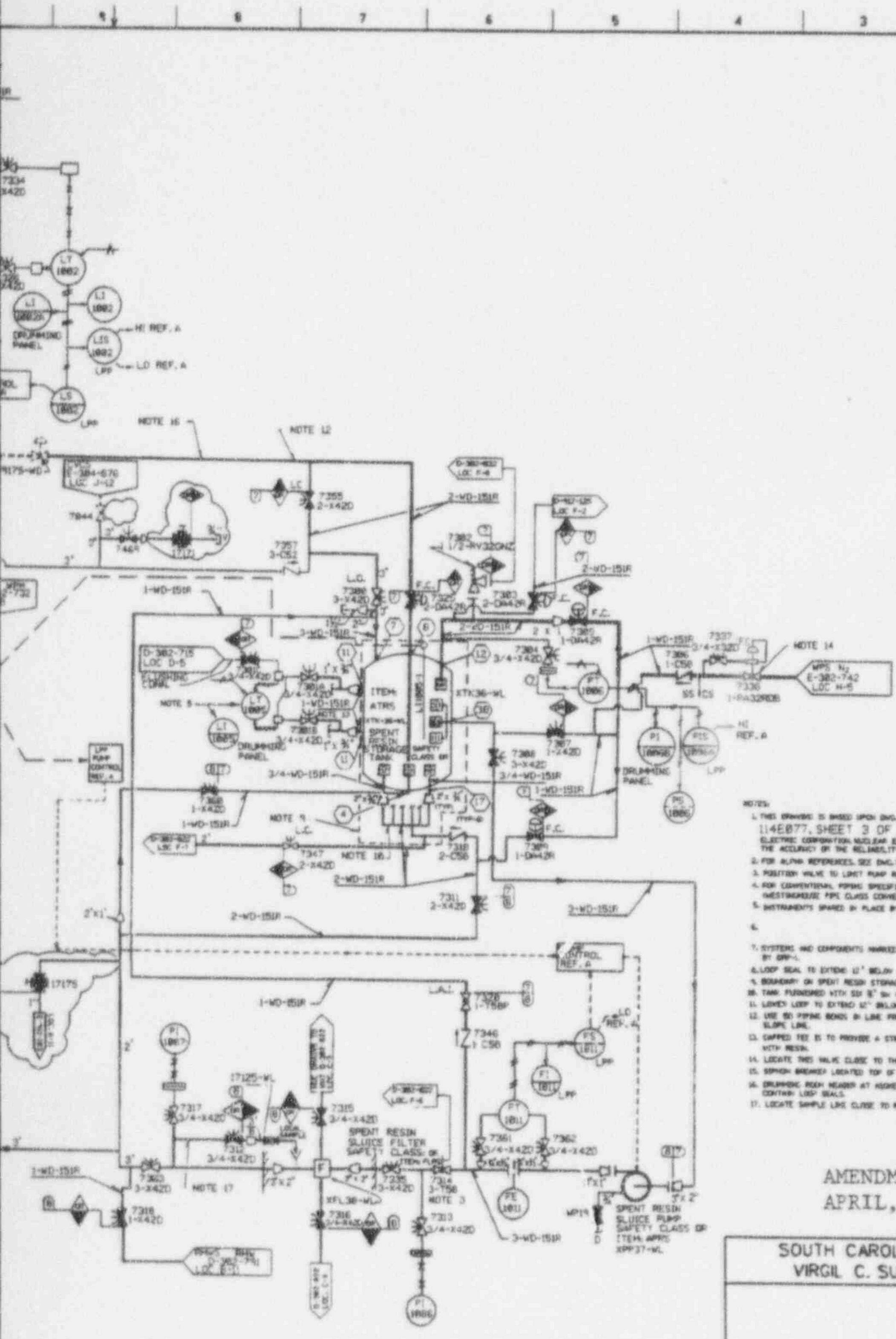
SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

WASTE PROCESSING

E-302-736 REV. 11

Figure 11.2-2 SHT. 2 OF 5


RINSE WATER
SEE DWG. E-?01-185 LOC. H-8
SPENT SAMPLES
RADIOCHEMICAL LABORATORY DRAINS
NOTE 8
NOTE 15
NOTE 11
NOTE 17
1-WD-151R
2-WD-151R
4-WD-151R
PI 10180
L.A.I. 7331 1-T58P
7324 3/4-X42D
7330 3/4-X42D
LOCAL SAMPLE
7332 1-T58
CHEMICAL DRAIN TANK ITEM: ATCD SAFETY CLASS NNS XTK34-WL
CHEMICAL DRAIN TANK PUMP ITEM: APCD SAFETY CLASS NNS XPP35-WL
7328 2-X42D
7327 1-X42D
BRS E-382-751 LOC C-13
WPS E-382-738 LOC G-16
WPS E-382-736 LOC G-7
CVCS E-382-674 LOC E-11
FPPSC DEM D-382-651 LOC B-4
6715-SF
6714-SF
BRS E-382-751 LOC G-16
BRS E-382-751 LOC C-16
BRS E-382-751 LOC C-13
CVCS E-382-674 LOC F-13
CVCS E-382-674 LOC F-18
SFPSC D-382-651 LOC C-4
VALVE NUMBERING
SFPCS DEM D-382-651 LOC. C-4
WPS E-382-736 LOC. F-4
BRS E-382-751 LOC. G-14
BRS E-382-751 LOC. D-16
BRS E-382-751 LOC. D-13
CVCS E-382-674 LOC. H-17
6713-SF
7208
7052 L.C.
CVCS E-382-676 LOC. J-8
DESIGN DATA



NOTES:

1. THIS DRAWING IS BASED UPON DWG. 114E077, SHEET 3 OF 6, REVISION 14 (BASE DRAWING) OF WESTINGHOUSE ELECTRIC CORPORATION NUCLEAR ENERGY SYSTEMS, PITTSBURGH, PA WHO IS SOLELY RESPONSIBLE FOR THE ACCURACY OF THE RELIABILITY OF THE DESIGN INFORMATION SET FORTH IN THE BASE DRAWING.
2. FOR ALPHA REFERENCES, SEE DWG. E-302-802, FLOW DIAGRAM LEGEND.
3. POSITION VALVE TO LIMIT PUMP RUNOUT.
4. FOR CONVENTIONAL PIPING SPECIFICATIONS, SEE GAI SPECIFICATION SP-229-4461-00, PAGE 2% (WESTINGHOUSE PIPE CLASS CONVERSION TO ENGINEER'S PIPE LINE SPECIFICATION.
5. INSTRUMENTS SPARED IN PLACE BY MRF-21791
6.
7. SYSTEMS AND COMPONENTS MARKED AS "SP" HAVE BEEN DECLASSIFIED TO QUALITY RELATED AS COVERED BY QRP-1.
8. LOOP SEAL TO EXTEND 12" BELOW AND ABOVE PIPE.
9. BOUNDARY ON SPENT RESIN STORAGE TANK CUBICLE.
10. TANK FURNISHED WITH SIX 1/2" SW COUPLING. SPARGER CONNECTIONS TO BE PIPED IN FIELD.
11. LOWER LOOP TO EXTEND 12" BELOW OVERFLOW CONNECTION AND UPPER LOOP TO TOP OF TANK.
12. USE 5D PIPING BENDS IN LINE FROM SPENT RESIN STORAGE TANK TO DRUMMING ROOM. CONTINUOUSLY SLOPE LINE.
13. CAPPED TEE IS TO PROVIDE A STRAIGHT PATH FOR RODDING OF THE PIPE SHOULD IT BECOME CLOGGED WITH RESIN.
14. LOCATE THIS VALVE CLOSE TO THE N_2 SUPPLY.
15. SIPHON BREAKER LOCATED TOP OF TOP LOOP.
16. DRUMMING ROOM HEADER AT HIGHEST ELEVATION WITH RESPECT TO RESIN LINE. RESIN LINE MUST NOT CONTAIN LOOP SEALS.
17. LOCATE SAMPLE LINE CLOSE TO PROCESS LINE FOR REPRESENTATIVE SAMPLE.

AMENDMENT 95-02
APRIL, 1995

SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

WASTE PROCESSING
E-302-737 REV. 10
Figure 11.2-2 SHT. 3 OF 5

9506160376-22

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12.1-18	2	Aug. 1986	12.1-60	0	Aug. 1984
12.1-19	0	Aug. 1984	12.1-61	0	Aug. 1984
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12.1-21	0	Aug. 1984	12.1-63	0	Aug. 1984
12.1-22	0	Aug. 1984	12.1-64	0	Aug. 1984
12.1-23	93-01	Jan. 1993	12.1-65	0	Aug. 1984
12.1-24	93-01	Jan. 1993	12.1-66	0	Aug. 1984
12.1-25	94-01	Jan. 1994	12.1-67	0	Aug. 1984
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12.1-27	0	Aug. 1984	12.1-69	0	Aug. 1984
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12.1-22	0	Aug. 1984	Fig. 12.3-1	94-01	Jan. 1994
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12.2-12	0	Aug. 1984	12A-12	0	Aug. 1984
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12.2-23	0	Aug. 1984	12A-23	0	Aug. 1984
12.2-24	0	Aug. 1984	12A-24	0	Aug. 1984
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			12A-26	0	Aug. 1984

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In the control complex, the sampling room could be considered as a source of airborne activity. This air is monitored for airborne activity as discussed in Section 12.2.4.2.7.

Periodic surveillance of accessible areas, in accordance with Sections 12.1.5 and 12.3.2, will be performed.

Reliable power for the fixed instrumentation is obtained from the diesel backed, 120 volt instrument buses. Associated sample pumps obtain power from the 480 volt diesel backed buses. This assures continuity of operation in the event of a loss of offsite power. Measured activity levels are indicated and recorded on the radiation monitoring system control panel located in the control room. Local indication is provided for each channel. A differential pressure switch is provided on the particulate and iodine collection filter holders to cause an alarm on filter blockage. Another differential pressure switch is provided across the two filter holders (except on RMA-4) to cause an alarm on loss of flow. The loss of flow alarm for RMA-4 originates from the flow indication device (photohelic). The movable monitors have local indication, recording and alarms. Detectors have remotely actuated check sources to provide functional verification. In addition, each channel is calibrated routinely by exposure to a calibrated source traceable either directly or indirectly to NBS for verification against its initial calibration. Calibration of the monitors is performed following any required maintenance of the detectors. Measurements have an accuracy of ±25 percent of the true value. Precision is ±15 percent at all levels. Each ratemeter is equipped with two adjustable alarm levels (alert and high) and a channel failure/or loss of power alarm. These alarms, associated with the fixed monitors, are annunciated on the radiation monitoring system control panel in the control room. Channels which have interlock functions with other systems (see Figure 11.4-1) are provided with a bypass switch for use during maintenance or testing. Use of this switch is annunciated.

12.2.4.2.1 Control Room Supply Air, Channel RM-A1

This channel monitors the particulate, iodine and gaseous activity of air supplied to the control room. A sample of air is taken from the air supply duct through an isokinetic sampler nozzle and is drawn successively through a particulate sampler, an iodine sampler, and a gas sampler. The particulate sampler is equipped with a fixed filter which is continuously monitored by a lead shielded scintillator detector. The iodine sampler is similar to the particulate sampler except that an activated charcoal cartridge is used instead of a fixed filter. The fixed filter and the charcoal filter are designed to be removable for laboratory analysis. The sensitive volume of the gas sampler is shielded with lead and monitored by a scintillation detector. The approximate sensitivity and range of this channel are as follows:

1. Particulate, 10^{-11} to 10^{-7} μCi/cc based upon Cs-137.
2. Gas, 2×10^{-6} to 2×10^{-2} μCi/cc based upon Kr-85.
3. Iodine, 3×10^{-11} to 10^{-7} μCi/cc based upon I-131.

A high activity alarm from the gas channel automatically places the control room, computer room, relay room and instrument repair room ventilation systems in the recirculation mode, starts the control room emergency ventilation system and closes the outside air dampers. The iodine and particulate channels provide high activity alarms to alert operating personnel. The high alarm setpoints are established on the basis of the requirements of 10 CFR 20 and the sensitivity of the detection channels.

12.2.4.2.2 Reactor Building Air Sample Line, Channel RM-A2

This channel monitors the particulate, iodine and gaseous activity level of the air inside the reactor building and is located inside the auxiliary building. Reactor building air drawn from and returned through reactor building penetrations is monitored by RM-A2. The readout of the monitor is used to detect leaks in systems containing primary coolant. Channel ranges are similar to those of Channel RM-A1. The sensitivity of this monitor provides the capability to detect 10-MPC-hours of particulate and iodine radioactivity.

The monitor air sample and return lines are isolated (closed) upon occurrence of a containment isolation signal (Phase A). Post accident, this monitor can be used as a reactor building air sampling station, provided that reactor building pressure and temperature have been reduced sufficiently to allow opening of the sample line isolation valves. This monitor is also designed to withstand seismic conditions as recommended by Regulatory Guide 1.45.

The monitor design is similar to that of RM-A1, except that a moving particulate filter is used. An additional sample pump is also provided to allow operation when one pump is undergoing maintenance.

A high activity alarm from the gas channel initiates closure of the reactor building purge valves (see Figure 11.4-1).

High alarm setpoints are based upon plant operating requirements, sensitivity and measured normal background. The particulate alarm setpoints may be readjusted as a function of primary coolant activity, leakages or plant conditions.

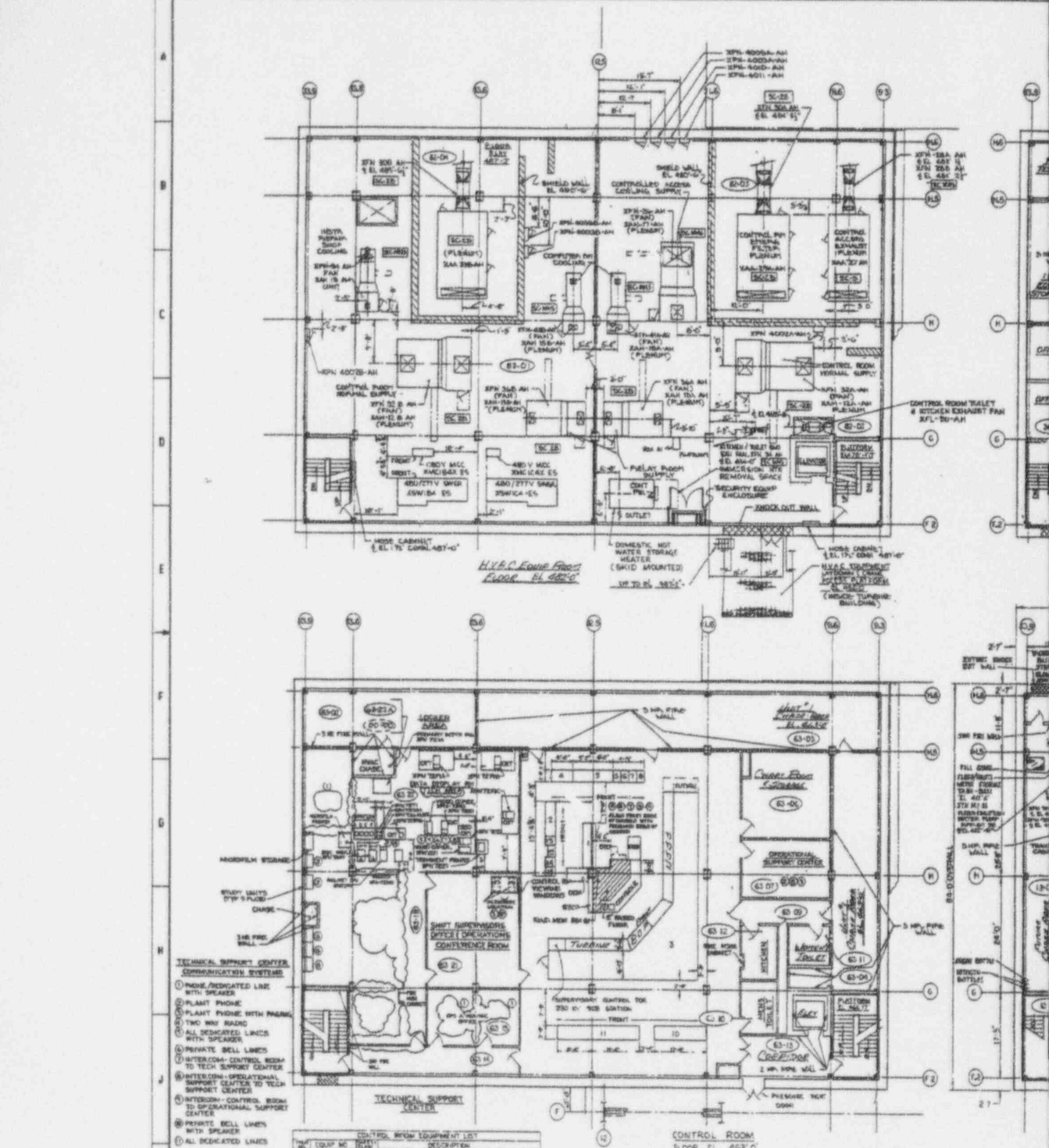
A fixed alarm setpoint is not applicable to particulate radiation monitoring for reactor coolant leak detection. The activity of the reactor coolant and background radiation must be taken into consideration.

The particulate channel of radiation monitor RM-A2 will be operated with an initial setpoint of not less than twice background and may subsequently be readjusted based upon the results of periodic analysis of reactor coolant activity.

This setpoint is expressed as follows:

$$* [(B_1) + (C_1 \; R_1 \; K_1)] \geq \text{Setpoint} \geq 2B_1^* \qquad \text{Eq. 12.2-1}$$

*This setpoint may be adjusted greater than this expression to compensate for high containment equilibrium activity but no more than twice the operational equilibrium (same for in gas channel).

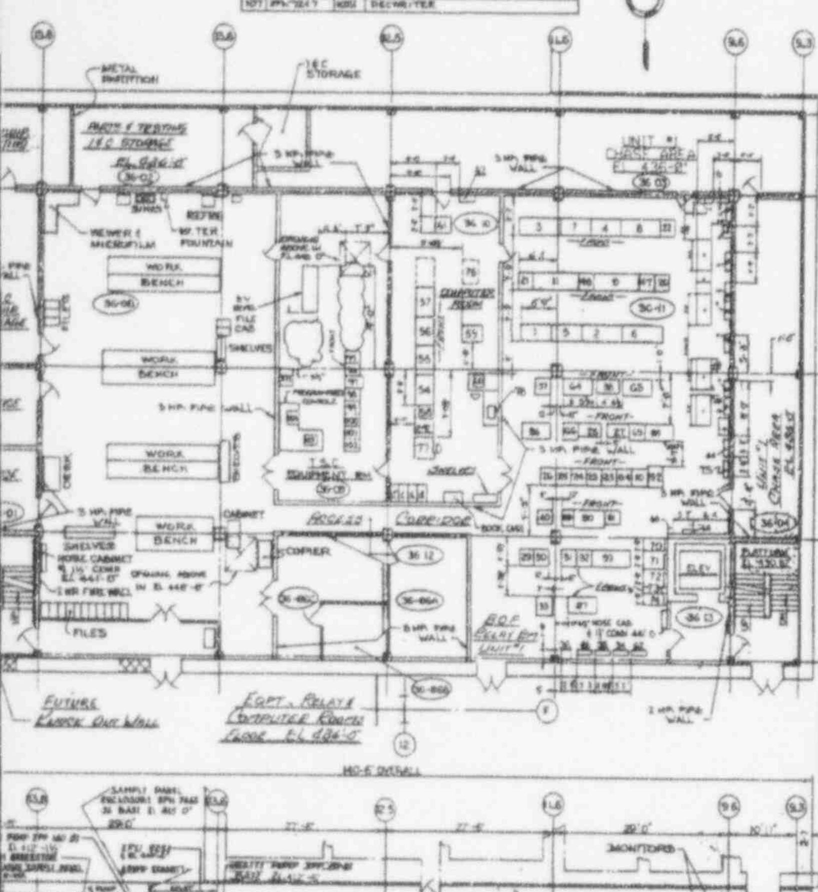


CONTROL ROOM EQUIPMENT LIST

ITEM NO.	EQUIP NO	SAFETY CLASS	DESCRIPTION
1	XCP 7058	NNS	COMPUTER OPERATOR CONSOLE
2	XCP 7060	NNS	INCORE INSTR. INCAS FLUX MAPPING SYS
3	XCP 6100	1E	MAIN CONTROL BOARD
4	XCP 6040	NNS	FIRE SERVICE PANEL
5	XCP 7071	1E	NUCLEAR INSTRUMENT SYS CONSOLE CHAN I
6	XCP 7072	1E	NUCLEAR INSTRUMENT SYS CONSOLE CHAN II
7	XCP 7073	1E	NUCLEAR INSTRUMENT SYS CONSOLE CHAN III
8	XCP 7074	1E	NUCLEAR INSTRUMENT SYS CONSOLE CHAN IV
9	XCP 6200	NNS	RADIATION MONITORING SYSTEM PANEL
10	XCP 6210	1E	H.V.A.C CONTROL BOARD
11	XCP 6220	NNS	GEN. & XFMR ELECT RELAY BOARD
12	XCP 6230	NNS	TEMP SCANNING SYS CONTROL PANEL

CONTROL ROOM EQUIPMENT LIST

ITEM NO.	EQUIP NO	SAFETY CLASS	DESCRIPTION
13	XCP 7065	NNS	AXIAL PWR DIST MONITORING SYS CABINET
14	XPN 6042	NNS	LOOSE PARTS MONITORING PANEL
15	XPN 7216	1E	ICC SUBCOOL MONITOR AND ACOUSTIC LEAK MONITOR PANEL
16	XPN 7210A		PLANT SAFETY STATUS DISPLAY CRT
17	XPN 7210B		PLANT SAFETY STATUS DISPLAY CRT
18	XPN 7211A		BYPASS AND INOPERABLE STATUS INDICATION CRT
19	XPN 7211B		BYPASS AND INOPERABLE STATUS INDICATION CRT
20	XPN 3182		VIDEO COPIER



TECHNICAL SUPPORT CENTER INSTRUMENT, COMPUTER & RELAY RM EQUIPMENT LIST

ITEM NO.	EQUIP NO.	SAFETY CLASS	DESCRIPTION
1	XPN7001	1E	PROCESS I&C RACK PROT. SET I
2	XPN7002	1E	PROCESS I&C RACK PROT. SET II
3	XPN7003	1E	PROCESS I&C RACK PROT. SET III
4	XPN7004	1E	PROCESS I&C RACK PROT. SET IV
5	XPN7005	NNS	PROCESS I&C RACK CONT. GRP 1
6	XPN7006	NNS	PROCESS I&C RACK CONT. GRP 2
7	XPN7007	NNS	PROCESS I&C RACK CONT. GRP 3
8	XPN7008	NNS	PROCESS I&C RACK CONT. GRP 4
9	XPN7010	1E	SOLID STATE PROT. SYSTEM CAB. TRAIN "A"
10	XPN7019	NNS	SOLID STATE PROT. SYS. CONT. BD DEMULTIPLEXER
11	XPN7020	1E	SOLID STATE PROT. SYSTEM CAB. TRAIN "B"
12	XIT5901	1E	120V INVERTER 1 NSSS
13	XIT5902	1E	120V INVERTER 2 NSSS
14	XIT5903	1E	120V INVERTER 3 NSSS
15	XIT5904	1E	120V INVERTER 4 NSSS
16	APN5901	1E	120V VITAL AC DIST PANEL 1, NSSS
17	APN5902	1E	120V VITAL AC DIST PANEL 2, NSSS
18	APN5903	1E	120V VITAL AC DIST PANEL 3, NSSS
19	APN5904	1E	120V VITAL AC DIST PANEL 4, NSSS
20	XPN7051	NNS	NUC. STEAM SUPPLY AUXILIARY RELAY RACK 1
21	XPN7052	NNS	NUC. STEAM SUPPLY AUXILIARY RELAY RACK 2
22	XPN7053	NNS	NUC. STEAM SUPPLY AUXILIARY RELAY RACK 3
23	XPN6091	NNS	ANNUNCIATOR RELAY PANEL 01
24	XPN6092	NNS	ANNUNCIATOR RELAY PANEL 02
25	XPN6093	NNS	ANNUNCIATOR RELAY PANEL 03
26	XPN6094	NNS	ANNUNCIATOR RELAY PANEL 04
27	XPN6020	1E	ENG. SAFETY FEATURES LOAD SEQ. PNL. TRAIN A
28	XPN6021	1E	ENG. SAFETY FEATURES LOAD SEQ. PNL. TRAIN B
29	XPN6051	NNS	BAL. OF PLANT AUXILIARY RELAY RACK 01
30	XPN6052	NNS	BAL. OF PLANT AUXILIARY RELAY RACK 02
31	XPN6053	NNS	BAL. OF PLANT AUXILIARY RELAY RACK 03
32	XPN6054	NNS	BAL. OF PLANT AUXILIARY RELAY RACK 04
33	XIT5906	NNS	120V INVERTER 6 B.O.P. SUPPLY
34	APN5906	NNS	120V AC INST SUPPLY BUS 6 B.O.P. SUPPLY
35	APN1F11	NNS	120V AC INST DIST PANEL 1F11
36	XTF1F1	NNS	120V AC INST SUPPLY TRANS FOR B.O.P.
37	XPN6091	NNS	EARTHQUAKE MONITORING PANEL
38	XPN5303	1E	1E AUXILIARY RELAY RACK
39	XPN6005	NNS	BAL. OF PLANT INSTRUMENT PANELS RM TRAIN
40	XPN6070	NNS	SUBSTATION SUPERVISORY SYS. MASTER STA
41	DPN1HB2	1E	DC DIST PANEL 1HB2
42	XTF1F8	1E	120V AC INSTRUMENT SUPPLY TRANS FOR NSSS
43	APN1FB	1E	120V AC INSTRUMENT 1/1 DIST PANEL 1FB
44	APN1FA	1E	120V AC INSTRUMENT 1/1 DIST PANEL 1FA
45	XTF1FA	1E	120V AC INSTRUMENT SUPPLY TRANS FOR NSSS
46	APN1F3	NNS	120V AC INSTRUMENT 1/1 DIST PANEL 1F3
47	XPN7011	1E	SOLID STATE PROT. SYS TEST PANEL TRAIN "A"
48	XPN7021	1E	SOLID STATE PROT. SYS TEST PANEL TRAIN "B"
49	XPN6050	NNS	TURBINE SUPERVISORY INSTRUMENT PANEL
50	XPN6060	NNS	ELECTRO HYD CONT. CABINET
51	XPN6061	NNS	ELECTRO HYD TERMINATION PANEL
52	XPN6040	1E	AMSAC PANEL
53			
54			
55			
56			
57			
58	XPN7085	NNS	COMPUTER PAPER TAPE READER/PUNCH CAB
59	XPN7086	NNS	COMPUTER LINE PRINTER CAB
60	XPN7087	NNS	COMPUTER PROGRAMMER CONSOLE
61	XIT5905	NNS	120V INVERTER 5 COMPUTER SUPPLY
62	APN5905	NNS	120V VITAL AC INST SUPPLY BUS 5 COMP. SUPPLY
63	XPN6001	1E	BAL. OF PLANT INST PANEL TRAIN "A"
64	XPN6002	1E	BAL. OF PLANT INST PANEL TRAIN "B"
65	XPN7030	1E	AUX. SAFEGUARD CAB TRAIN "A"
66	XPN7040	1E	AUX. SAFEGUARD CAB TRAIN "B"
67	DPN1HX1	NNS	DC DIST PANEL 1HX1
68	APN8002A	NNS	LIGHTING PANEL 2, ESSENTIAL PANEL
69	XTF9005A	NNS	RECEPTACLE XMFR TRAIN A PWR FEED
70	APN9005A	NNS	RECEPTACLE PANEL 5 ESSENTIAL PANEL
71	APN8029	NNS	LIGHTING PANEL 29 NORMAL LIGHTING
72	APN8015	NNS	LIGHTING PANEL 15 ESSENTIAL PANEL
73	XTF9006B	NNS	RECEPTACLE XMFR TRAIN B FEED
74	APN9006B	NNS	RECEPTACLE PANEL 6 ESSENTIAL PANEL
75	DPN1HA2	1E	DC DIST PANEL 1HA2
76	(FUTURE)		TELEPROCESSOR
77	XPN7048	NNS	CARD PUNCH
78	XPN7049		CARD READER
80	APN5907	1E	120V VITAL AC DIST PANEL 7, NSSS
82	APN5908	1E	120V VITAL AC DIST PANEL 8, NSSS
83	XPN6095	NNS	ANNUNCIATOR RELAY PANEL 05
84	XPN6096	NNS	ANNUNCIATOR RELAY PANEL 06
85	XPN6004	1E	BAL. OF PLANT INST PANEL, TRAIN "A"
86	XPN6005	1E	BAL. OF PLANT INST PANEL, TRAIN "B"
87	XPN6006	NNS	BAL. OF PLANT INST PANEL, TRAIN "NON"
88			
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94			
95	XPN7294A	NNS	COMPUTER MAGNETIC TAPE
96	XPN7294B	NNS	COMPUTER MAGNETIC TAPE
97	XPN7240	NNS	DATA GENERATING CABINET
98	XPN7227	NNS	I/O CABINET
99	XPN7228A	NNS	I/O CABINET
100	XPN7228B	NNS	I/O CABINET
101	XPN7229A	NNS	I/O CABINET

TECHNICAL SUPPORT CENTER INSTRUMENT, COMPUTER & RELAY RM EQUIPMENT LIST (CONT'D)

102	XPN7229B	NNS	I/O CABINET
103	XPN7267	NNS	PROGRAMMER'S CARD READER
104	XPN7241	NNS	PROGRAMMER'S CRT
105	XPN7243	NNS	PROGRAMMER'S PRINTER
106	XPN7246	NNS	DECWRITER
107	XPN7247	NNS	DECWRITER

SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

PLANT LAYOUT CONTROL COMPLEX

PLAN AT EL. 412'-0", 436'-0", 463'-0", AND 482'-0"

E-005-001 REV. 38

Figure 12.1-19

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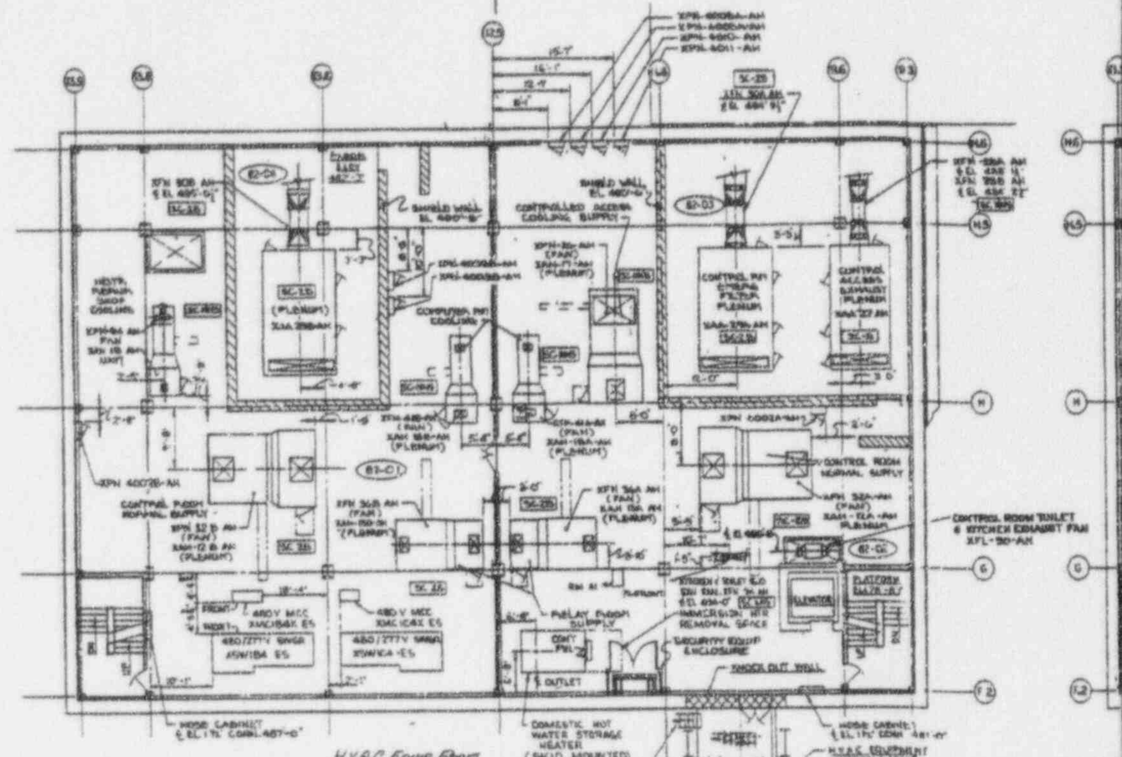
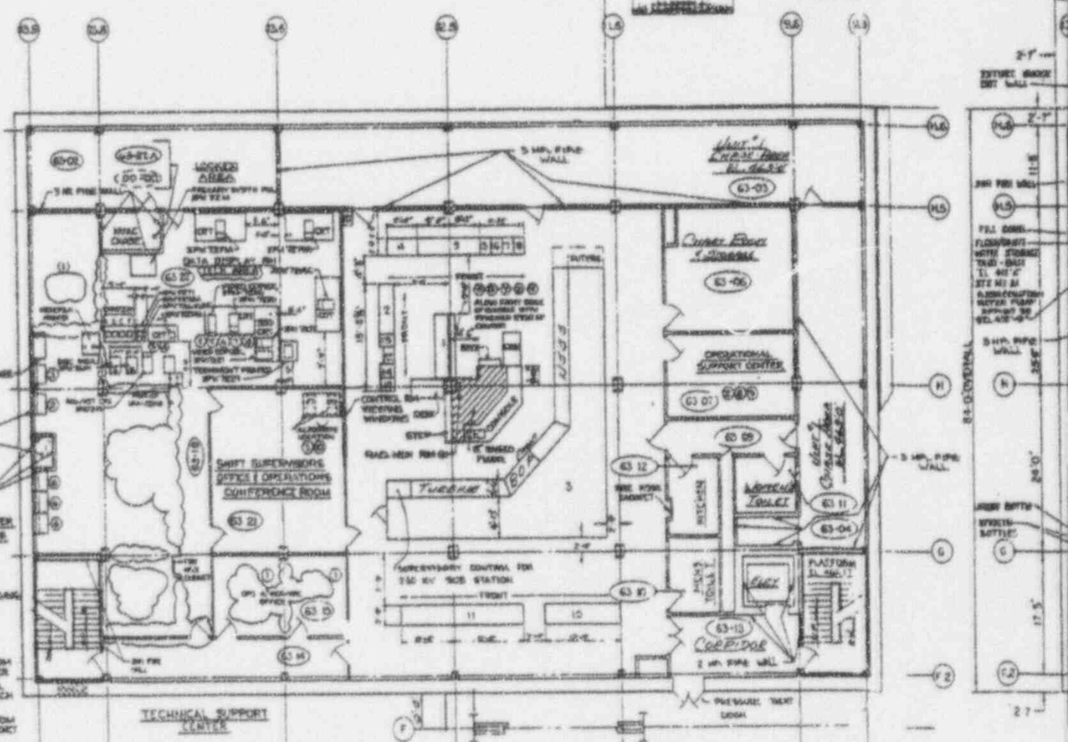


HVAC Equip Room Floor EL 482'0"



TECHNICAL SUPPORT CENTER COMMUNICATION SYSTEMS

1. PHONE/DEDICATED LINE WITH SPEAKER
2. PLANT PHONE
3. PLANT PHONE WITH PAGING
4. TWO WAY RADIO
5. ALL DEDICATED LINES WITH SPEAKER
6. PRIVATE BELL LINES
7. INTERCOM - CONTROL ROOM TO TECH SUPPORT CENTER
8. INTERCOM - OPERATIONAL SUPPORT CENTER TO TECH SUPPORT CENTER
9. INTERCOM - CONTROL ROOM TO OPERATIONAL SUPPORT CENTER
10. PRIVATE BELL LINES WITH SPEAKER
11. ALL DEDICATED LINES

TECHNICAL SUPPORT CENTER

CONTROL ROOM
FLOOR EL 463'0"

CONTROL ROOM EQUIPMENT LIST

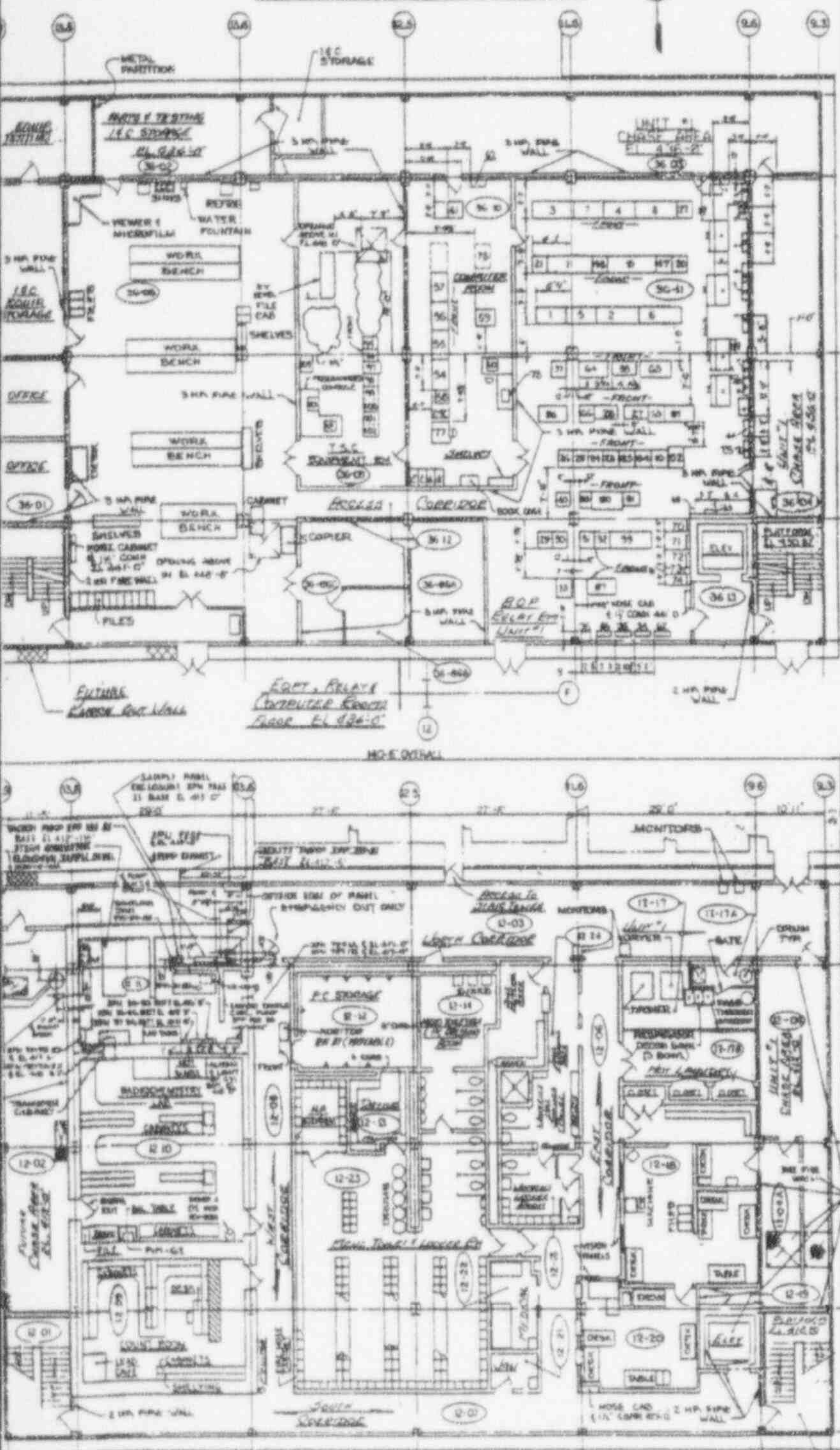
ITEM NO	EQUIP NO	SAFETY CLASS	DESCRIPTION
1	XCP 7058	NNS	COMPUTER OPERATOR CONSOLE
2	XCP 7060	NNS	INCORE INSTR RACKS & LUS MAPPING SYS
3	XCP 6100	1E	MAIN CONTROL BOARD
4	XCP 6090	NNS	FIRE SERVICE PANEL
5	XCP 7071	1E	NUCLEAR INSTRUMENT SYS CONSOLE CHAN I
6	XCP 7072	1E	NUCLEAR INSTRUMENT SYS CONSOLE CHAN II
7	XCP 7073	1E	NUCLEAR INSTRUMENT SYS CONSOLE CHAN III
8	XCP 7074	1E	NUCLEAR INSTRUMENT SYS CONSOLE CHAN IV
9	XCP 6200	NNS	RADIATION MONITORING SYSTEM PANEL
10	XCP 6710	1E	H.V.A.C. CONTROL BOARD
11	XCP 6220	NNS	GEN & XFMR ELECT RELAY BOARD
12	XCP 6230	NNS	TEMP SCANNING SYS CONTROL PANEL

CONTROL ROOM EQUIPMENT LIST

ITEM NO	EQUIP NO	SAFETY CLASS	DESCRIPTION
13	XCP 7065	NNS	AXIAL PWR DIST MONITORING SYS CABINET
14	XPN 6042	NNS	LOOSE PARTS MONITORING PANEL
15	XPN 7210	1E	R.C. SUBCOOL MONITOR AND ACOUSTIC LEAK MONITOR PANEL
16	XPN 7210A		PLANT SAFETY STATUS DISPLAY CRT
17	XPN 7210B		
18	XPN 7211A		BYPASS AND INOPERABLE STATUS INDICATION CRT
19	XPN 7211B		
20	XPN 3692		VIDEO COPIER

TECHNICAL SUPPORT CENTER INSTRUMENT, COMPUTER & RELAY RM EQUIPMENT LIST (CONT'D)

102	XPN 7227B	NNS	I/O CABINET
103	XPN 7243	NNS	PROGRAMMER'S CARD READER
104	XPN 7241	NNS	PROGRAMMER'S CRT
105	XPN 7242	NNS	PROGRAMMER'S PRINTER
106	XPN 7244	NNS	DECWRITER
107	XPN 7247	NNS	DECWRITER



TECHNICAL SUPPORT CENTER INSTRUMENT, COMPUTER & RELAY RM EQUIPMENT LIST

ITEM NO	EQUIP NO	SAFETY CLASS	DESCRIPTION
1	XPN7001	1E	PROCESS I&C RACK PROT. SET I
2	XPN7002	1E	PROCESS I&C RACK PROT. SET II
3	XPN7003	1E	PROCESS I&C RACK PROT. SET III
4	XPN7004	1E	PROCESS I&C RACK PROT. SET IV
5	XPN7005	NNS	PROCESS I&C RACK CONT. GRP 1
6	XPN7006	NNS	PROCESS I&C RACK CONT. GRP 2
7	XPN7007	NNS	PROCESS I&C RACK CONT. GRP 3
8	XPN7008	NNS	PROCESS I&C RACK CONT. GRP 4
9	XPN7010	1E	SOLID STATE PROT. SYSTEM CAB. TRAIN A
10	XPN7019	NNS	SOLID STATE PROT. SYS CONT BD DEMULTIPLEXER
11	XPN7020	1E	SOLID STATE PROT. SYSTEM CAB. TRAIN B
12	XIT5901	1E	120V INVERTER 1, HS901
13	XIT5902	1E	120V INVERTER 2, HS902
14	XIT5903	1E	120V INVERTER 3, HS903
15	XIT5904	1E	120V INVERTER 4, HS904
16	APN5901	1E	120V VITAL AC DIST. PANEL 1, HS901
17	APN5902	1E	120V VITAL AC DIST. PANEL 2, HS902
18	APN5903	1E	120V VITAL AC DIST. PANEL 3, HS903
19	APN5904	1E	120V VITAL AC DIST. PANEL 4, HS904
20	XPN7051	NNS	NUC. STEAM SUPPLY AUXILIARY RELAY RACK 1
21	XPN7052	NNS	NUC. STEAM SUPPLY AUXILIARY RELAY RACK 2
22	XPN7053	NNS	NUC. STEAM SUPPLY AUXILIARY RELAY RACK 3
23	XPN6031	NNS	ANNUNCIATOR RELAY PANEL 01
24	XPN6032	NNS	ANNUNCIATOR RELAY PANEL 02
25	XPN6033	NNS	ANNUNCIATOR RELAY PANEL 03
26	XPN6034	NNS	ANNUNCIATOR RELAY PANEL 04
27	XPN6020	1E	ENG. SAFETY FEATURES LOAD SEQ. PNL. TRAIN A
28	XPN6025	1E	ENG. SAFETY FEATURES LOAD SEQ. PNL. TRAIN B
29	XPN6051	NNS	BAL. OF PLANT AUXILIARY RELAY RACK 01
30	XPN6052	NNS	BAL. OF PLANT AUXILIARY RELAY RACK 02
31	XPN6053	NNS	BAL. OF PLANT AUXILIARY RELAY RACK 03
32	XPN6054	NNS	BAL. OF PLANT AUXILIARY RELAY RACK 04
33	XIT5906	NNS	120V INVERTER 6 B.O.P. SUPPLY
34	APN5906	NNS	120V AC INST. SUPPLY BUS 6 B.O.P. SUPPLY
35	APN1F31	NNS	120V AC INST. DIST. PANEL 1F31
36	XTF1F3	NNS	120V AC INST. SUPPLY TRANS. FOR B.O.P.
37	XPN6041	NNS	EARTHQUAKE MONITORING PANEL
38	XPN5300	1E	1E AUXILIARY RELAY RACK
39	XPN6003	NNS	BAL. OF PLANT INSTRUMENT PANELS FOR TRAIN
40	XPN6070	NNS	SUBSTATION SUPERVISORY SYS. NUMBER TELE
41	DPN1HB2	1E	DC DIST. PANEL 1HB2
42	XTF1F5	1E	120V AC INSTRUMENT SUPPLY TRANS FOR 1F5
43	APN1F5	1E	120V AC INSTRUMENT MN. DIST. PANEL 1F5
44	APN1F4	1E	120V AC INSTRUMENT MN. DIST. PANEL 1F4
45	XTF1F4	1E	120V AC INSTRUMENT SUPPLY TRANS FOR 1F4
46	APN1F3	NNS	120V AC INSTRUMENT MN. DIST. PANEL 1F3
47	XPN7021	1E	SOLID STATE PROT. SYS. TEST PANEL TRAIN A
48	XPN7022	1E	SOLID STATE PROT. SYS. TEST PANEL TRAIN B
49	XPN6080	NNS	TURBINE SUPERVISORY INSTRUMENT PANEL
50	XPN6060	NNS	ELECTRO HYD. CONT. CABINET
51	XPN6061	NNS	ELECTRO HYD. TERMINATION PANEL
52	XPN6010	1E	AMSAC PANEL
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58	XPN7055	NNS	COMPUTER PAPER TAPE READER/PUNCH CAB.
59	XPN7056	NNS	COMPUTER LINE PRINTER CAB.
60	XPN7057	NNS	COMPUTER PROGRAMMER CONSOLE
61	XIT5905	NNS	120V INVERTER 5 COMPUTER SUPPLY
62	APN5905	NNS	120V VITAL AC INST. SUPPLY BUS 5 COMP. SUPPLY
63	XPN6001	1E	BAL. OF PLANT INST. PANEL TRAIN "A"
64	XPN6002	1E	BAL. OF PLANT INST. PANEL TRAIN "B"
65	XPN7024	1E	AUX. SAFEGUARD CAB. TRAIN "A"
66	XPN7080	1E	AUX. SAFEGUARD CAB. TRAIN "B"
67	DPN1HB1	NNS	DC DIST. PANEL 1HB1
68	APN8012A	NNS	LIGHTING PANEL 12 ESSENTIAL PANEL
69	XTF9005A	NNS	RECEPTACLE XMFR TRAIN A PWR. FEED
70	APN9005A	NNS	RECEPTACLE PANEL 5 ESSENTIAL PANEL
71	APN8029	NNS	LIGHTING PANEL 29 NORMAL LIGHTING
72	APN8015	NNS	LIGHTING PANEL 15 ESSENTIAL PANEL
73	XTF9006B	NNS	RECEPTACLE XMFR TRAIN B FEED
74	APN9006B	NNS	RECEPTACLE PANEL 6 ESSENTIAL PANEL
75	DPN1HA2	1E	DC DIST. PANEL 1HA2
76	(FUTURE)		TELEPROCESSOR
77	XPN7046	NNS	CARD PUNCH
78	XPN7045		CARD READER
80	APN5907	1E	120V VITAL AC DIST. PANEL 7, HS907
82	APN5908	1E	120V VITAL AC DIST. PANEL 8, HS908
83	XPN6035	NNS	ANNUNCIATOR RELAY PANEL 05
84	XPN6036	NNS	ANNUNCIATOR RELAY PANEL 06
85	XPN6004	1E	BAL. OF PLANT INST. PANEL TRAIN "A"
86	XPN6005	1E	BAL. OF PLANT INST. PANEL TRAIN "B"
87	XPN6006	NNS	BAL. OF PLANT INST. PANEL TRAIN "NON"
88			
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94			
95	XPN 7294A	NNS	COMPUTER MAGNETIC TAPE
96	XPN 7294B	NNS	COMPUTER MAGNETIC TAPE
97	XPN 7300	NNS	DATA GENERATING CABINET
98	XPN 7227	NNS	I/O CABINET
99	XPN 7228A	NNS	I/O CABINET
100	XPN 7228B	NNS	I/O CABINET
101	XPN 7227A	NNS	I/O CABINET

AMENDMENT 95-02
APRIL, 1995

SOUTH CAROLINA ELECTRIC & GAS CO.
VIRGIL C. SUMMER NUCLEAR STATION

PLANT LAYOUT CONTROL COMPLEX

PLAN AT ELEVATIONS 412'-0", 436'-0", 463'-0" & 482'-0"

E-005-001 REV. 38

Figure 12A.4-7