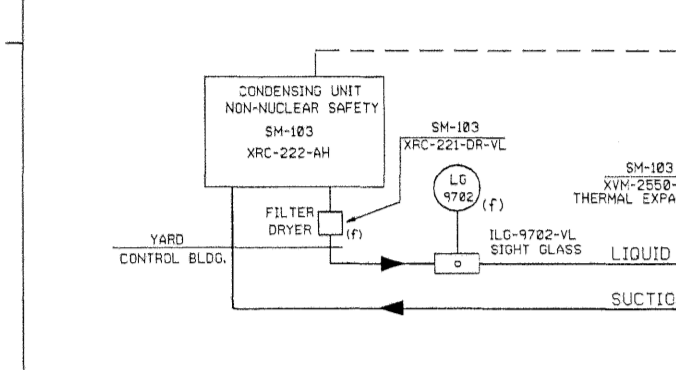
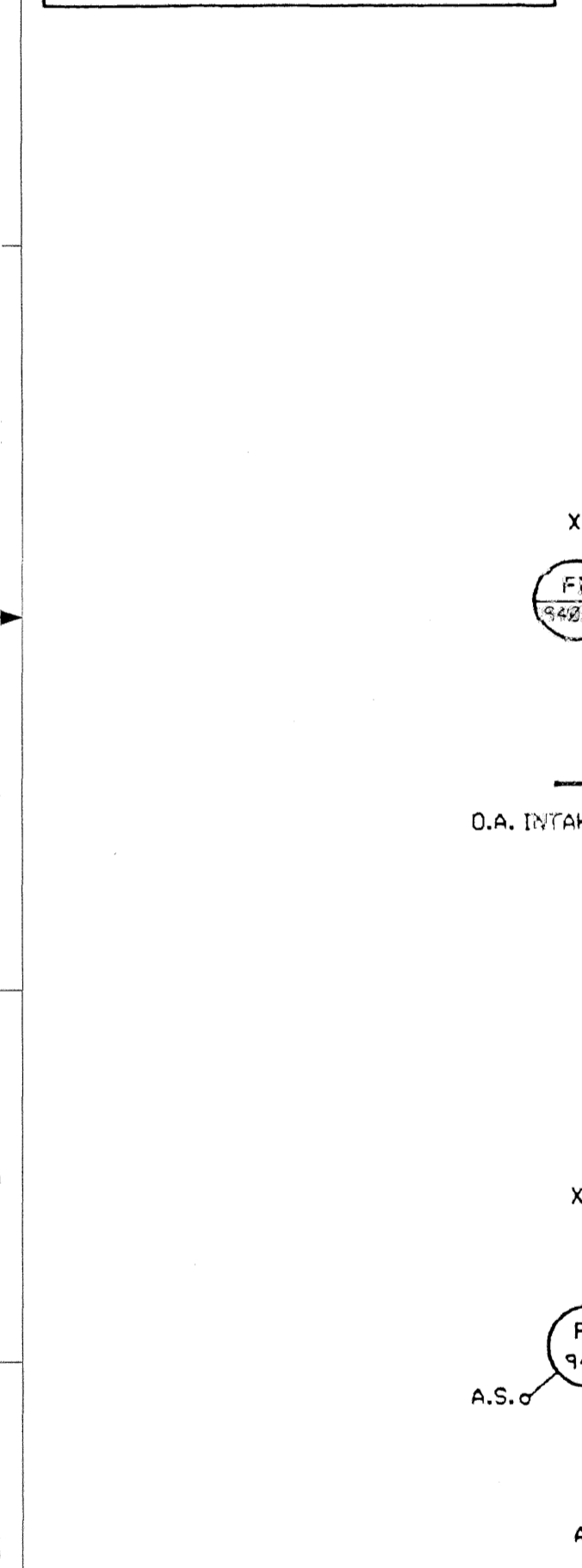


SYS. OPER. DATA			
AIR FLOW (SCFM)	AIR TEMP. (°F)	AIR FLOW (SCFM)	AIR TEMP. (°F)
1	21270	75.3	1000
2	4700	56.3	20420
3	4660	56.3	20420
4	10760	56.3	20420
5	950	56.3	20420
6	12860	85	20420
7	1150	56.3	20420
8	8900	85	20420
9	19420	75	20420
10	1020	19°-95°	20420
11	650		20420
12	2700	55°	20420

*SEE NOTE 6



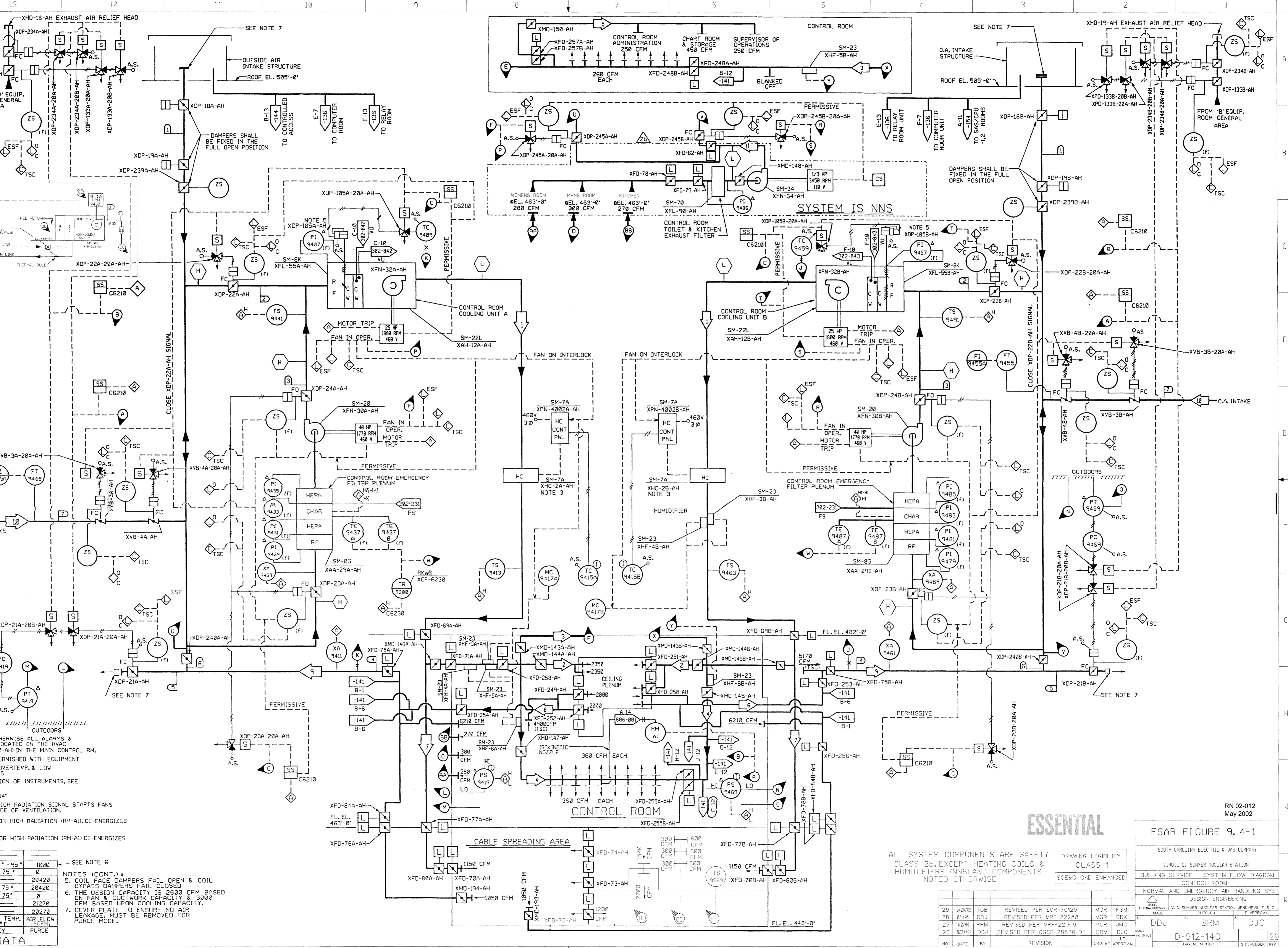
SAFETY CLASS VERIFICATION



- NOTES:
- EXCEPT WHERE NOTED OTHERWISE ALL ALARMS & INDICATING LIGHTS ARE LOCATED ON THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL RM.
 - (F) INDICATES INSTR. IS FURNISHED WITH EQUIPMENT
 - HEATING COILS INCLUDE OVERTEMP. & LOW FLOW PROTECTIVE DEVICES
 - FOR SAFETY CLASSIFICATION OF INSTRUMENTS, SEE INSTRUMENT LIST.
- NOTES CONT. AT D-14'
- ESF LOADING SEQ. OR HIGH RADIATION SIGNAL STARTS FANS FOR RECIRCULATION MODE OF VENTILATION.
 - 'A' CHANNEL SI SIGNAL OR HIGH RADIATION (IRM-AI), DE-ENERGIZES SOLENOID VALVES
 - 'B' CHANNEL SI SIGNAL OR HIGH RADIATION (IRM-BI) DE-ENERGIZES SOLENOID VALVES

	8	7	5	4	3	2	1
AIR FLOW (SCFM)	2700	1000	19420	0	19420	0	21270
AIR TEMP. (°F)	55°	75°	75°	75°	75°	75°	75°
AIR FLOW (SCFM)	2700	1000	19420	0	19420	0	21270
AIR TEMP. (°F)	55°	75°	75°	75°	75°	75°	75°
AIR FLOW (SCFM)	2700	1000	19420	0	19420	0	21270
AIR TEMP. (°F)	55°	75°	75°	75°	75°	75°	75°
AIR FLOW (SCFM)	2700	1000	19420	0	19420	0	21270
AIR TEMP. (°F)	55°	75°	75°	75°	75°	75°	75°

SYSTEM DESIGN DATA



- NOTES (CONT.):
- COIL FACE DAMPERS FAIL OPEN & COIL BYPASS DAMPERS FAIL CLOSED
 - THE DESIGN CAPACITY IS 2500 CFM BASED ON FAN & DUCTWORK CAPACITY & 3000 CFM BASED UPON COOLING CAPACITY.
 - COVER PLATE TO ENSURE NO AIR LEAKAGE, MUST BE REMOVED FOR PURGE MODE.

SEE NOTE 6



ESSENTIAL

FSAR FIGURE 9.4-1			
NO.	DATE	BY	REVISION
29	3/26/02	TGB	REVISED PER ECR-70125
28	8/19/96	DDJ	REVISED PER MRF-22288
27	11/2/94	RHM	REVISED PER MRF-22009
26	8/27/92	DDJ	REVISED PER CGSS-28826-DE

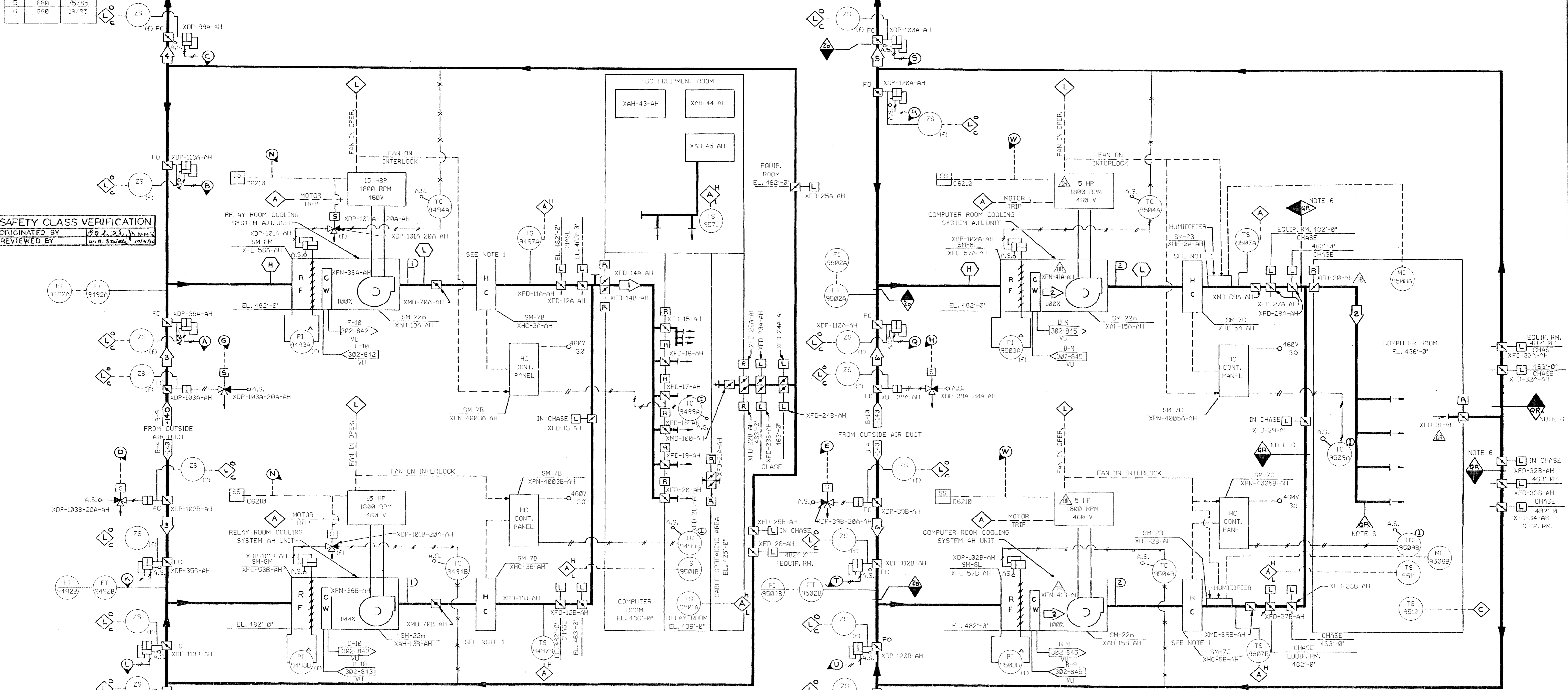
NO.	DATE	BY	REVISION	NO.	DATE	BY	REVISION
1		DDJ	SRM	2		DDJ	DJC

912140_0001.m Printed by TBI7771 Tuesday March 26 2002 09:53:03 AM EST

SYSTEM OPERATION DATA

	AIR FLOW CFM	AIR TEMP. ° F
1	9500	58
2	3400	55
3	95	19/95
4	95	75/85
5	680	75/85
6	680	19/95

SAFETY CLASS VERIFICATION
 ORIGINATED BY: [Signature]
 REVIEWED BY: [Signature]



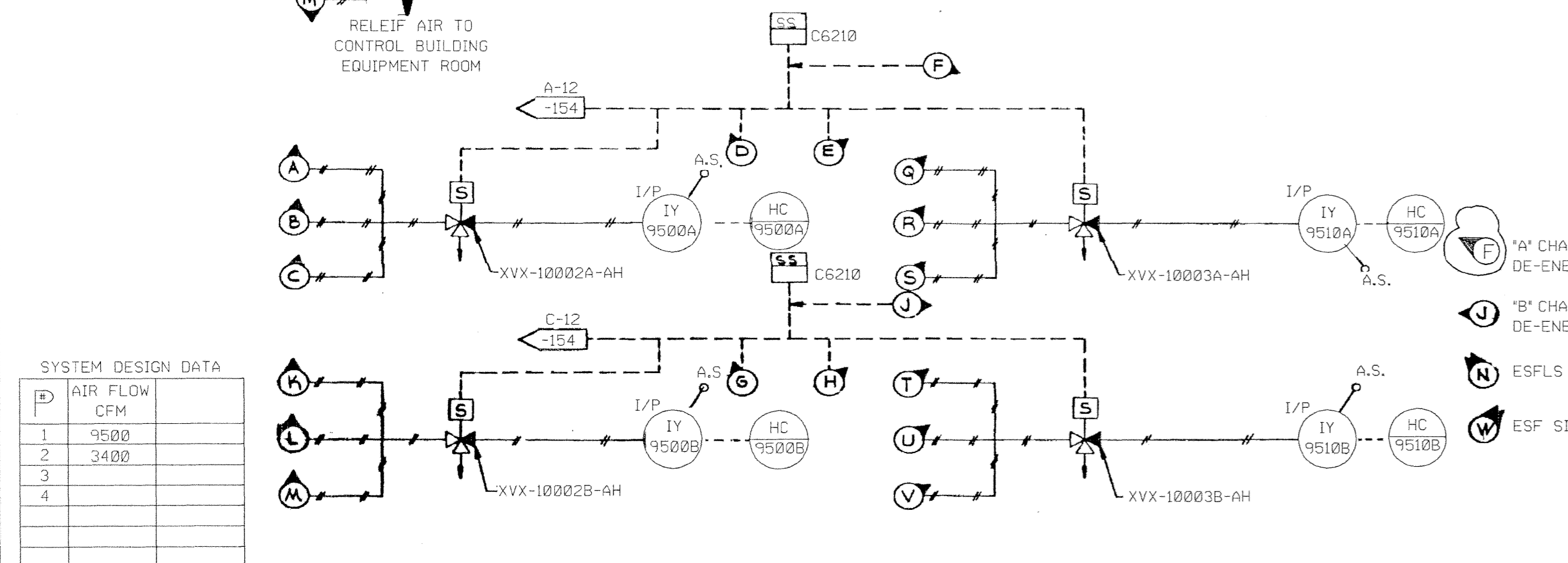
RELAY ROOM COOLING SYSTEM - CONTROL BUILDING

COMPUTER ROOM COOLING SYSTEM - CONTROL BUILDING

RELAY ROOM COMPONENTS ARE SAFETY CLASS 2b.
 TSC EQUIPMENT ROOM AND COMPUTER ROOM COMPONENTS ARE NON-NUCLEAR SAFETY, EXCEPT AS NOTE.

SYSTEM DESIGN DATA

ID	AIR FLOW CFM
1	9500
2	3400
3	
4	



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

ESSENTIAL

Amendment 02-01
 May 2002

DRAWING CLASS
 LEGIBILITY 1

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

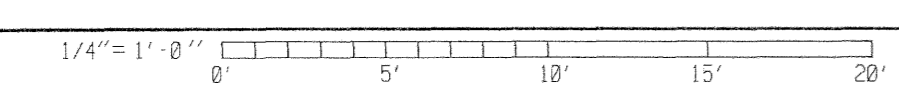
FSAR Figure 9.4-2
 SOUTH CAROLINA ELECTRIC & GAS COMPANY
 VIRGIL C. SUMNER NUCLEAR STATION
 BUILDING SERVICE SYSTEM FLOW DIAGRAM
 RELAY AND COMPUTER ROOM
 COOLING SYSTEM

NO.	DATE	BY	REVISION	CHK. BY	APPROVAL
22	9/20/01	RHM	REVISED PER ECR-70039	MGR	JEG
21	08/30/93	AVN	REVISED PER MRF-34054	JHR	DJC
20	07-27-93	SRM	REVISED PER MRF-21432-D	JHR	MCL
19	04/22/93	JMH	REVISED PER CGSS-93-0328	DVW	GAA

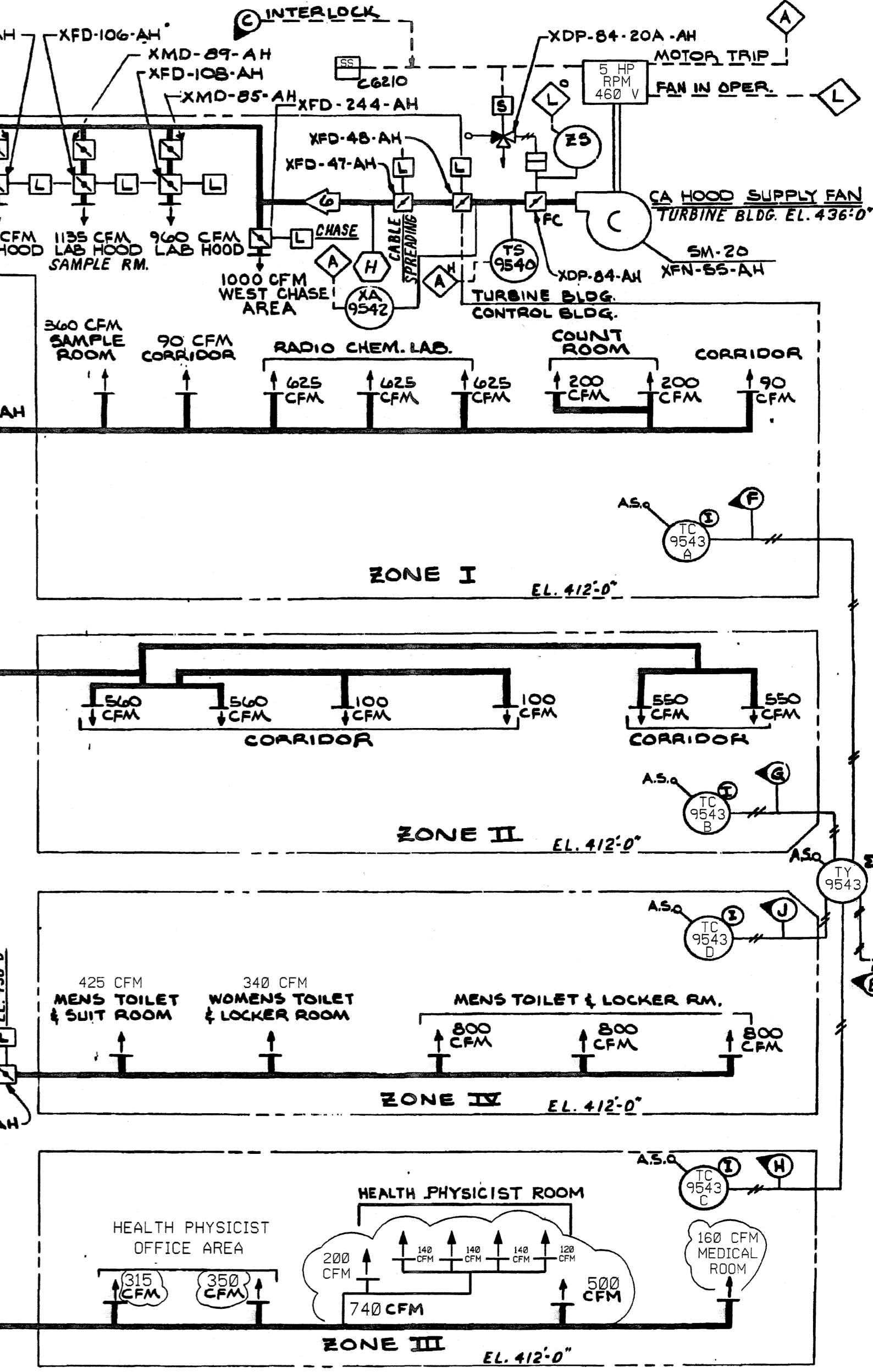
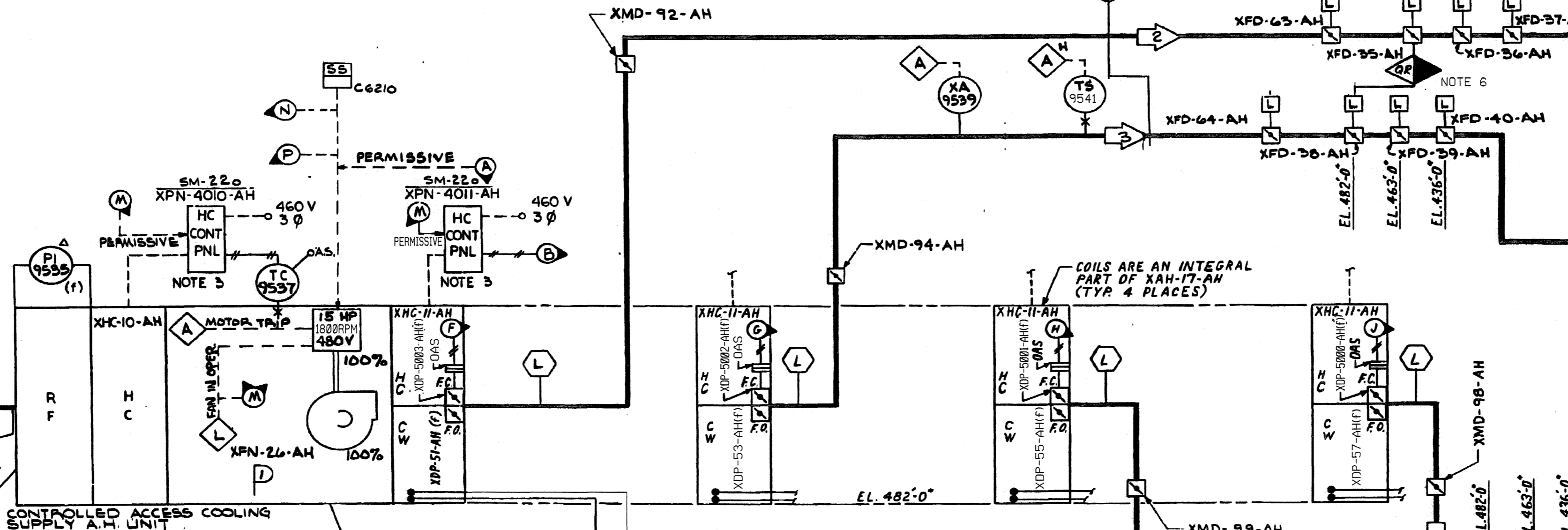
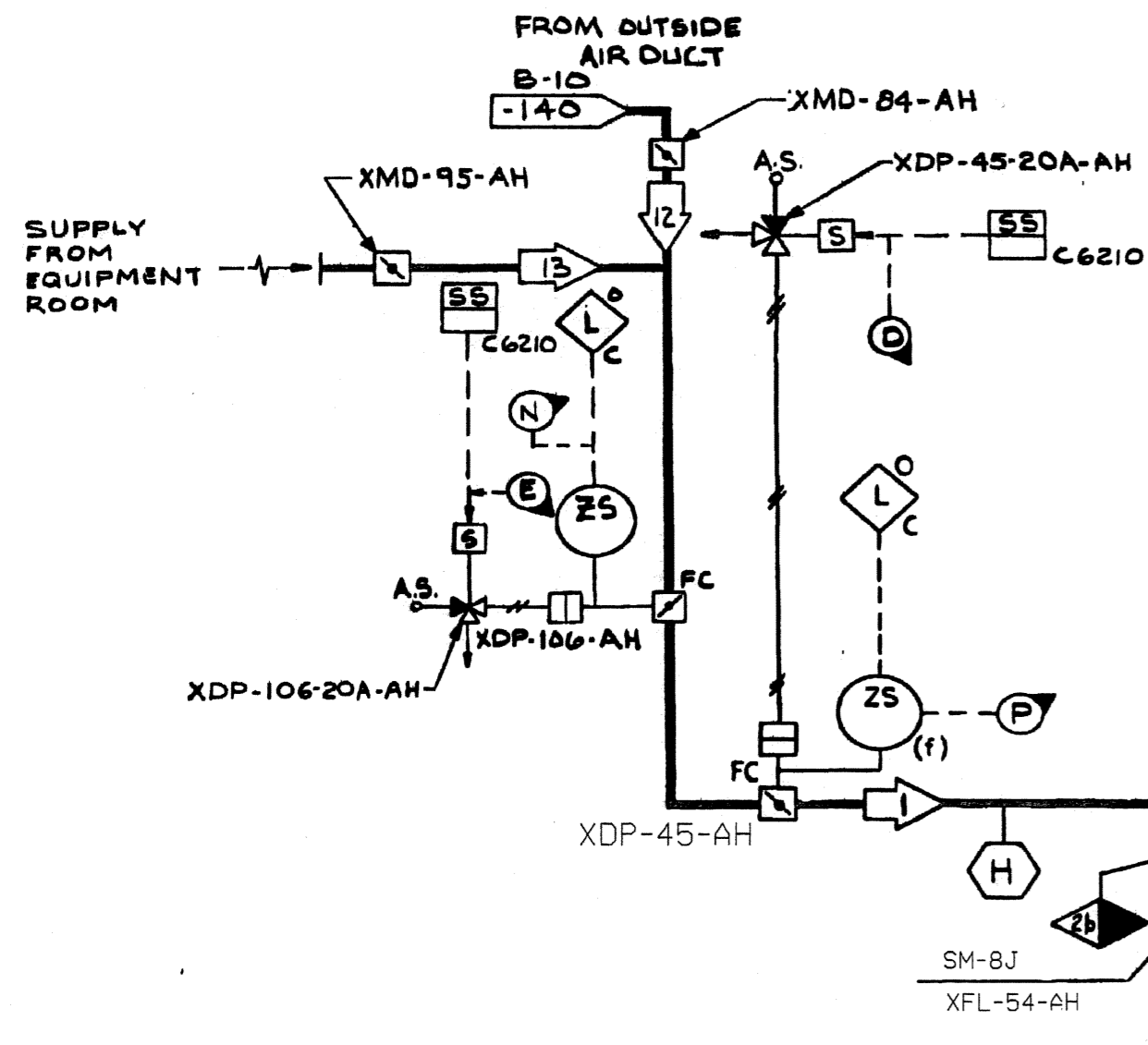
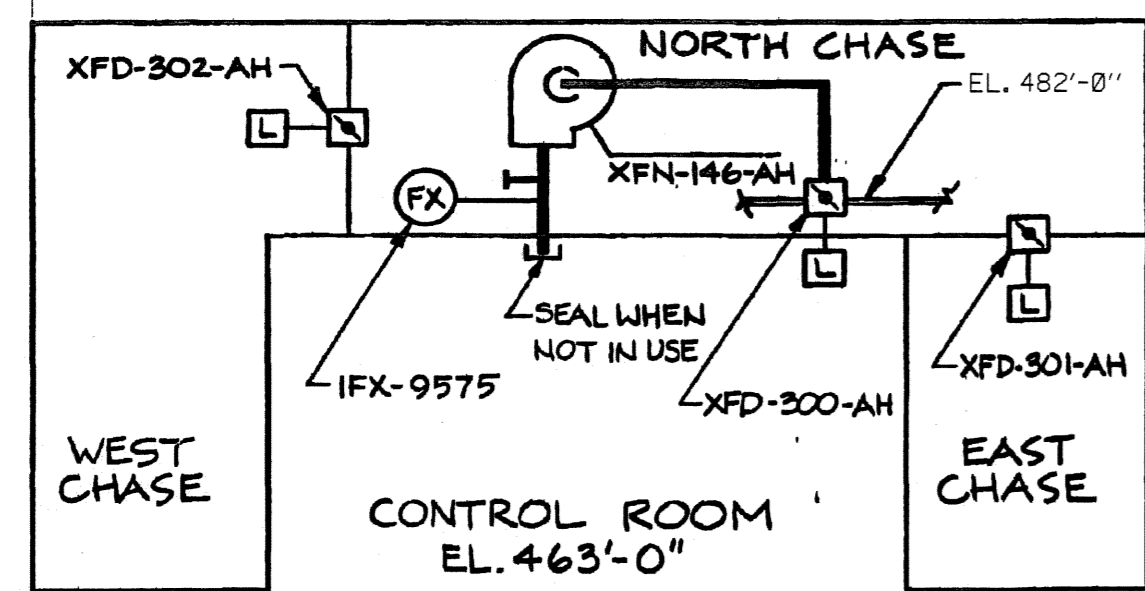
DESIGN ENGINEERING
 V. C. SUMNER NUCLEAR STATION, JENKINSVILLE, S.C.
 CHECKED: [Signature] LE APPROVAL: [Signature]

PROJECT NO. SCALE: D-912-136
 DRAWING NUMBER: [Blank] SHEET NUMBER: 22

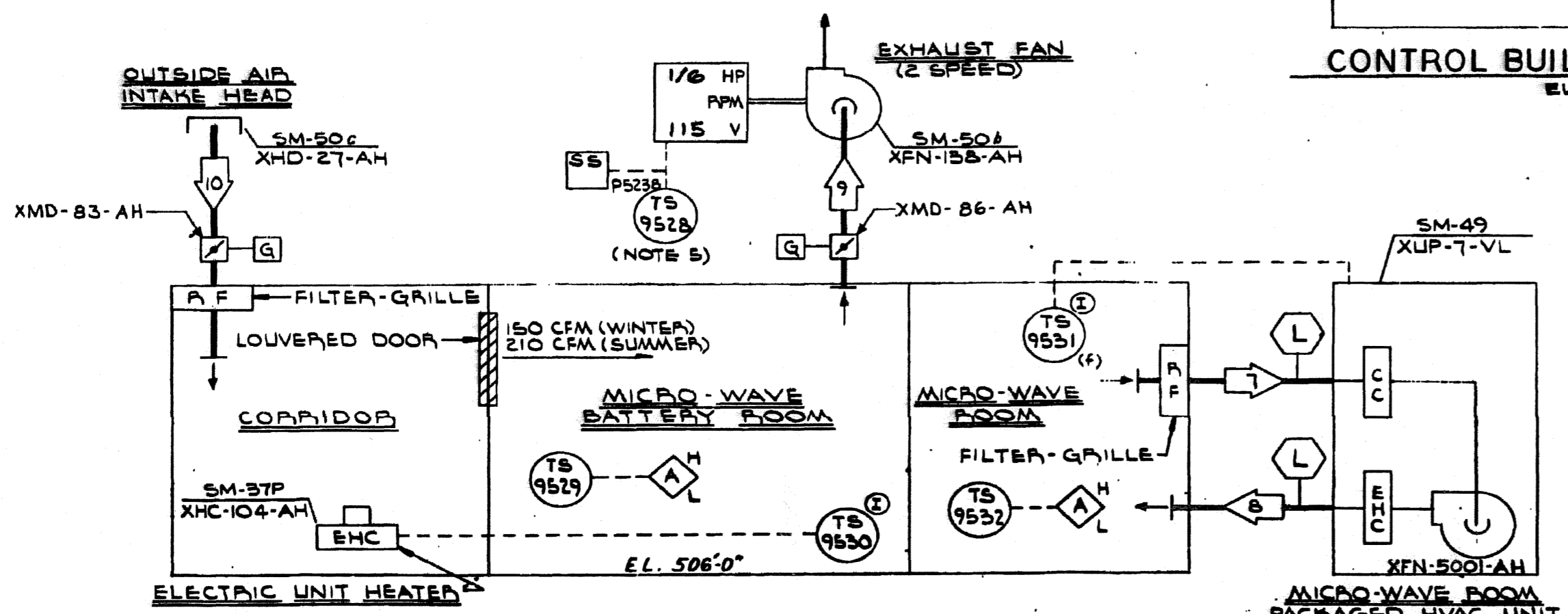
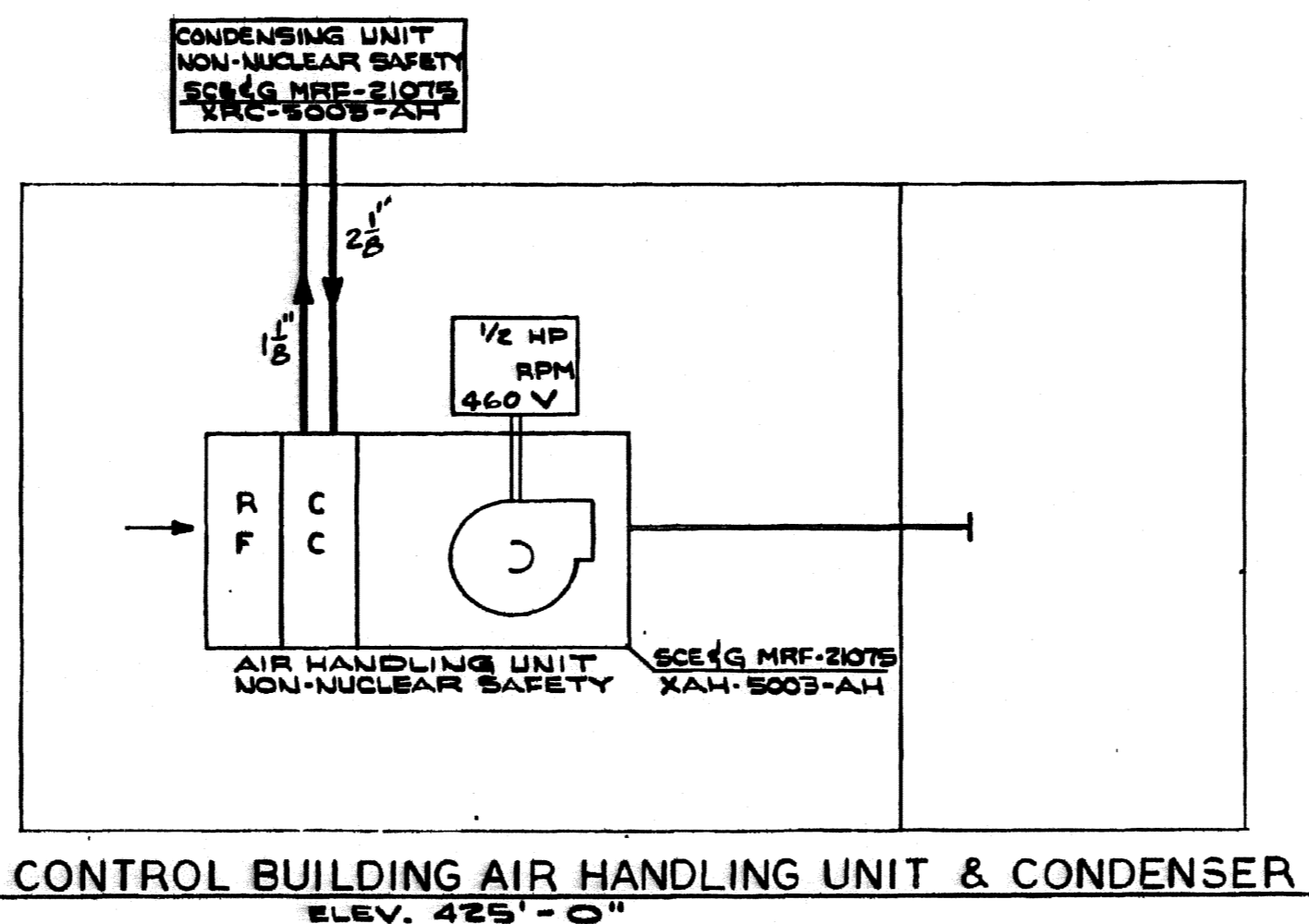
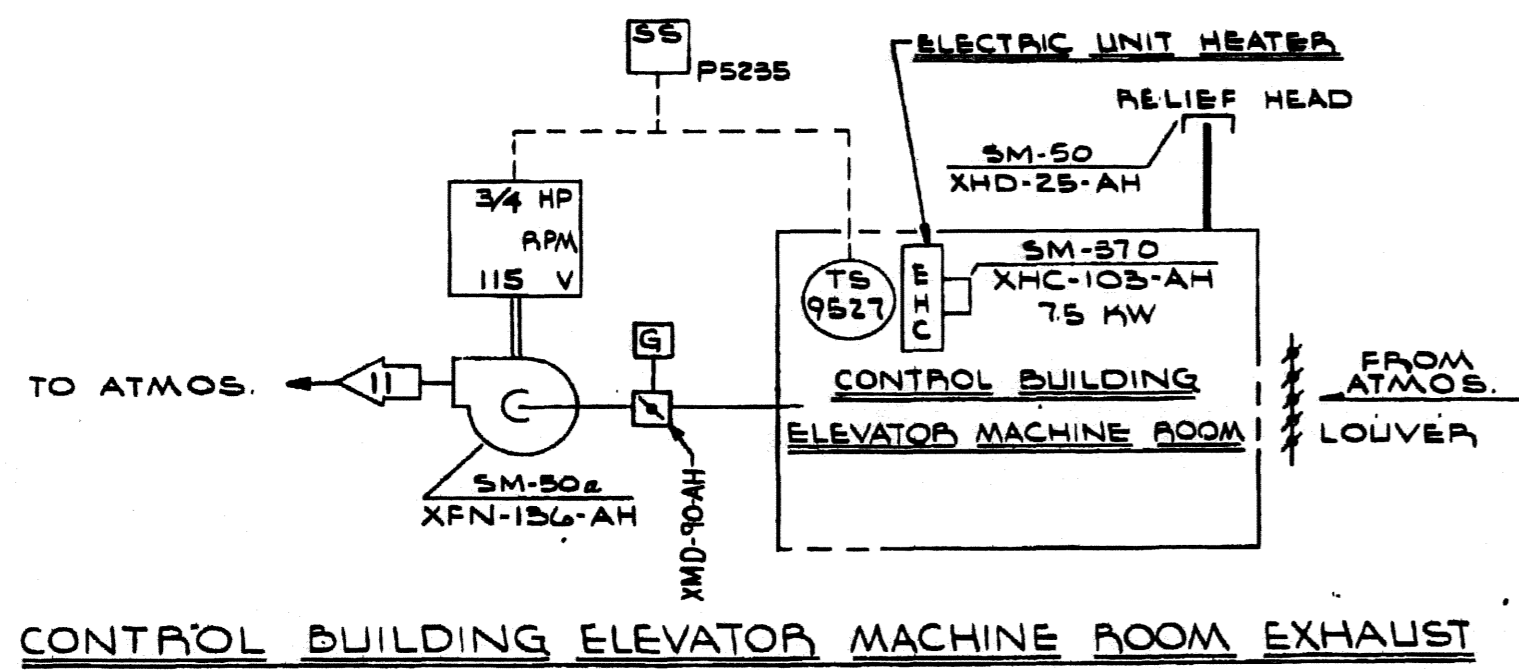
*QUALITY RELATED-FABRICATION, ERECTION AND INSPECTION PER SCE&G ORP FOR HVAC DUCTS AND SUPPORTS.



SYS. OPER. DATA	
NO.	FLOW / AIR TEMP
1	10700 45/95
2	2615 55/85
3	2420 55/85
4	2145 55/85
5	2300 55/85
6	5015 19/115
7	700 75
8	700 56.2
9	110 50/85
10	110 50/85
11	3400 65/95
12	9545 19/95
13	1155 65/90



SAFETY CLASS VERIFICATION
 ORIGINATED BY 100 d. xl / 10/1/92
 REVIEWED BY u.o. 5/2/96 / 10/1/92



- A XFN-28A-AH OR XFN-28B-AH MUST BE RUNNING.
 - B LAB HOOD EXHAUST FAN XFN-81A-AH OR XFN-81B-AH MUST BE RUNNING.
 - C 'A' CHANNEL ST SIGNAL CLOSES DAMPER.
 - D 'B' CHANNEL ST SIGNAL CLOSES DAMPER.
- NOTE:
 1. EXCEPT WHERE NOTED OTHERWISE ALL ALARMS & INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-3210-AH) IN THE MAIN CONTROL ROOM.
 2. (f) INDICATES INSTR. IS FURNISHED WITH EQUIPMENT.
 3. HEATING COILS INCLUDE OVERTEMP & LOW FLOW PROTECTIVE DEVICES.
 4. FOR SAFETY CLASSES OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.
 5. ABOVE 85°F OUTSIDE TEMP. FAN AT HIGH SPEED. BELOW 85°F OUTSIDE TEMP. FAN AT LOW SPEED.
 6. ALL DUCTWORK IDENTIFIED AS QR TO BE PER QRP-4.

"QUALITY RELATED-FABRICATION, ERECTION AND INSPECTION PER 4CC&G QRP FOR HVAC DUCTS AND SUPPORTS"

HOLD
 Use with reference to ECR NO. 50604
 DATE: 5/17/05
 INITIALS: JDW

ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY EXCEPT AS NOTED

RN 04-029
 October 2006

ESSENTIAL

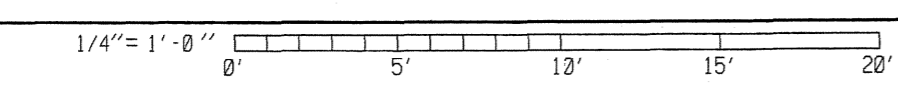
DRAWING CLASS LEGIBILITY 1

FSAR Figure 9.4-3

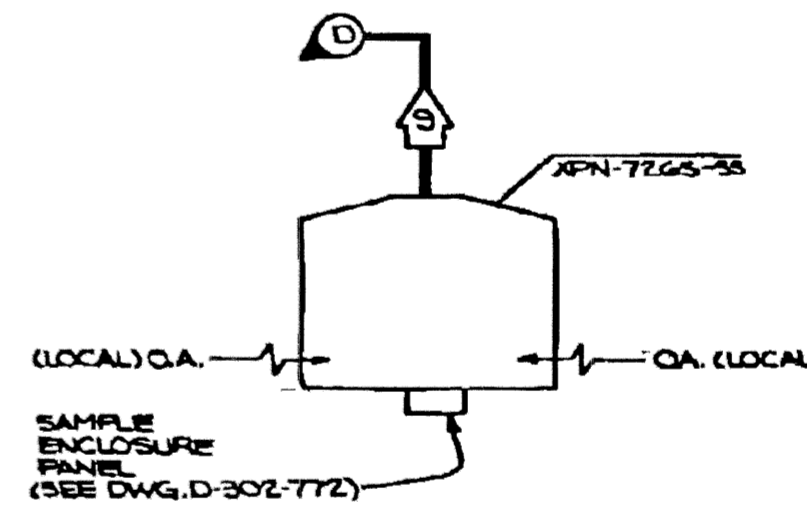
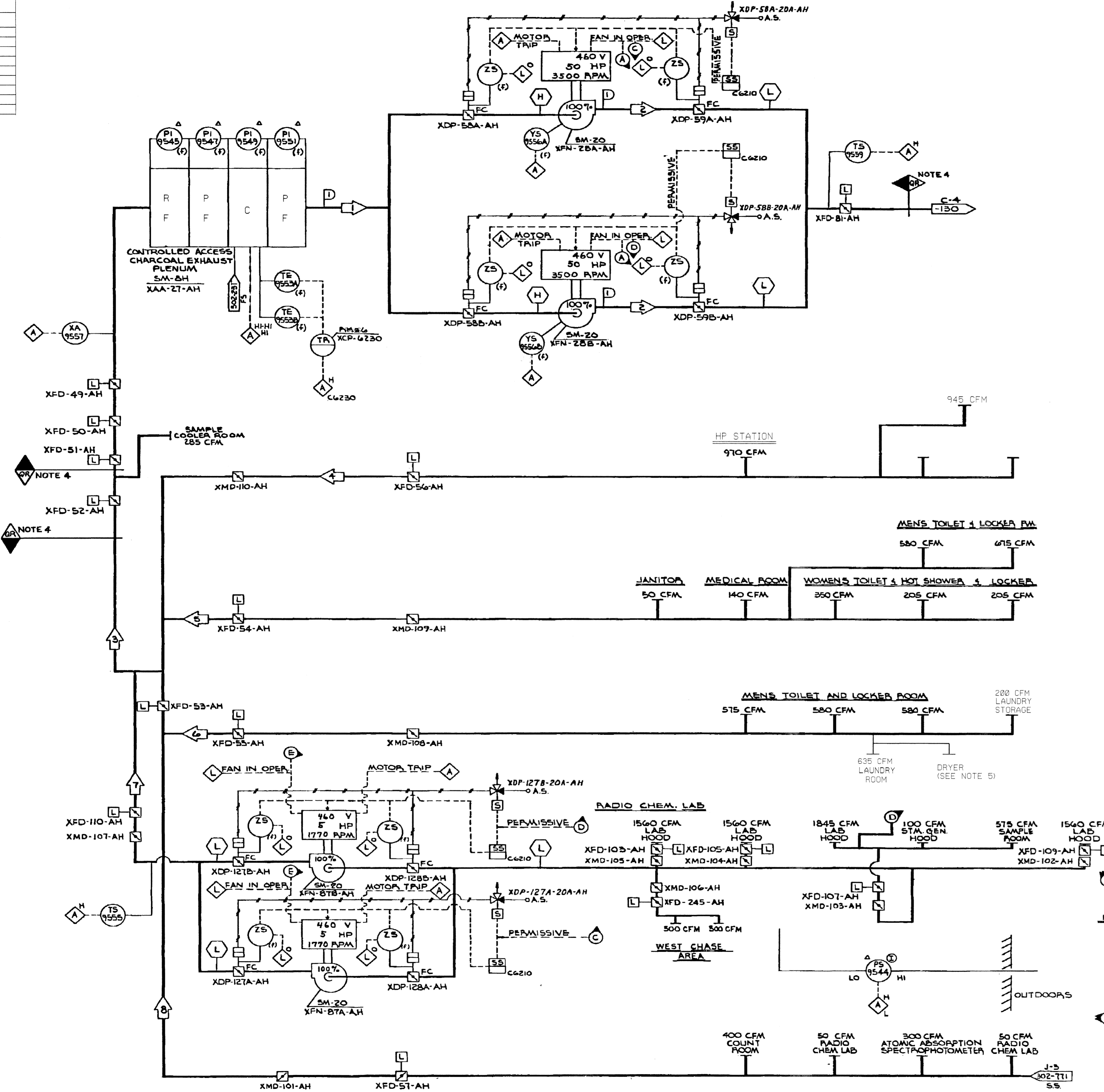
SOUTH CAROLINA ELECTRIC & GAS COMPANY	
VIRGIL C. SUMNER NUCLEAR STATION	
BUILDING SERVICE SYSTEM FLOW DIAGRAM	
CONTROLLED ACCESS	
SUPPLY COOLING SYSTEM	
DESIGN ENGINEERING	
V. C. SUMNER NUCLEAR STATION JENKINSVILLE, S.C.	
MADE	CHECKED
ACI	RHM
DJC	DJC
D-912-144	
DRAWING NUMBER	
SHT. NUMBER	

NO.	DATE	BY	REVISION	CHK. BY	APPROVAL
20	7/26/04	RHM	REVISED PER ECR-50437	MGR	TOC
19	3/2/03	DDJ	REVISED PER ECR-50437	MGR	TOC
18	10/3/00	DDJ	REVISED PER ECR-70028	MGR	DDJ
17	11/21/92	ACI	REVISED PER MRF-34054	RHM	DJC

SYS. DESIGN DATA	
NO.	FLOW / AIR TEMP
1	10700
2	2615
3	2420
4	2145
5	2300
6	5015
7	700
8	700
9	110
10	110
11	3400
12	9545
13	1155



SYS. OPER. DATA	
ATR FLOW CFM	
1	16,000
2	16,000
3	15,715
4	1915
5	2205
6	2570
7	8225
8	822
9	25



QUALITY RELATED-FABRICATION, ERECTION AND INSPECTION PER SC&G QRP FOR HVAC DUCTS AND SUPPORTS

(A) PERMISSIVE FOR SUPPLY FAN XFN-26-AH MOTORS.

- NOTES:
- (F) INDICATES INSTRUMENT IS FURNISHED W/EQPT.
 - EXCEPT WHERE NOTED OTHERWISE, ALL ALARMS & INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM.
 - FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.
 - ALL DUCTWORK IDENTIFIED AS QR TO BE PER QRP-4.
 - AIR THRU DRYER ONLY DURING OPERATION.
 - (E) PERMISSIVE FOR LAB HOOD SUPPLY FAN XFN-55-AH

ALL SYSTEM COMPONENTS ARE NON NUCLEAR SAFETY

RN 02-042
June 2003

DRAWING LEGIBILITY CLASS 1
SC&G CAD ENHANCED

~~HOLD~~
Use with reference to ECR NO: 137
DATE: 9/20/02
INITIALS: JDW

NO.	DATE	BY	REVISION	CHK. BY	APPROVAL
17	9/17/02	DDJ	REVISED PER ECR-70249	MGR	DKW
16	10/03/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
15	05/27/96	JTS	REVISED PER MRF-21546C	LEK	MGR

FSAR Figure 9.4-4
ASSOCIATED WITH
FSAR Figure 12.2-2

SOUTH CAROLINA ELECTRIC & GAS COMPANY

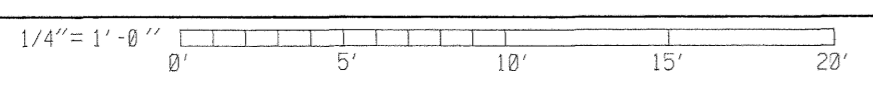
VIRGIL C. SUMNER NUCLEAR STATION JENKINSVILLE, S. C.

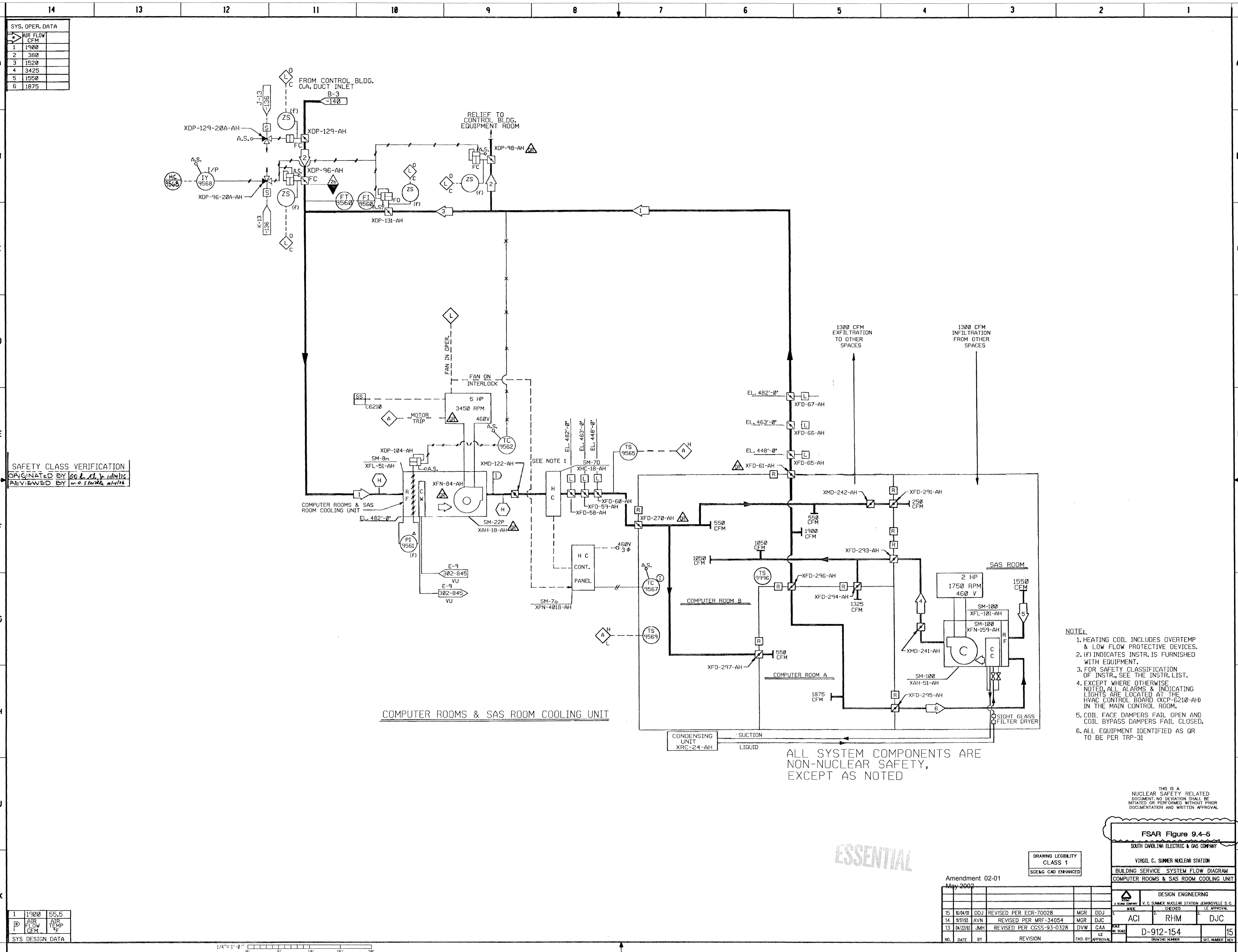
BUILDING SERVICE SYSTEM FLOW DIAGRAM
CONTROL BUILDING
CONTROL ACCESS EXHAUST
DESIGN ENGINEERING

CHECKED: JTS
MADE: V. C. SUMNER NUCLEAR STATION JENKINSVILLE, S. C.
LE APPROVAL: LEK

D-912-147
DRAWING NUMBER

SYS. DESIGN DATA	
ATR FLOW CFM	
1	16,000





SYS. OPER. DATA		
NO.	AIR FLOW CFM	AIR TEMP °F
1	1900	
2	380	
3	1520	
4	3425	
5	1550	
6	1875	

SAFETY CLASS VERIFICATION
 ORIGINATED BY *[Signature]*
 REVIEWED BY *[Signature]*

- 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-5210-AH) IN THE MAIN CONTROL ROOM.
 5. COIL FACE DAMPERS FAIL OPEN AND COIL BYPASS DAMPERS FAIL CLOSED.
 6. ALL EQUIPMENT IDENTIFIED AS QR TO BE PER TRP-31

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

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FSAR Figure 9.4-5

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMNER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM

COMPUTER ROOMS & SAS ROOM COOLING UNIT

DRAWING LEGIBILITY CLASS 1
 SKEWG CAD ENHANCED

Amendment 02-01
 May 2002

NO.	DATE	BY	REVISION	CHK. BY	APPROVAL
15	10/04/00	DDJ	REVISED PER ECR-70028	MGR	DDJ
14	10/17/00	AVN	REVISED PER MRF-34054	MGR	DJC
13	04/27/00	JMH	REVISED PER CGSS-93-0328	DVM	CAA

NO.	DATE	BY	REVISION	CHK. BY	APPROVAL

SYS DESIGN DATA		
NO.	AIR FLOW CFM	AIR TEMP °F
1	1900	55.5

1/4" = 1'-0"

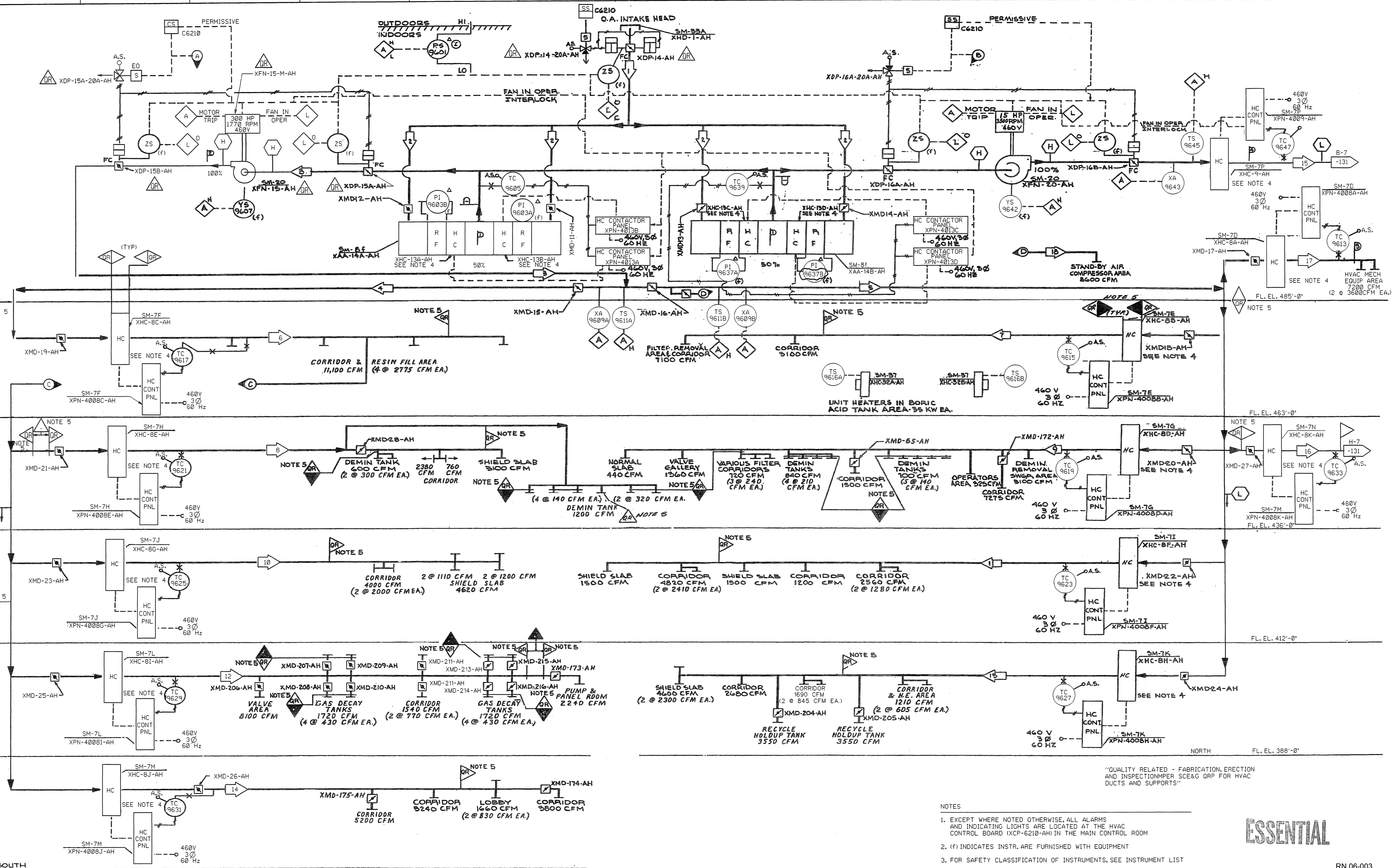
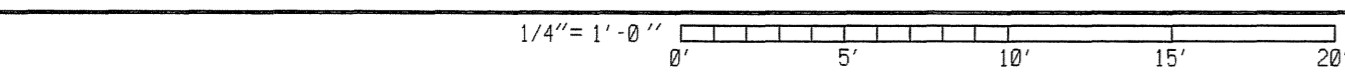
SYSTEM OPERATION DATA

NO.	AIR FLOW CFM	AIR TEMP °F
1	143,000	-
2	35,750	-
3	137,000	50° MIN
4	56,980	50° MIN
5	80,020	50° MIN
6	11,100	65° MIN
7	10,200	65° MIN
8	8,040	65° MIN
9	16,260	65° MIN
10	8,620	65° MIN
11	11,580	65° MIN
12	15,320	65° MIN
13	17,280	65° MIN
14	13,900	65° MIN
15	6,000	65° MIN
16	17,500	65° MIN
17	7,200	65° MIN
18	3,600	-

SYSTEM DESIGN DATA

NO.	AIR FLOW CFM	AIR TEMP °F
1	80,000	50° MIN
2	147,000	50° MIN
3	-	65° MIN
4	6,000	65° MIN

- (1) PLACE (A) XFN-17A-AH OR XFN-17B-AH MUST BE RUNNING TO ALLOW XFN-15-AH TO RUN
- (1) PLACE (B) XFN-23A-AH OR XFN-23B-AH MUST BE RUNNING TO ALLOW XFN-20-AH TO RUN



- NOTES
- EXCEPT WHERE NOTED OTHERWISE, ALL ALARMS AND INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM
 - (f) INDICATES INSTR. ARE FURNISHED WITH EQUIPMENT
 - FOR SAFETY CLASSIFICATION OF INSTRUMENTS, SEE INSTRUMENT LIST
 - HEATING COIL INCLUDES OVERTEMP AND LOW FLOW PROTECTIVE DEVICES
 - ALL DUCTWORK IDENTIFIED AS OR TO BE PER DRP-4
 - ALL EQUIPMENT IDENTIFIED AS OR TO BE PER TRP-31
- ALL SYSTEM COMPONENTS ARE NON NUCLEAR SAFETY

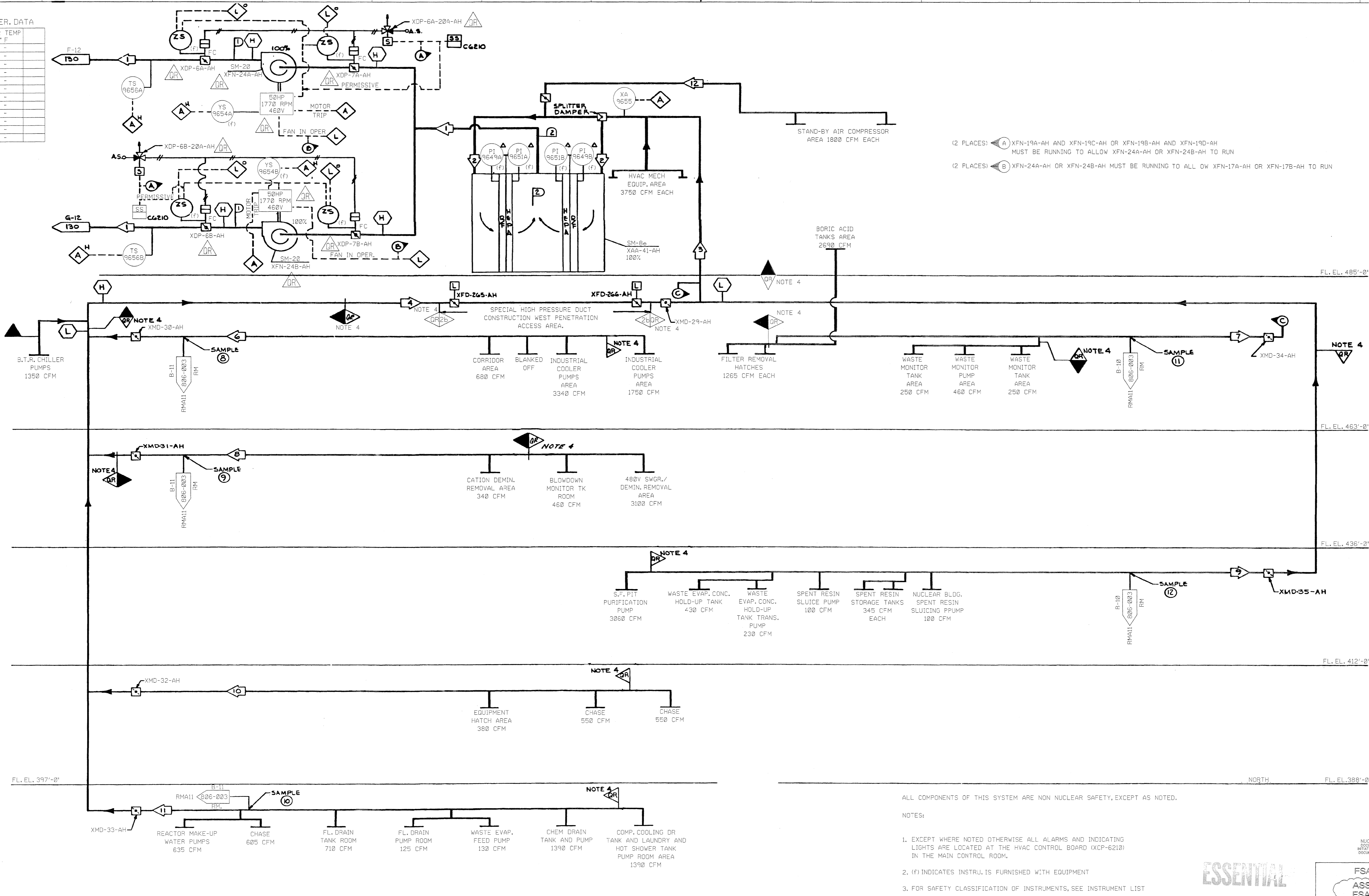
ESSENTIAL

RN 06-003
 August 2006
FSAR Figure 9.4-6
 SOUTH CAROLINA ELECTRIC & GAS COMPANY
 VIRGIL C. SUMNER NUCLEAR STATION
 BUILDING SERVICE - SYSTEM FLOW DIAGRAM
 AUX. BUILDING MAIN SUPPLY SYS.
 FLOW DIAGRAM
 DESIGN ENGINEERING
 V.C. SUMNER NUCLEAR STATION, JENKINSVILLE, S.C.
 MADE CHECKED LE APPROVAL
 JMH DVW GAA
 D-912-115
 DRAWING NUMBER SHEET NUMBER REV

NO.	DATE	BY	REVISION	CHK. BY	APPROVAL
19	1/3/06	DDJ	REVISED PER ECR-70777	MGR	STC
18	10/20/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
17	04/20/93	JMH	REVISED PER CGSS-93-0328	DVW	GAA

SYSTEM OPER. DATA

L	AIR FLOW CFM	AIR TEMP ° F
1	39,375	-
2	19,687.5	-
3	28,275	-
4	17,485	-
5	-	-
6	5,770	-
7	6,180	-
8	3,900	-
9	4,610	-
10	1,480	-
11	4,985	-
12	3,600	-



(2 PLACES) (A) XFN-19A-AH AND XFN-19C-AH OR XFN-19B-AH AND XFN-19D-AH
MUST BE RUNNING TO ALLOW XFN-24A-AH OR XFN-24B-AH TO RUN

(2 PLACES) (B) XFN-24A-AH OR XFN-24B-AH MUST BE RUNNING TO ALL DW XFN-17A-AH OR XFN-17B-AH TO RUN

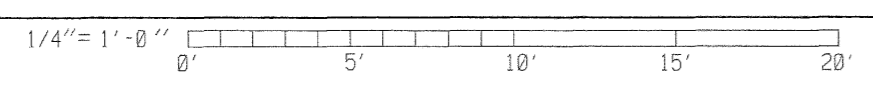
ALL COMPONENTS OF THIS SYSTEM ARE NON NUCLEAR SAFETY, EXCEPT AS NOTED.

NOTES:

- EXCEPT WHERE NOTED OTHERWISE ALL ALARMS AND INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-6210) IN THE MAIN CONTROL ROOM.
 - (F) INDICATES INSTR. IS FURNISHED WITH EQUIPMENT
 - FOR SAFETY CLASSIFICATION OF INSTRUMENTS, SEE INSTRUMENT LIST
 - ALL DUCTWORK IDENTIFIED AS QR TO BE PER QR-4
 - ALL EQUIPMENT IDENTIFIED AS DR TO BE PER TRP-31
- *QUALITY RELATED-FABRICATION AND INSPECTION PER SCE&G DRP FOR HVAC DUCTS AND SUPPORTS*

SYSTEM DESIGN DATA

D	AIR FLOW CFM	AIR TEMP ° F
1	39,375	65°-95°
2	50,000	65°-95°



ESSENTIAL

DRAWING LEGIBILITY
CLASS 1
SCE&G CAD ENHANCED

RN 02-042
June 2003

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**FSAR Figure 9.4-7
ASSOCIATED WITH
FSAR Figure 12.2-2**

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMNER NUCLEAR STATION
BUILDING SERVICE SYSTEM FLOW DIAGRAM
AUX BLDG HEPA EXH SYS

DESIGN ENGINEERING
V. C. SUMNER NUCLEAR STATION, JENKINSVILLE, S. C.

NO.	DATE	BY	REVISION	CKD. BY	APPROVAL
21	9/7/02	DDJ	REVISED PER ECR-70249	MGR	DKW
20	10/03/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
19	04/20/93	JMH	REVISED PER CGSS-03-0328	DVW	GAA

NO. DATE BY REVISION CKD. BY APPROVAL

D-912-120
DRAWING NUMBER

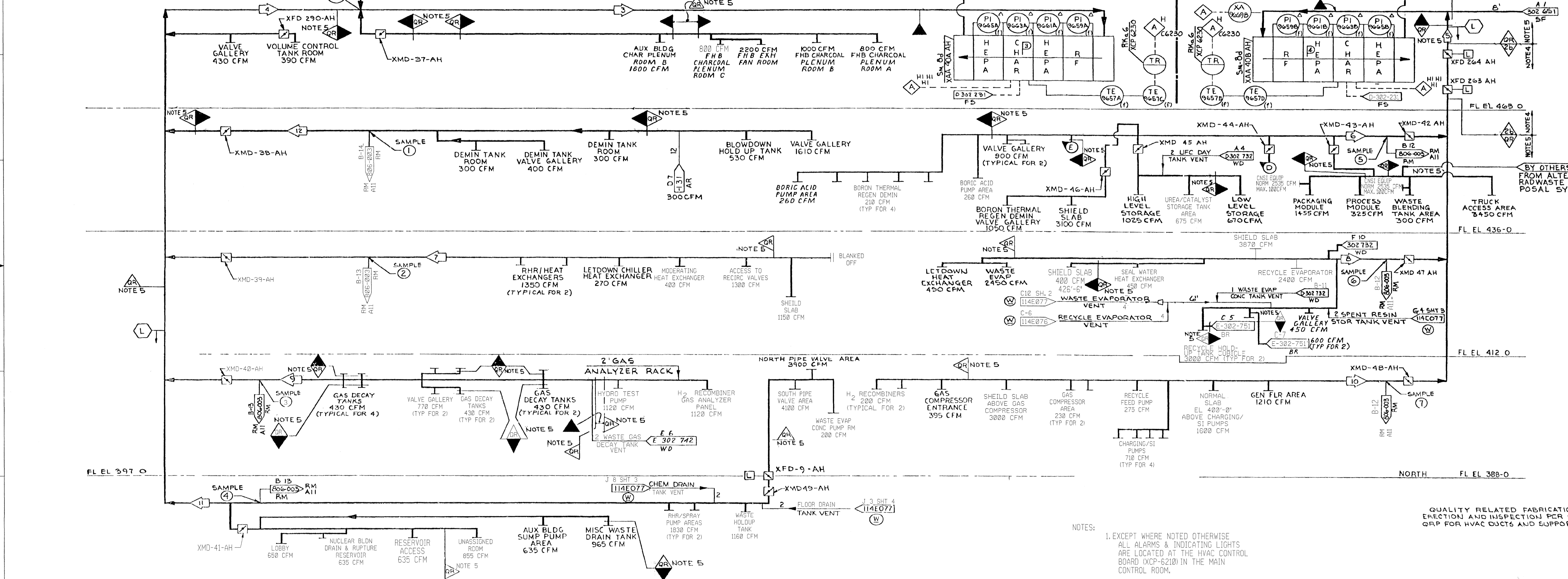
21
SHT. NUMBER

SYSTEM OPERATING DATA

NO.	AIR FLOW CFM	AIR TEMP °F
1	42,695	
2	45,680	
3	42,695	
4	42,695	
5	45,680	
6	17,830	
7	5,820	
8	17,670	
9	7,220	
10	10,180	
11	17,395	
12	3,440	

SAFETY CLASS VERIFICATION

ORIGINATED BY: []
REVIEWED BY: []



FL EL 374'-0" SOUTH

- (4 PLACES) **A** XFN-19A-AH AND XFN-19C-AH OR XFN-19B-AH AND XFN-19D-AH MUST BE RUNNING TO ALLOW XFN-24A-AH OR XFN-24B-AH TO RUN
- (4 PLACES) **B** FANS MAY BE MANUALLY RE-STARTED WITH AVAILABLE DIESEL POWER AFTER BLACKOUT
- (2 PLACES) **C** XFN-19A-AH OR XFN-19B-AH MUST BE RUNNING TO ALLOW HCV-014 TO OPEN

ALL COMPONENTS OF THIS SYSTEM ARE NON NUCLEAR SAFETY EXCEPT AS NOTED

- NOTES:
- EXCEPT WHERE NOTED OTHERWISE ALL ALARMS & INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XDP-6210) IN THE MAIN CONTROL ROOM.
 - (F) INDICATES INSTR. IS FURNISHED WITH EQUIPMENT.
 - FOR SAFETY CLASSIFICATION OF INSTRUMENTS, SEE INSTRUMENT LIST.
 - SPECIAL HIGH PRESSURE DUCT CONSTRUCTION WEST PENETRATION ACCESS AREA.
 - ALL DUCTWORK IDENTIFIED AS OR TO BE PER DRP-4.
 - ALL EQUIPMENT IDENTIFIED AS OR TO BE PER TRP-31

RFN 02-042
June 2003
DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

ESSENTIAL

FSAR Figure 9.4-8
ASSOCIATED WITH
FSAR Figure 12.2-2

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMNER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM
AUXILIARY BUILDING CHARCOAL EXHAUST SYSTEM FLOW DIAGRAM

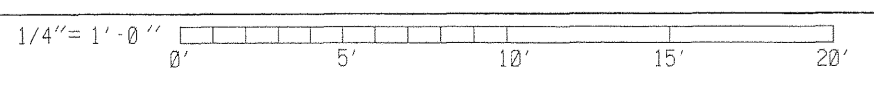
DESIGN ENGINEERING

MADE BY: SRM
CHECKED BY: RHM
LE APPROVAL BY: DJL

DRAWING NUMBER: D-912-125
SHEET NUMBER: 30

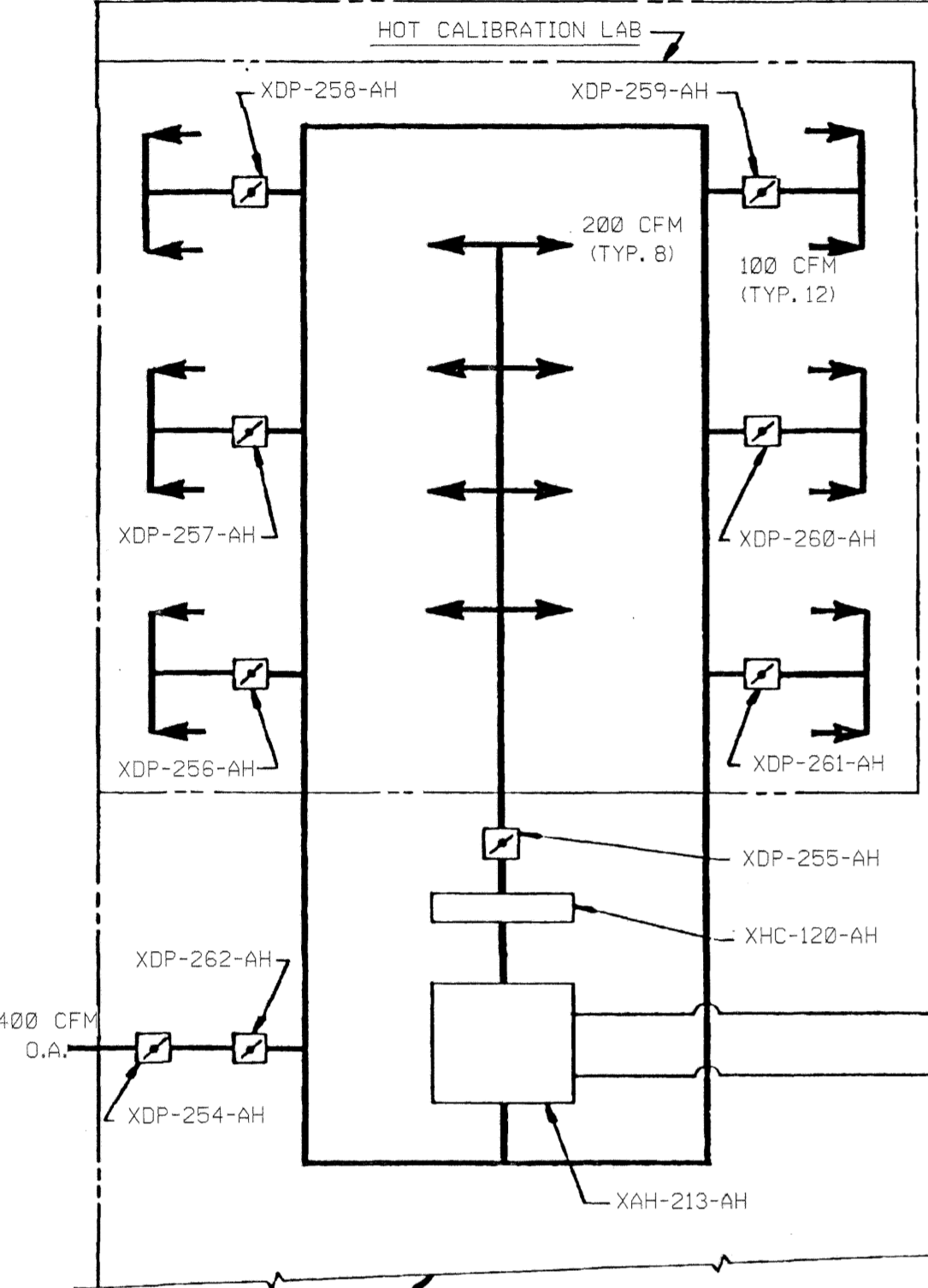
NO.	DATE	BY	REVISION	CHKD. BY	APPROVAL
30	9/17/02	DDJ	REVISED PER ECR-70249	MGR	DKW
29	10/03/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
28	08/08/98	JMR	REVISED PER MRF-22305	MGR	RLB
27	02/10/94	ACI	REVISED PER MRF-21511	MGR	JMG
26	04/22/93	JMH	REVISED PER CGSS-93-0328	DVW	GAA
25	10-15-92	SRM	REVISED PER CGSS-29184-DE	RHM	DJL

SYSTEM DESIGN DATA

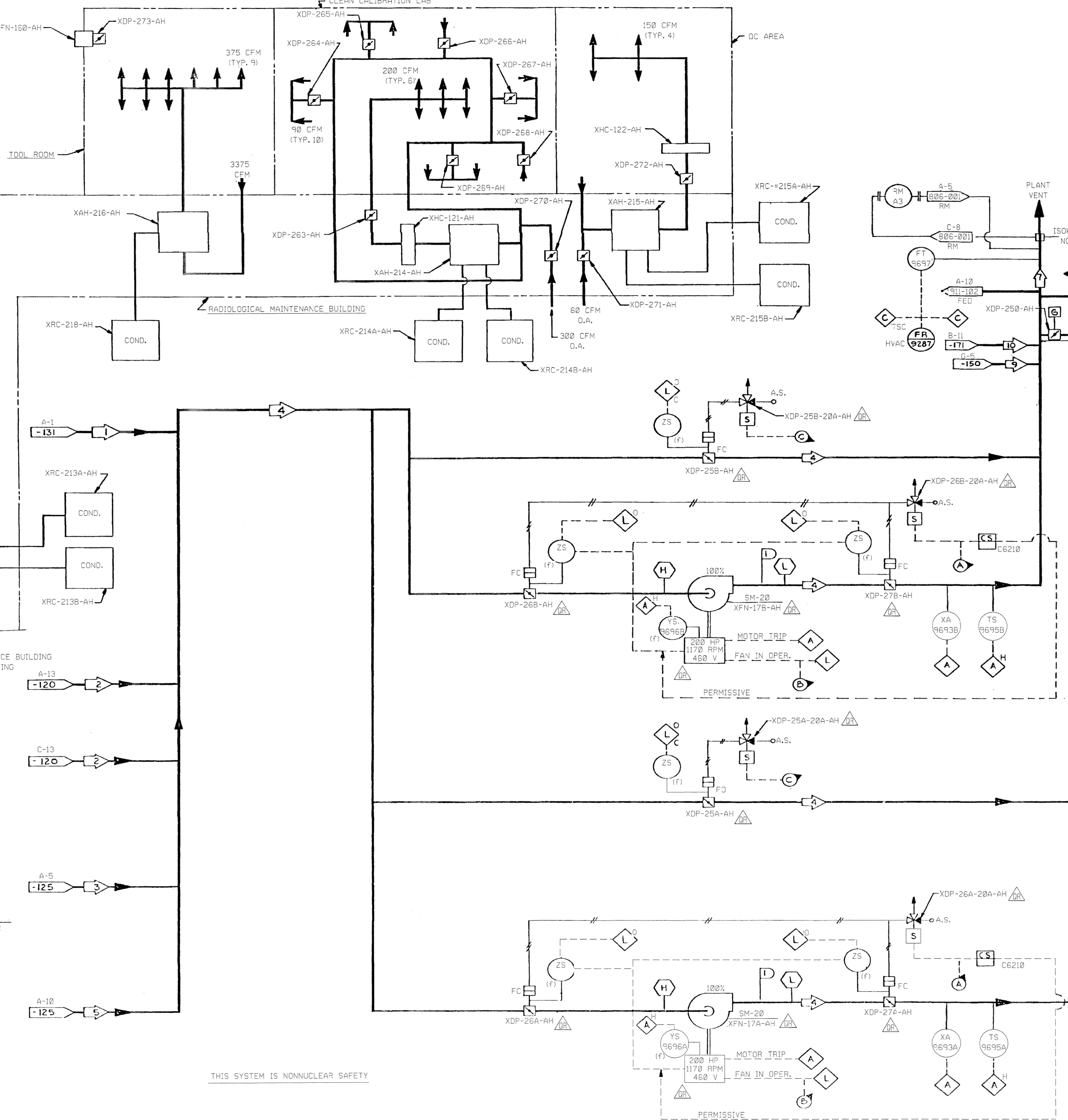


SYSTEM OPERATING DATA

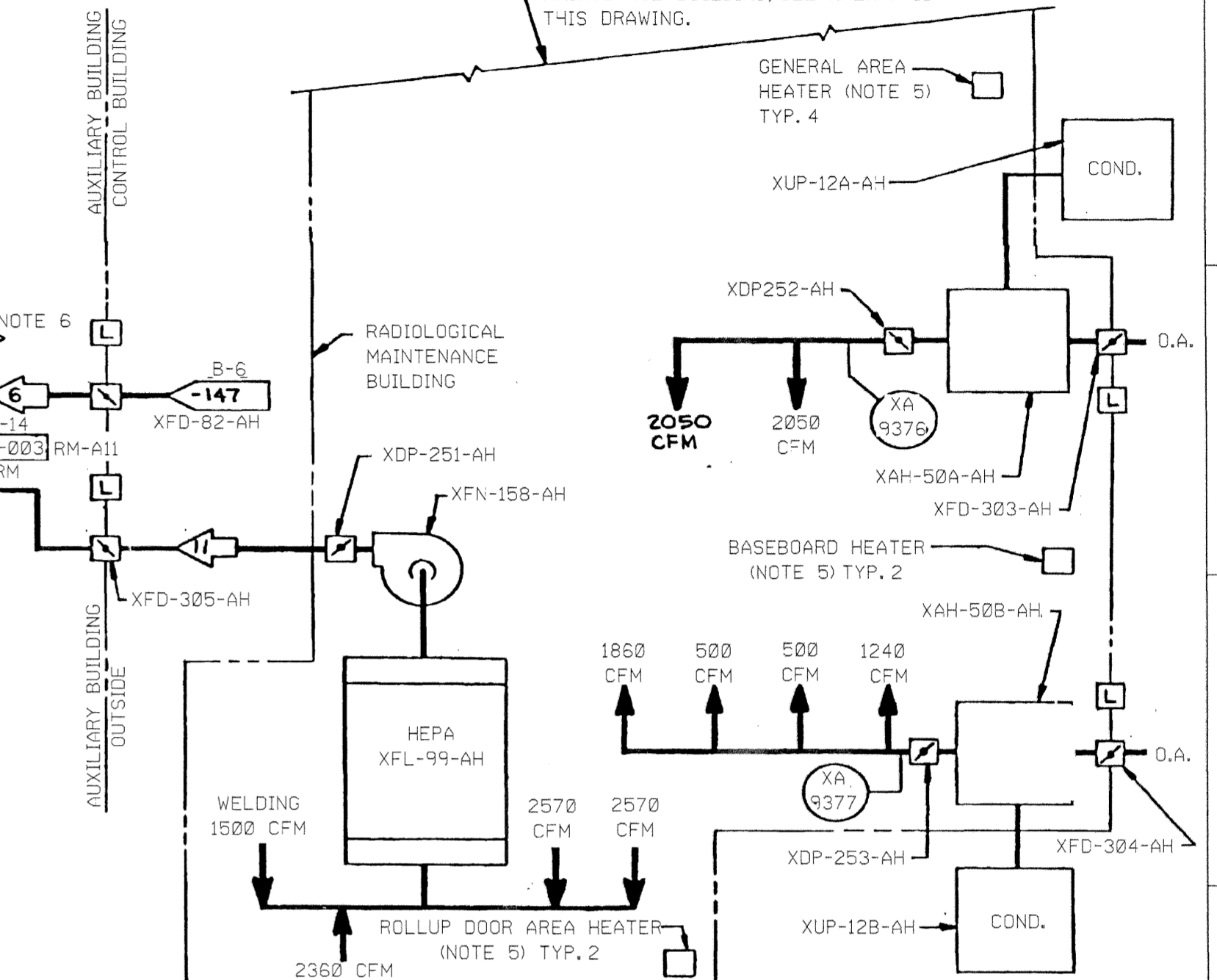
	AIR FLOW CFM	AIR TEMP. ° F
1	29,238	65 - 95
2	39,375	65 - 95
3	45,680	65 - 95
4	156,988	65 - 95
5	42,695	65 - 95
6	16,000	65 - 95
7	238,188	65 - 95
8	2,900	65 - 95
9	4,000	65 - 95
10	52,200	19 - 104
11	9,000	19 - 104



FOR CONTINUATION OF RAD. MAINTENANCE BUILDING
SEE AREA B-2 OF THIS DRAWING



THIS SYSTEM IS NONNUCLEAR SAFETY



- (2 PLACES) A XFN-24A-AH OR XFN-24B-AH MUST BE RUNNING TO ALLOW XFN-17A-AH OR XFN-17B-AH TO RUN.
- (2 PLACES) B XFN-17A-AH OR XFN-17B-AH MUST BE RUNNING TO ALLOW XFN-15-AH TO RUN.
- (2 PLACES) C IF NEITHER XFN-17A-AH NOR XFN-17B-AH IS RUNNING BOTH XDP-25A-AH AND XDP-25B-AH OPEN

TAG NUMBER	DESCRIPTION
XHC-123-AH	COUNT ROOM BASEBOARD HEATER
XHC-124-AH	COUNT ROOM BASEBOARD HEATER
XHC-125-AH	ROLLUP DOOR AREA HEATER
XHC-126-AH	ROLLUP DOOR AREA HEATER
XHC-127-AH	GENERAL AREA HEATER
XHC-128-AH	GENERAL AREA HEATER
XHC-129-AH	GENERAL AREA HEATER
XHC-130-AH	GENERAL AREA HEATER

- NOTE:
1. EXCEPT WHERE NOTED OTHERWISE ALL ALARM AND INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-6210) IN THE MAIN CONTROL ROOM.
 2. (F) INDICATES INSTR. IS FURNISHED WITH EQUIPMENT.
 3. FOR SAFETY CLASSIFICATION OF INSTRUMENTS, SEE INSTRUMENT LIST.
 4. REFER TO IMS-67-12, IMS-67-13, IMS-67-24-1 AND IMS-67-26-1 FOR PHYSICAL LAYOUT OF DUCTWORK.
 5. REFER TO HEATER SCHEDULE LISTED ABOVE FOR HEATER TAG NUMBER.
 6. ALL DUCTWORK IDENTIFIED AS OR TO BE PER GRP-4.
 7. ALL EQUIPMENT IDENTIFIED AS OR TO BE PER TRP-31

ESSENTIAL

* QUALITY RELATED-FABRICATION, ERECTION, AND INSPECTION PER SCE&G ORP FOR HVAC DUCTS AND SUPPORTS.

RN 02-042
June 2003

DRAWING LEGIBILITY
CLASS 1
SCE&G CAD ENHANCED

FSAR Figure 9.4-9
ASSOCIATED WITH
FSAR Figure 12.2-2

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMNER NUCLEAR STATION

BUILDING SERVICE - SYSTEM FLOW DIAGRAM
AUX BLDG - MAIN EXHAUST SYSTEM

DESIGN ENGINEERING

Y. C. SUMNER NUCLEAR STATION JENKINSVILLE, S. C.

JMH DVW GAA

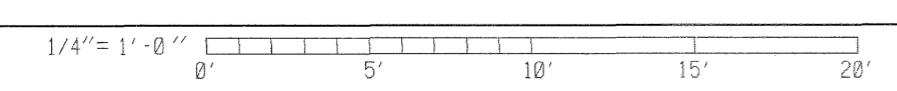
D-912-130

DRAWING NUMBER

SHT. NUMBER

SYSTEM DESIGN DATE

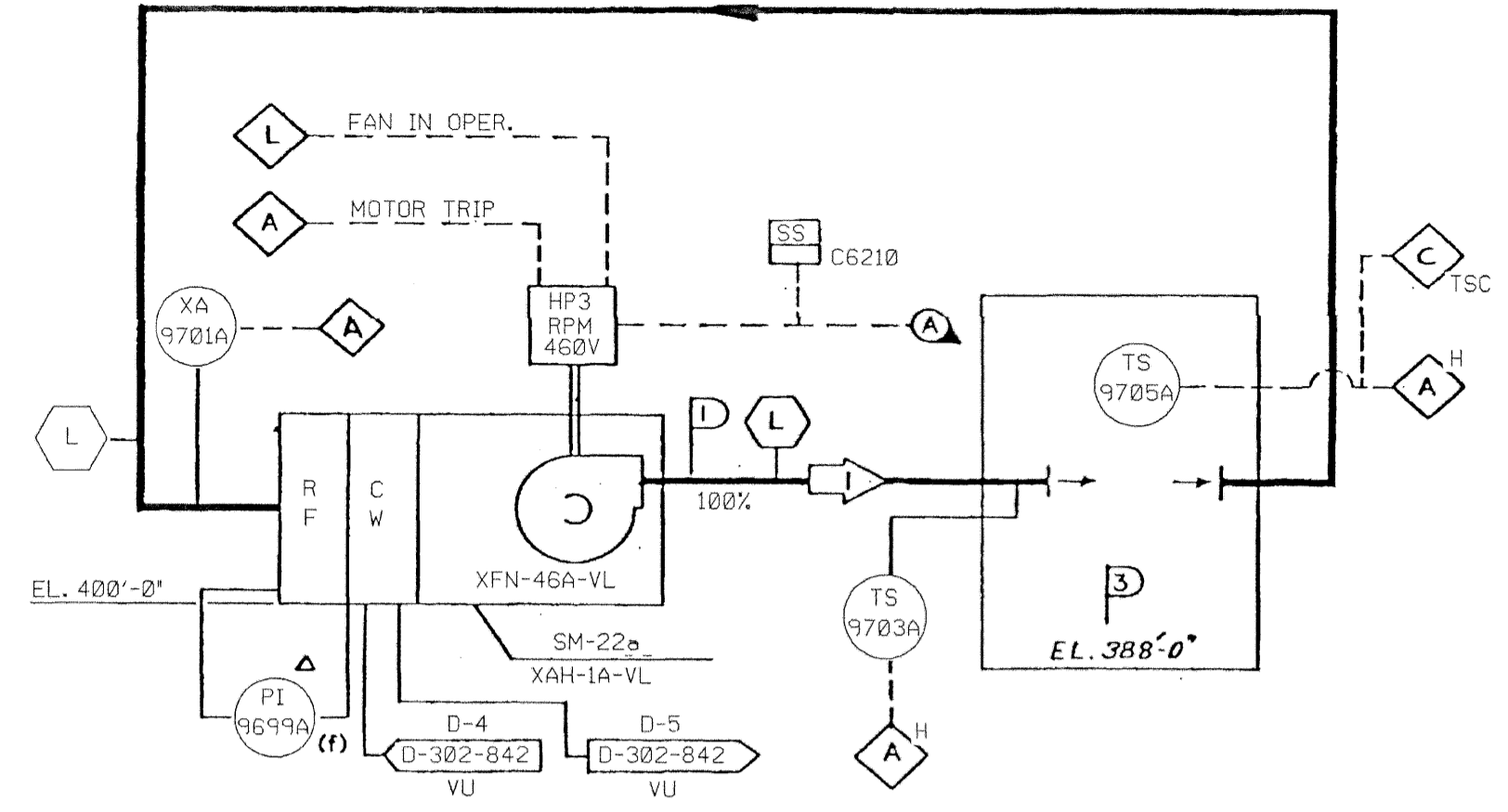
	AIR FLOW CFM	AIR TEMP. ° F
1	153,043	65 - 95



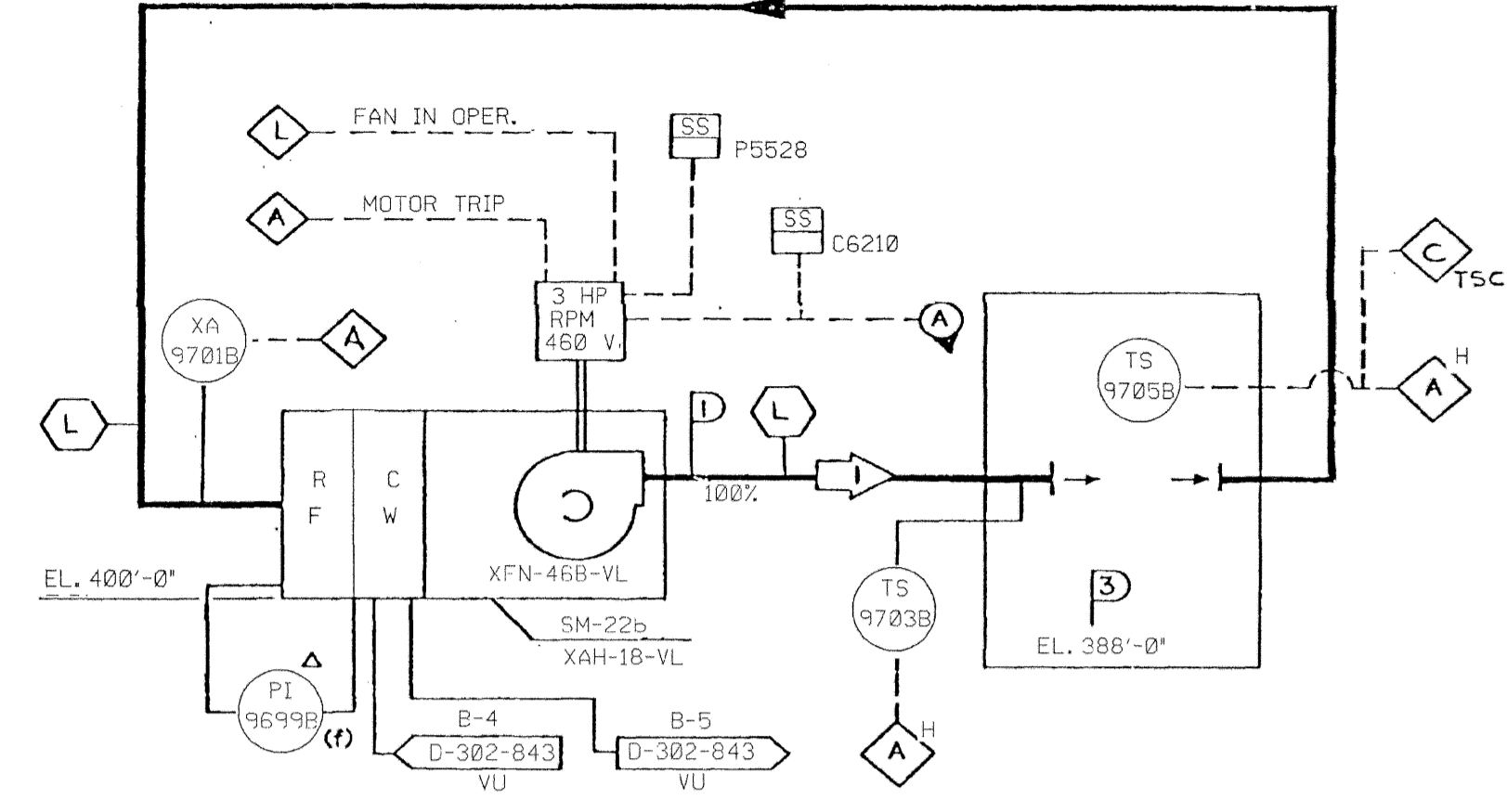
NO.	DATE	BY	REVISION	CHKD.	APPROVAL
23	9/17/02	DDJ	REVISED PER ECR-70249	MGR	DKW
22	6/23/99	DDJ	REVISED PER CGSS-99-0204	MGR	FSM
21	4/9/98	DDJ	REVISED PER CGSS-99-0204	RHM	FSM
20	04/20/93	JMH	REVISED PER CGSS-93-0328	DVW	GAA

SYSTEM OPERATING DATA

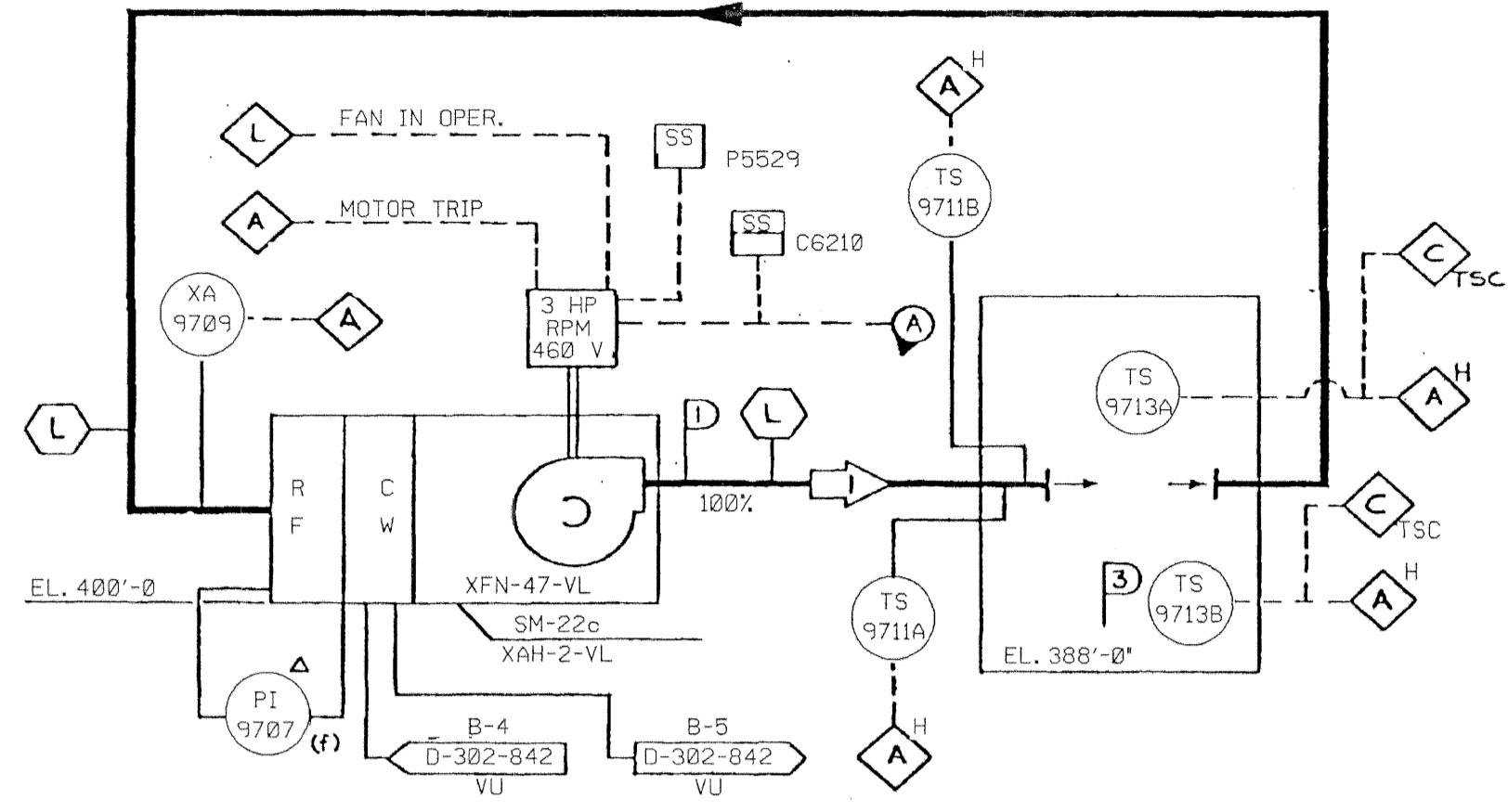
ID	AIR FLOW CFM	AIR TEMP. °F
1	3,400	55
2	3,400	55
3	2,300	55
4	4,800	55
5	5,500	55
6	6,200	60
7	3000	55



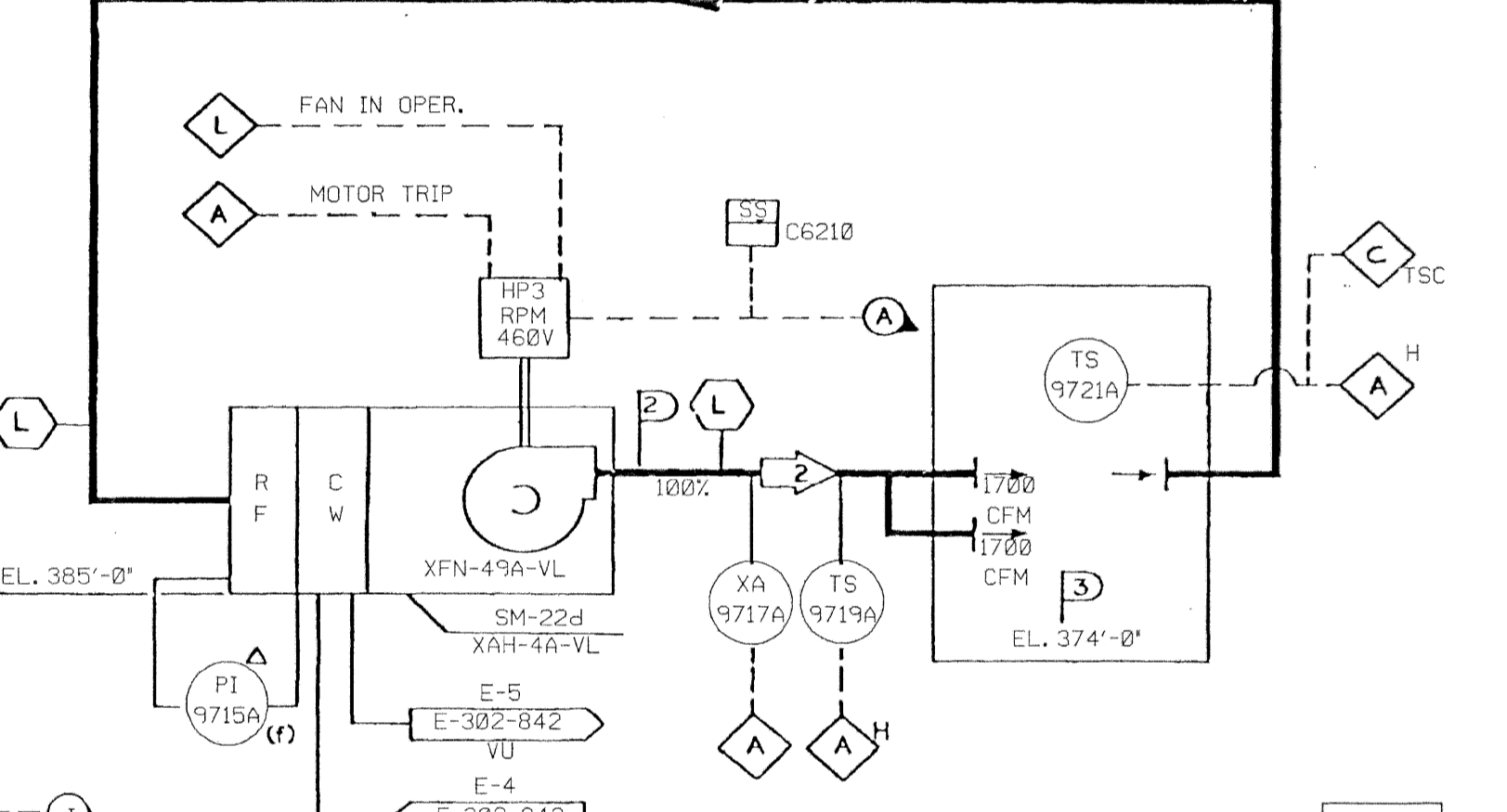
CHARGING - S.I. PUMP ROOM #1
COOLING SYSTEM



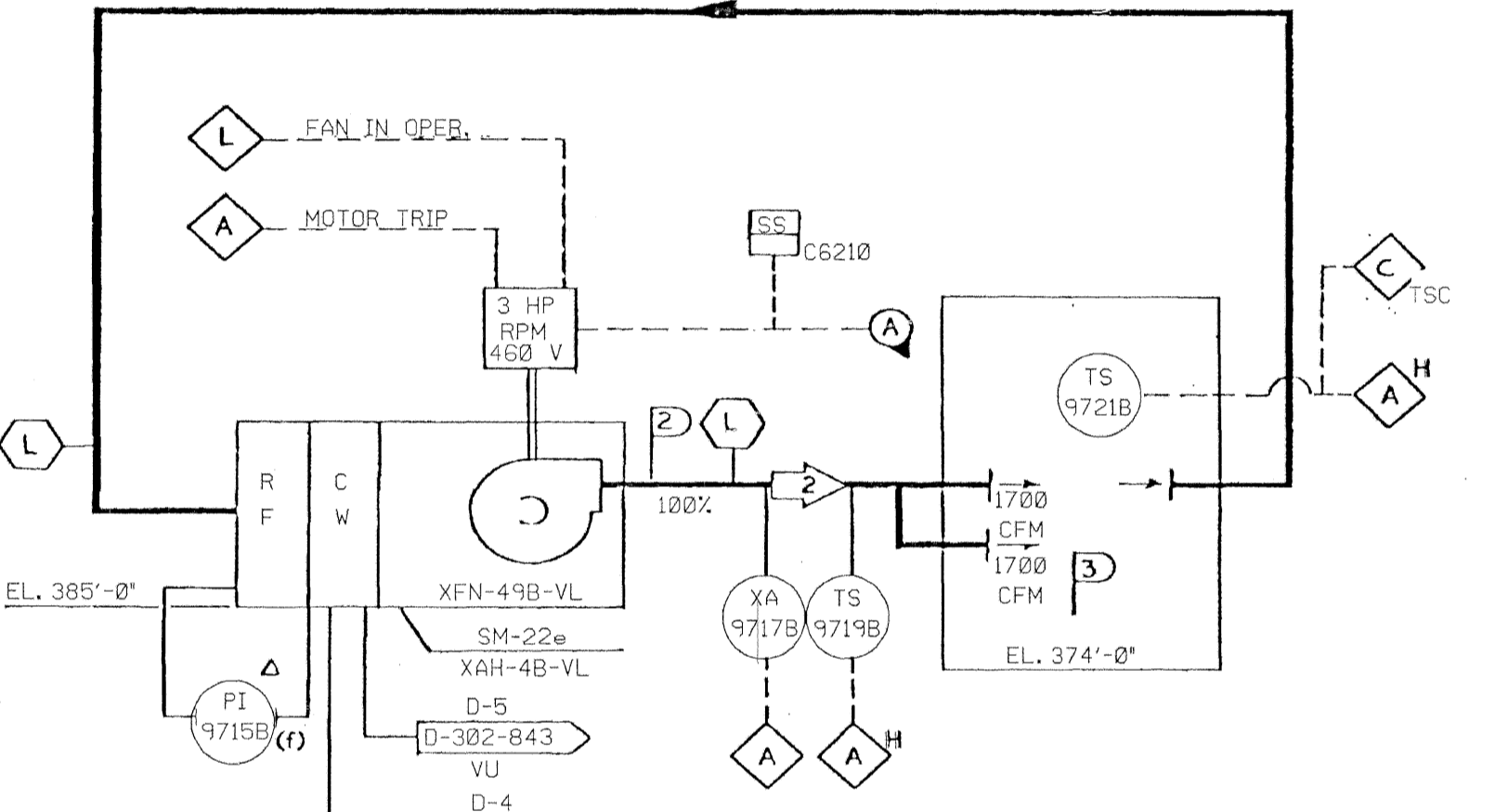
CHARGING - S.I. PUMP ROOM #3
COOLING SYSTEM



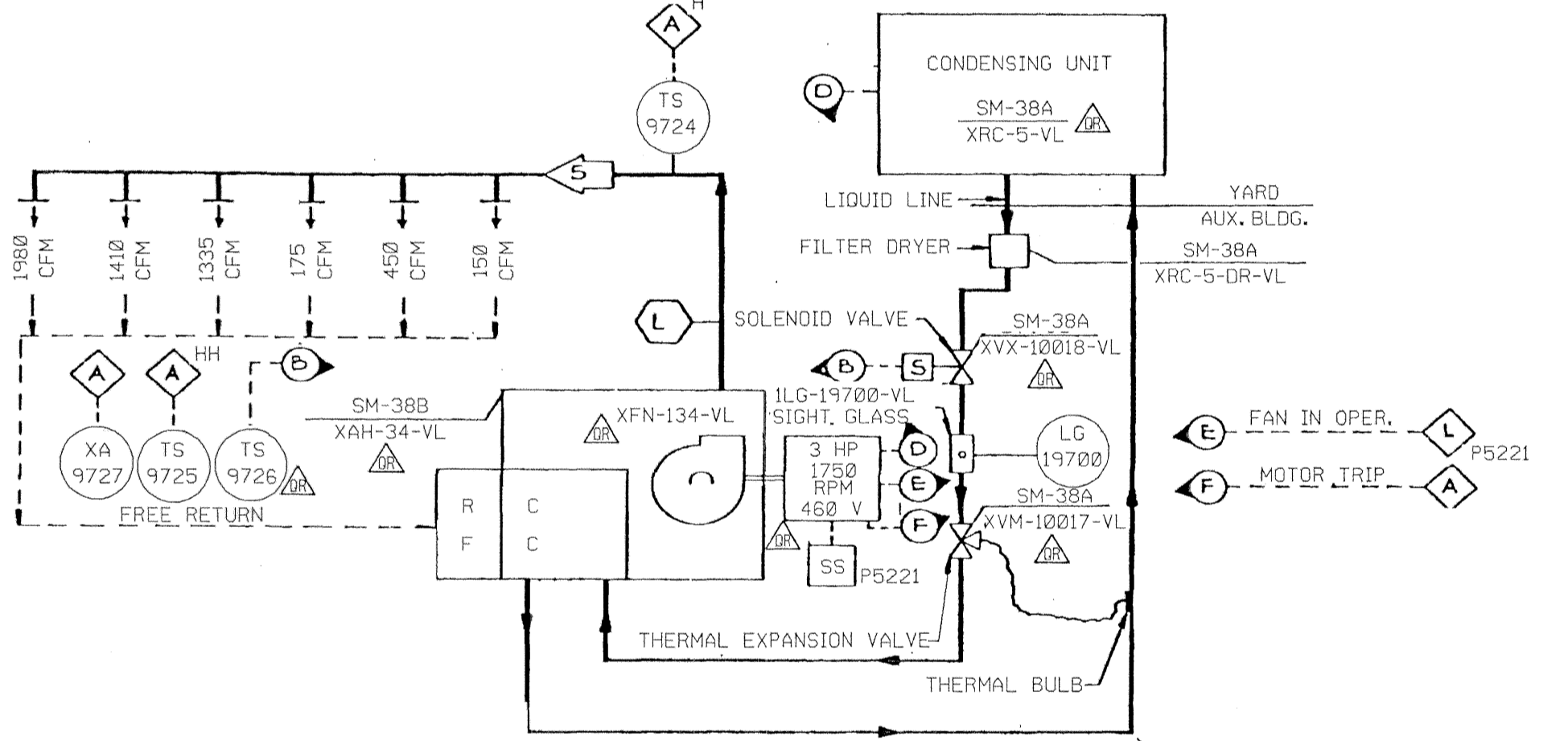
CHARGING - S.I. PUMP ROOM #2 (SWING)
COOLING SYSTEM



RHR - SPRAY PUMP ROOM #1
COOLING SYSTEM

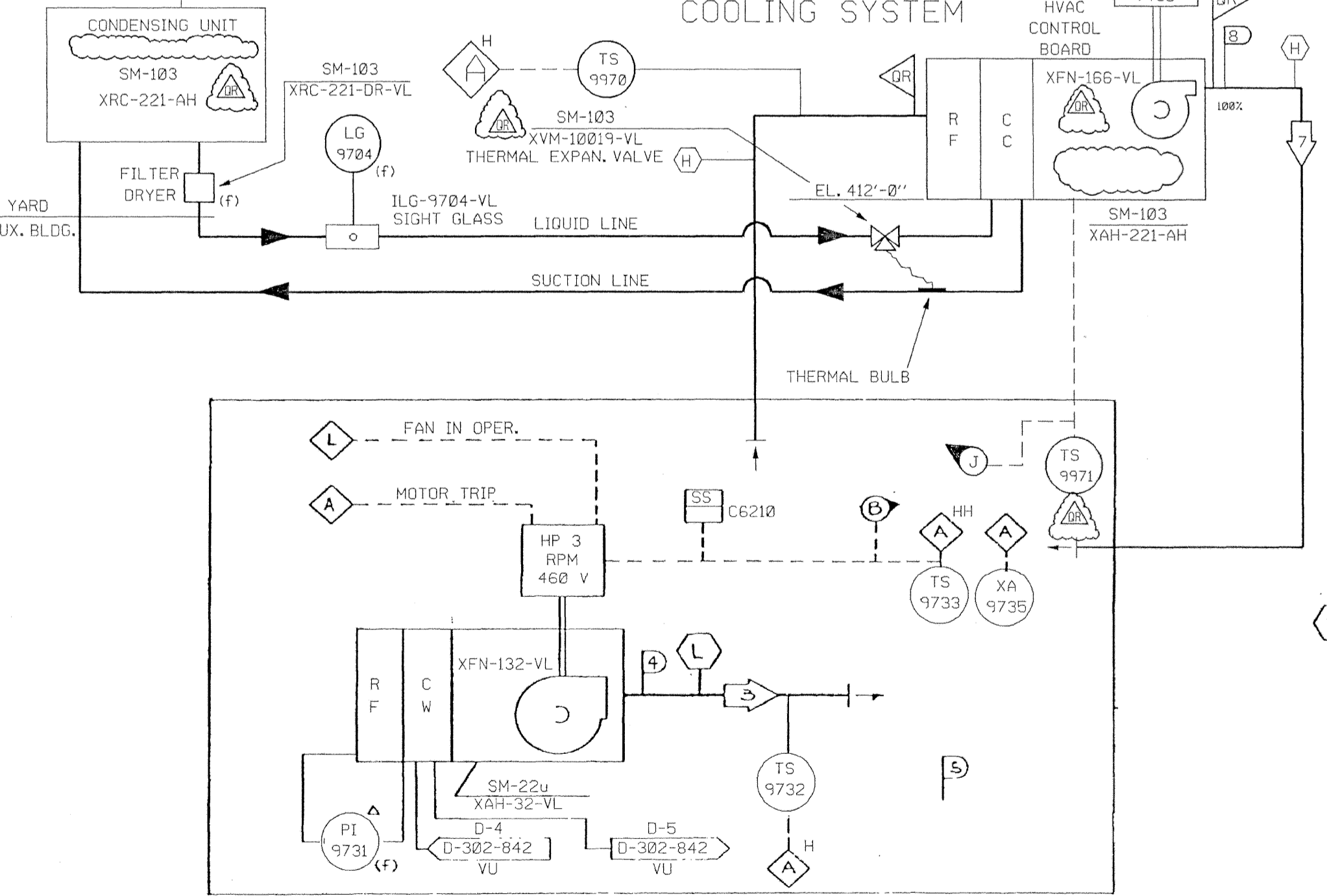


RHR - SPRAY PUMP ROOM #2
COOLING SYSTEM

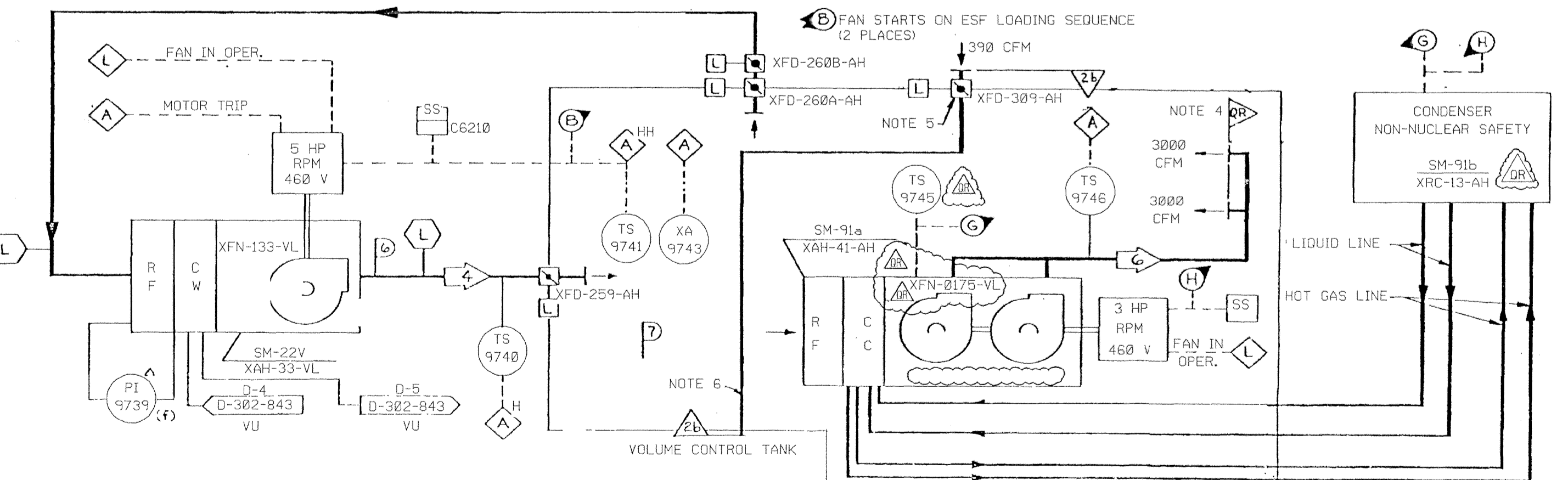


AUXILIARY BUILDING MCC SWITCHGEAR AIR HANDLING UNIT
NON-NUCLEAR SAFETY

- NOTES:
- EXCEPT WHERE OTHERWISE NOTED ALL ALARMS AND INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM.
 - (F) INDICATES INSTRUMENT IS FURNISHED WITH EQUIPMENT
 - FOR SAFETY CLASSIFICATION OF INSTRUMENTS, SEE INSTRUMENT LIST.
 - ALL DUCTWORK IDENTIFIED AS DR TO BE PER DRP-4.
 - DAMPER IS NON-NUCLEAR SAFETY, ONLY DUCT IS CLASS 2b.
 - PRESSURE TIGHT DUCT CONSTRUCTION IN AB63-B-1.
 - ALL EQUIPMENT IDENTIFIED AS (A) TO BE PER TRP-3L.
- ALL SYSTEMS AND COMPONENTS ARE SAFETY CLASS 2b, EXCEPT AS NOTED.
- *QUALITY RELATED-FABRICATION, ERECTION AND INSPECTION PER SCE&G DRP FOR HVAC DUCTS AND SUPPORTS.



AUXILIARY BUILDING MCC SWITCHGEAR AIR HANDLING UNIT
ELEVATION 412'-0"



AUXILIARY BUILDING MCC SWITCHGEAR AIR HANDLING UNITS
ELEVATION 463'-0"

SYSTEM DESIGN DATA

ID	AIR FLOW CFM	AIR TEMP. °F
1	3,400	55
2	3,400	55
3	-	104 MAX
4	2,300	55
5	-	85
6	4,800	55
7	-	85
8	3000	55



ESSENTIAL

NO.	DATE	BY	REVISION	CHKD.	APPROVAL
21	10/5/00	JMR	REVISED PER ECR-50295	MGR	FM
20	9/23/94	RHM	REVISED PER MRF-21511 & MRF-22009	MGR	JMG
19	04/20/93	JMH	REVISED PER CGSS-93-0328	DVW	GAA

Amendment 02-01
May 2002

FSAR Figure 9.4-10

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMNER NUCLEAR STATION

AUXILIARY BUILDING

PUMP ROOM COOLING SYSTEM

DESIGN ENGINEERING

DRAWING LEGIBILITY CLASS 1

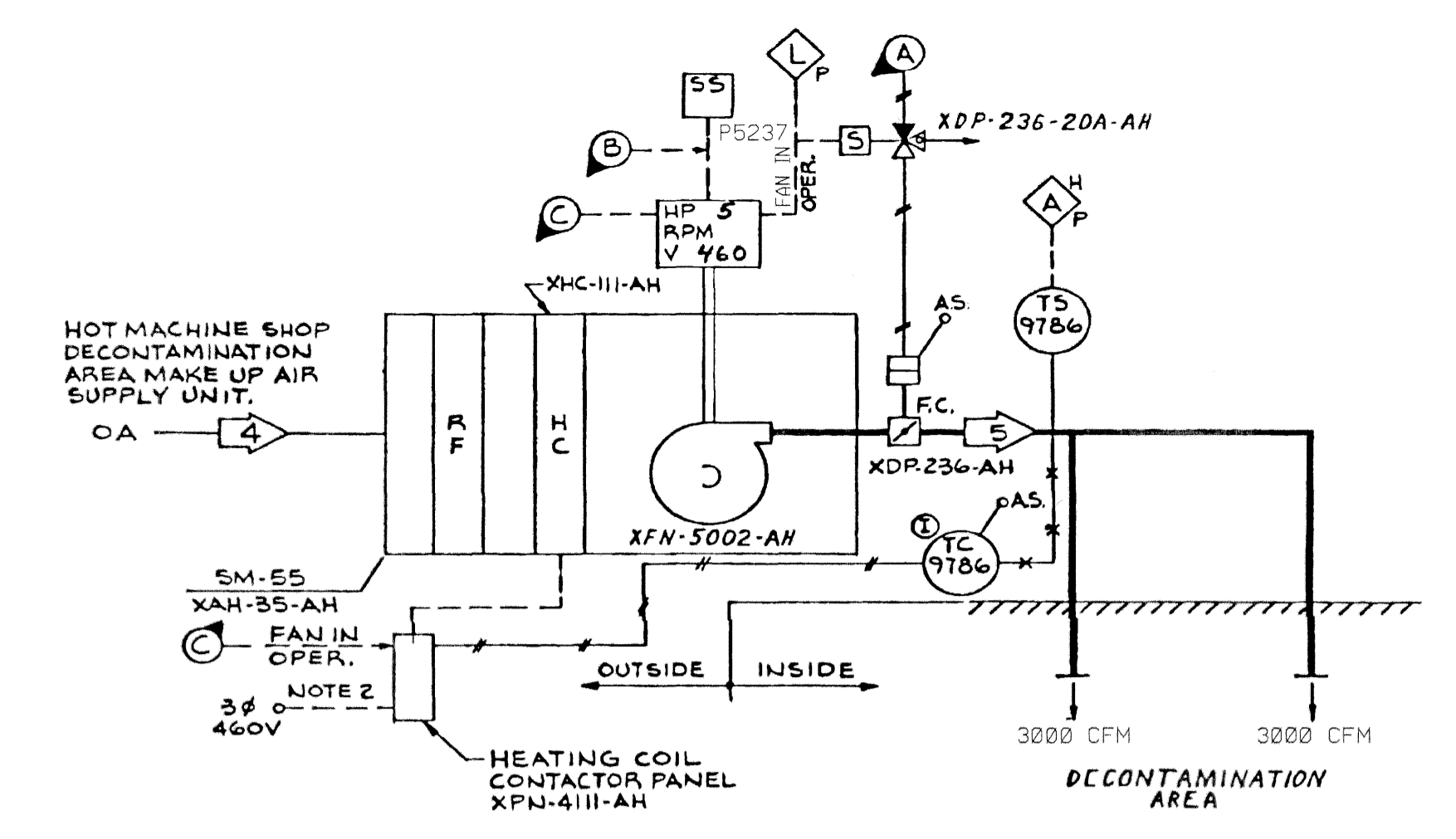
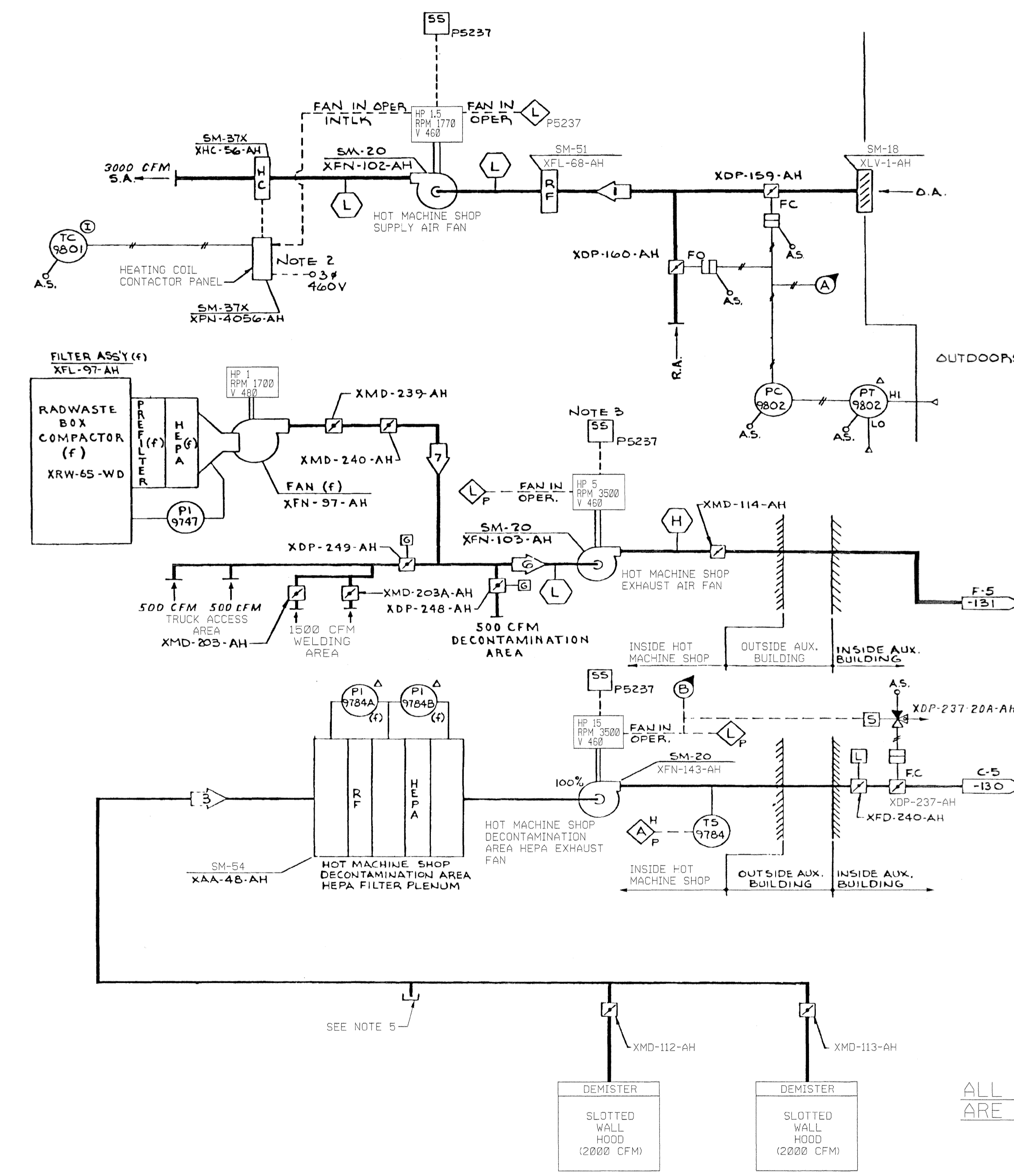
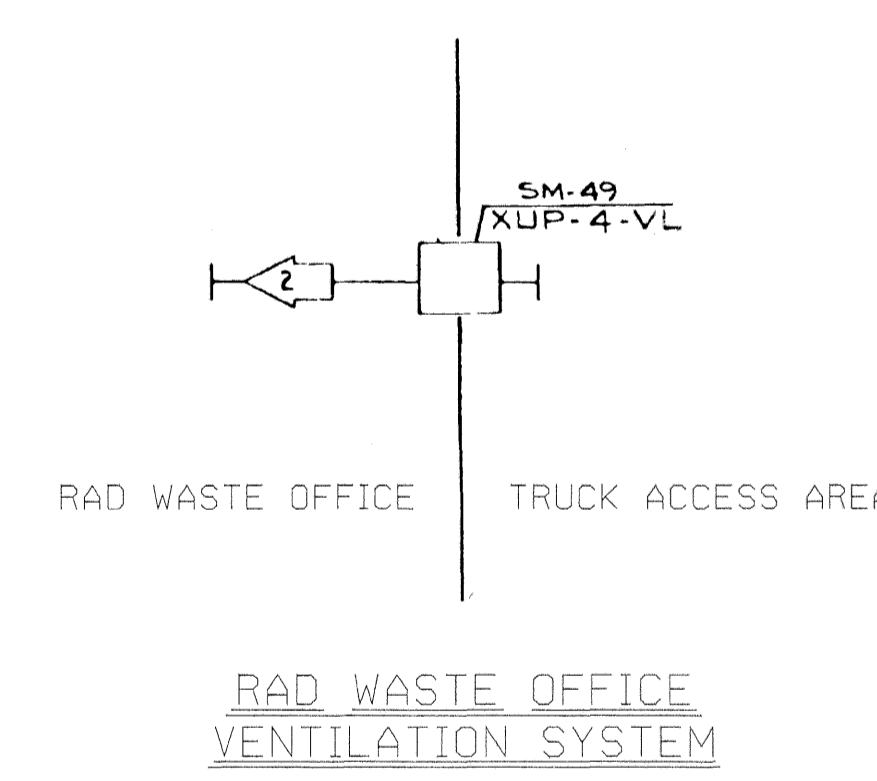
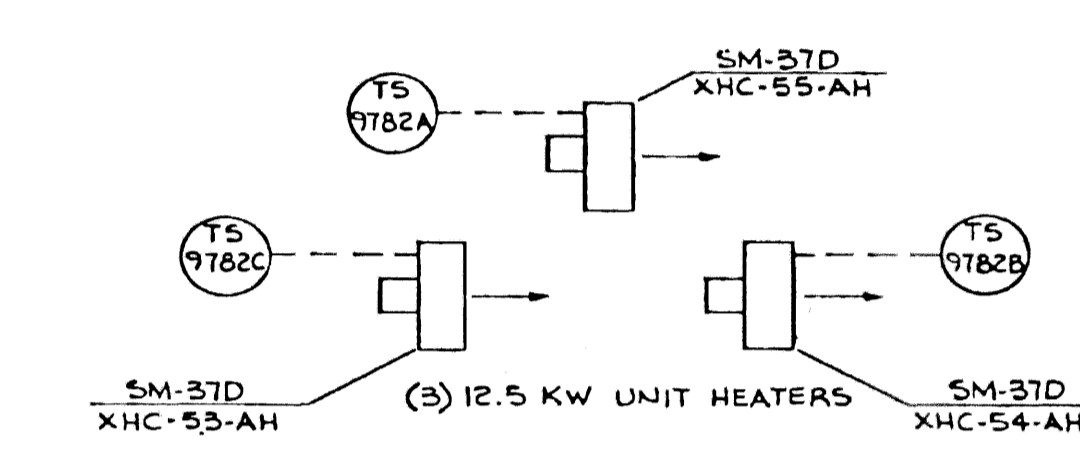
SCE&G CAD ENHANCED

JMH DVW GAA

D-912-132

OPERATING DATA		
NO.	AIR QTY. ACFM	AIR TEMP °F
1	3000	19°-95°
2	350	
3	4000	65° MIN.
4	6000	19°-95°
5	6000	65°-95°
6	3000	

14 13 12 11 10 9 8 7 6 5 4 3 2 1



- NOTES:
- EXCEPT WHERE NOTED OTHERWISE, ALL ALARMS & INDICATING LIGHTS ARE LOCATED AT A LOCAL PANEL (XPN-5237-AH).
 - HEATING COILS INCLUDE OVERTEMP & LOW FLOW PROTECTION DEVICES.
 - TWO SPEED FAN & CONTROL SWITCH.
 - FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.
 - CAP DUCT PER SPEC. 130.

ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY

ESSENTIAL

RN 02-042
June 2003

DRAWING LEGIBILITY
CLASS 1
SCE&G CAD ENHANCED

FSAR Figure 9.4-10a
ASSOCIATED WITH
FSAR Figure 12.2-2

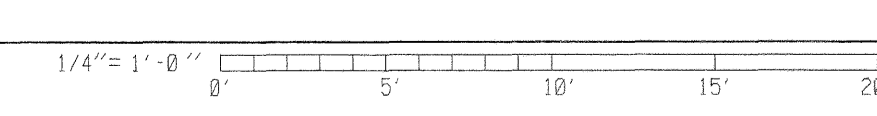
SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMNER NUCLEAR STATION

BUILDING SERVICE: HVAC
HOT MACHINE SHOP VENTILATION SYSTEM
DESIGN ENGINEERING

1	ACI	2	RHM	3	JWT
---	-----	---	-----	---	-----

D-912-150
DRAWING NUMBER

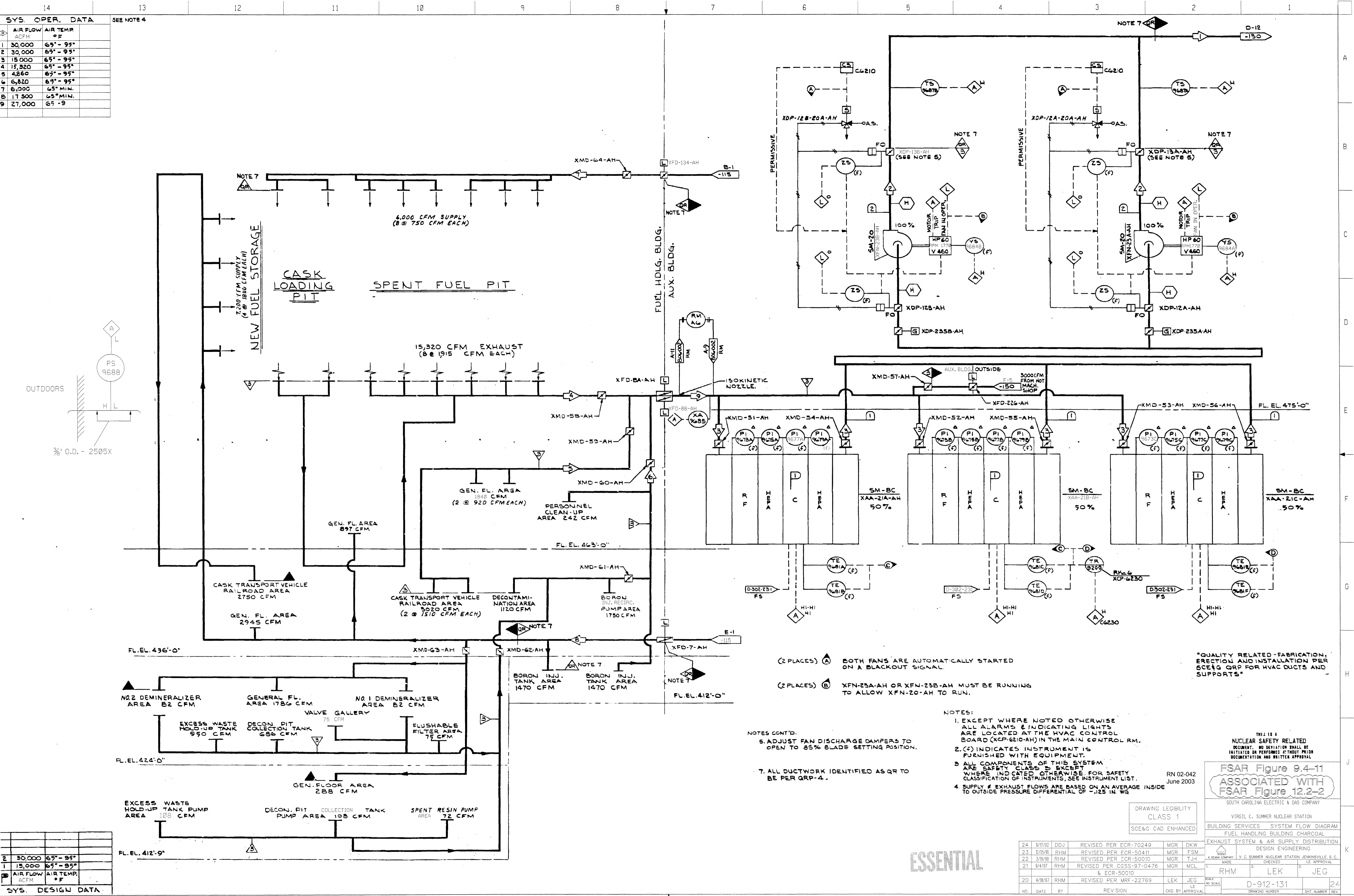
NO.	DATE	BY	REVISION	CHK. BY	APPROVAL
15	9/17/02	DDJ	REVISED PER ECR-70249	MGR	DKW
15	03/01/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
14	03/23/98	TGB	REVISED PER ECR-50108	RHM	MWD
13	01/29/93	ACI	REVISED PER CGSS-29528-DE	RHM	JWT



EXT. STATIC PRESS. IN WATER COL.	ROOM HEAT GAIN	DESIGN DATA

SYS. OPER. DATA		SEE NOTE 4
AIR FLOW ACFM	AIR TEMP °F	
1	30,000	65° - 95°
2	30,000	65° - 95°
3	15,000	65° - 95°
4	15,320	65° - 95°
5	4,860	65° - 95°
6	6,820	65° - 95°
7	6,000	65° MIN.
8	17,300	65° MIN.
9	27,000	65° - 9

SYS. DESIGN DATA		
AIR FLOW ACFM	AIR TEMP °F	
2	30,000	65° - 95°
1	15,000	65° - 95°



- (2 PLACES) A BOTH FANS ARE AUTOMATICALLY STARTED ON A BLACKOUT SIGNAL.
- (2 PLACES) B XFN-23A-AH OR XFN-23B-AH MUST BE RUNNING TO ALLOW XFN-20-AH TO RUN.

NOTES:
 1. EXCEPT WHERE NOTED OTHERWISE ALL ALARMS & INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL RM.
 2. (F) INDICATES INSTRUMENT IS FURNISHED WITH EQUIPMENT.
 3. ALL COMPONENTS OF THIS SYSTEM ARE SAFETY CLASS 2 EXCEPT WHERE INDICATED OTHERWISE. FOR SAFETY CLASSIFICATION OF INSTRUMENTS, SEE INSTRUMENT LIST.
 4. SUPPLY & EXHAUST FLOWS ARE BASED ON AN AVERAGE INSIDE TO OUTSIDE PRESSURE DIFFERENTIAL OF -.125 IN WG.

QUALITY RELATED-FABRICATION, ERECTION AND INSTALLATION PER SCE&G QRP FOR HVAC DUCTS AND SUPPORTS

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

FSAR Figure 9.4-11 ASSOCIATED WITH FSAR Figure 12.2-2

DRAWING LEGIBILITY CLASS 1		SCE&G CAD ENHANCED	
SOUTH CAROLINA ELECTRIC & GAS COMPANY		VIRGIL C. SUMNER NUCLEAR STATION	
BUILDING SERVICES		SYSTEM FLOW DIAGRAM	
EXHAUST SYSTEM & AIR SUPPLY DISTRIBUTION		FUEL HANDLING BUILDING CHARCOAL	
DESIGN ENGINEERING		LE APPROVAL	
1	RHM	2	LEK
3	JEG		
D-912-131		24	
DRAWING NUMBER		SHT. NUMBER REV	

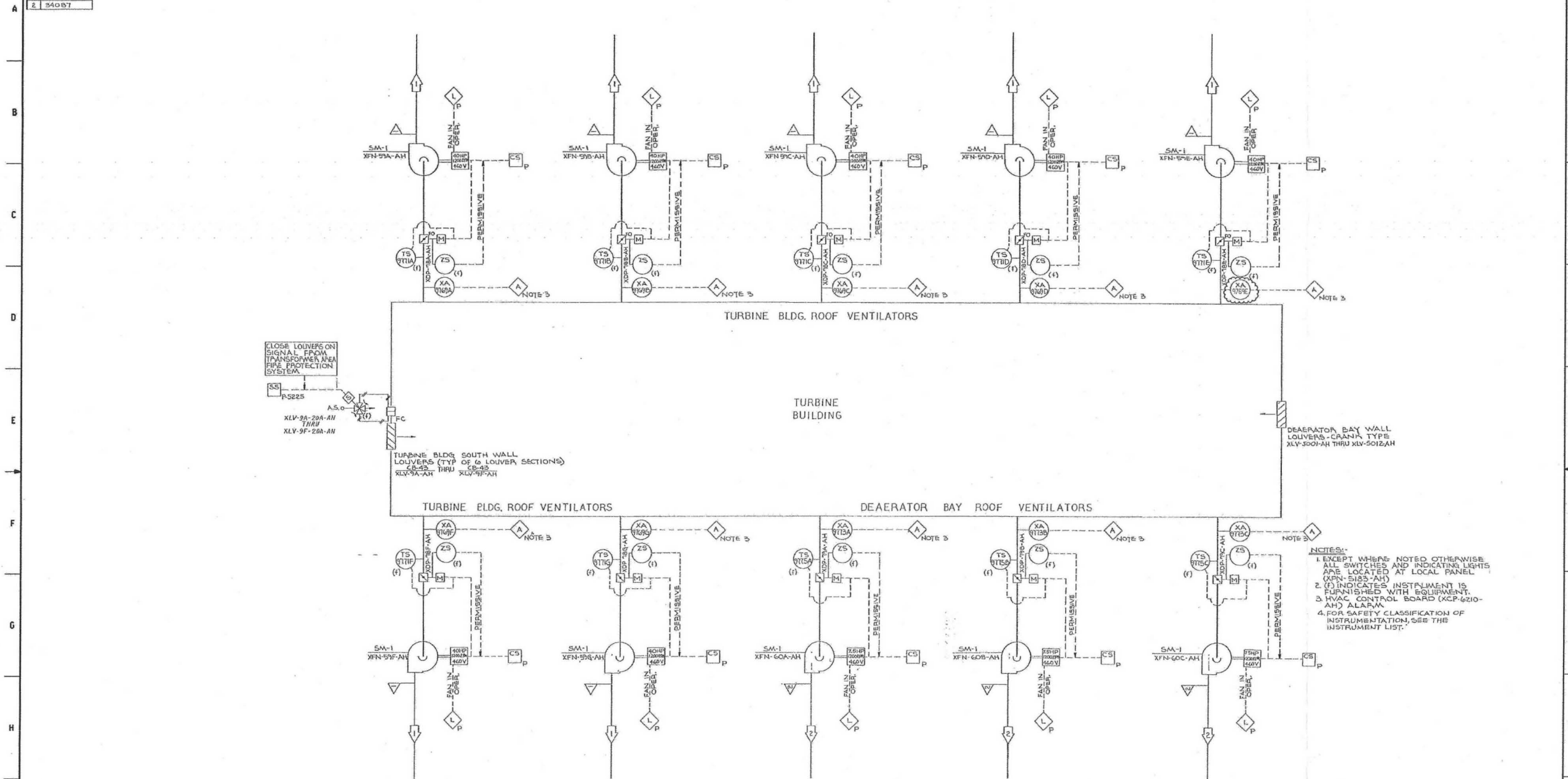
NO.	DATE	BY	REVISION	CHKD. BY	APPROVAL
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23	11/15/01	RHM	REVISED PER ECR-50411	MGR	FSM
22	3/19/98	RHM	REVISED PER ECR-50010	MGR	TJH
21	9/4/97	RHM	REVISED PER CGSS-97-0476 & ECR-50010	MGR	MCL
20	4/18/97	RHM	REVISED PER MRF-22769	LEK	JEG

ESSENTIAL

1/4" = 1'-0"

14 13 12 11 10 9 8 7 6 5 4 3 2 1

SYS. OPER. DATA	
NR FLOW CFM	
1	199958
2	34087



CLOSE LOUVERS ON SIGNAL FROM TRANSFORMER AREA FIRE PROTECTION SYSTEM

A.S.O.

XLV-9A-20A-AH THRU XLV-9F-20A-AH

TURBINE BLDG SOUTH WALL LOUVERS (TYP OF 6 LOUVER SECTIONS) XLV-9A-AH THRU XLV-9F-AH

- NOTES:
- EXCEPT WHERE NOTED OTHERWISE ALL SWITCHES AND INDICATING LIGHTS ARE LOCATED AT LOCAL PANEL (XFN-51B-AH)
 - (F) INDICATES INSTRUMENT IS FURNISHED WITH EQUIPMENT.
 - HVAC CONTROL BOARD (XCP-6210-AH) ALARM.
 - FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.

ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY

ESSENTIAL

RN 14-017

SYS. DESIGN DATA	
2	125
1	125
EXT. STATE PRESS.	
1	125
WATER COOL.	

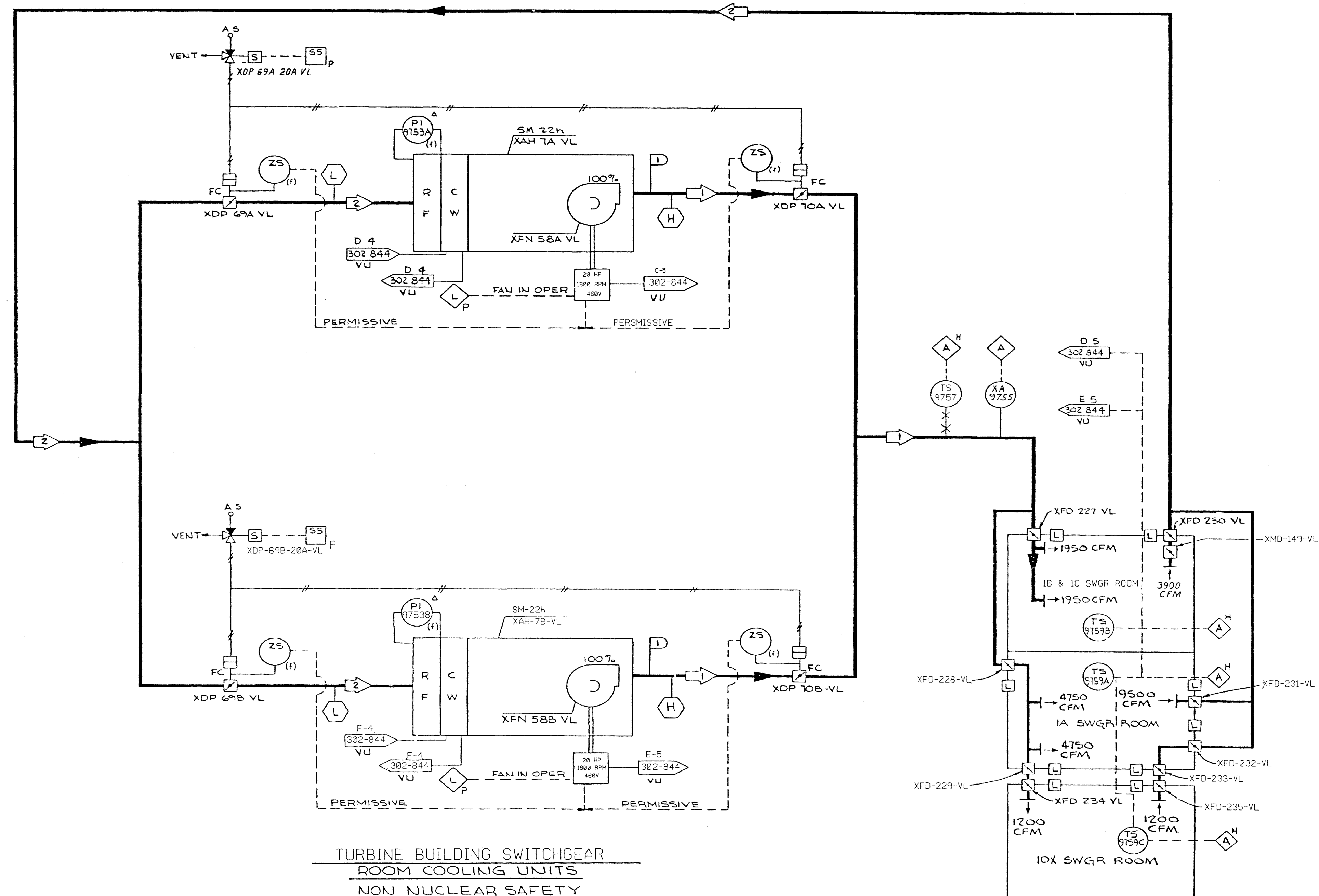


DRAWING LEGIBILITY CLASS 1

FSAR Figure 9.4-12
SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMNER NUCLEAR STATION
BUILDING SERVICE SYSTEM FLOW DIAGRAM
TURBINE BUILDING VENTILATION SYSTEM

DESIGN ENGINEERING								
S.C. SUMNER NUCLEAR STATION JENKINSVILLE, S.C.								
8	4/28/84	TGB	REVISED PER ECR-71946	MGR	KH	DDJ	MGR	DDJ
7	10/14/83	DDJ	REVISED PER ECR-70020	MGR	DDJ	LE		
NO. DATE BY REVISION		CRD. BY APPROVAL		DRAWING NUMBER		SHEET NUMBER		REV
				D-912-160				8

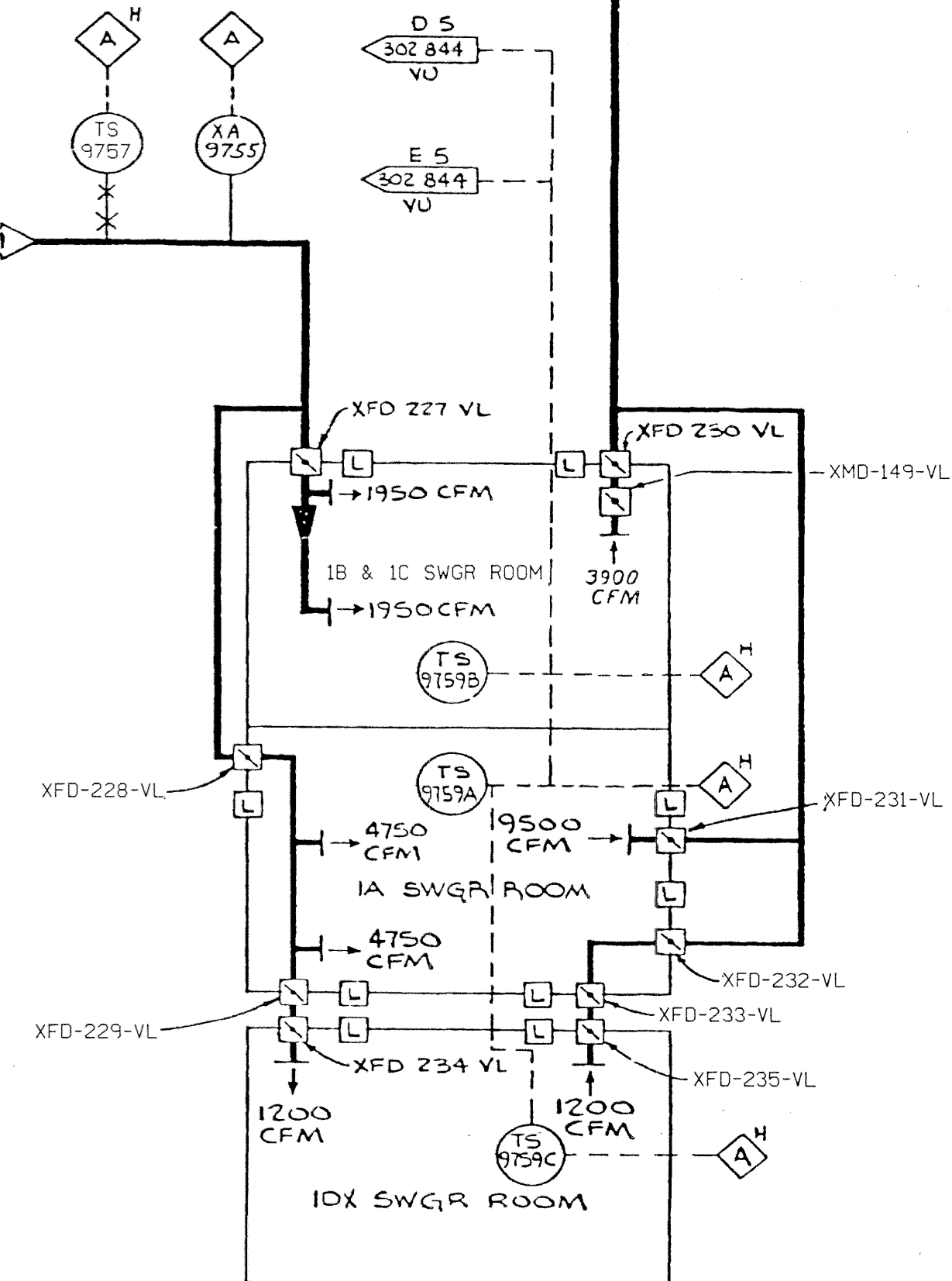
NO	AIR FLOW	AIR TEMP
1	14,600	61°
2	14,600	66°



TURBINE BUILDING SWITCHGEAR ROOM COOLING UNITS
NON NUCLEAR SAFETY

- SM 37L
XHC 96-AH
3-KW
FL. EL. 463'-0"
10X SWGR RM
- SM 37
XHC 22A-AH
2-KW
FL. EL. 412'-0"
1B & 1C SWGR RM
- SM 37B
XHC 22B-AH
2-KW
FL. EL. 412'-0"
1B & 1C SWGR RM
- SM 37
XHC 21A-AH
3-KW
FL. EL. 436'-0"
1A SWGR RM
- SM 37
XHC 21B-AH
3-KW
FL. EL. 436'-0"
1A SWGR RM

UNIT HEATERS
NON NUCLEAR SAFETY



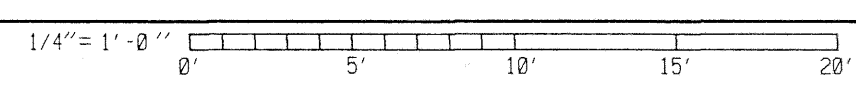
- NOTES
- 1 EXCEPT WHERE NOTED OTHERWISE ALL ALARMS & INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP 6210-AH) IN THE MAIN CONTROL ROOM
 - 2 CONTROL SWITCHES & MOTOR STATUS LIGHTS ARE LOCATED ON LOCAL PANEL XFN 5135-AH
 - 3 (F) INDICATES INSTRUMENT IS FURNISHED WITH EQUIPMENT
 - 4 FOR SAFETY CLASSIFICATION OF INSTRUMENTATION SEE THE INSTRUMENT LIST

ESSENTIAL

Amendment 00-01
December 2000

DRAWING LEGIBILITY CLASS 1		SCE&G CAD ENHANCED	
FSAR Figure 9.4-13			
SOUTH CAROLINA ELECTRIC & GAS COMPANY			
VIRGIL C. SUMNER NUCLEAR STATION			
BUILDING SERVICE SYSTEM FLOW DIAGRAM			
TURBINE BLDG. SWITCHGEAR ROOMS			
COOLING SYSTEM			
DESIGN ENGINEERING			
V.C. SUMNER NUCLEAR STATION, JENKINSVILLE, S.C.			
1	MADE	2	CHECKED
SRM	RHM	3	LE APPROVAL
WEW			
NO. DATE BY REVISION		SCALE	
D-912-159		8	

NO.	DATE	BY	REVISION	CKD. BY	APPROVAL
8	9/5/99	RHM	REVISED PER CGSS-99-0460	MGR	DKW
7	5/28/99	RHM	REVISED PER CGSS-99-0321	MGR	DLJ
6	08-10-94	SRM	REVISED PER CGSS-94-0877	RHM	WEW

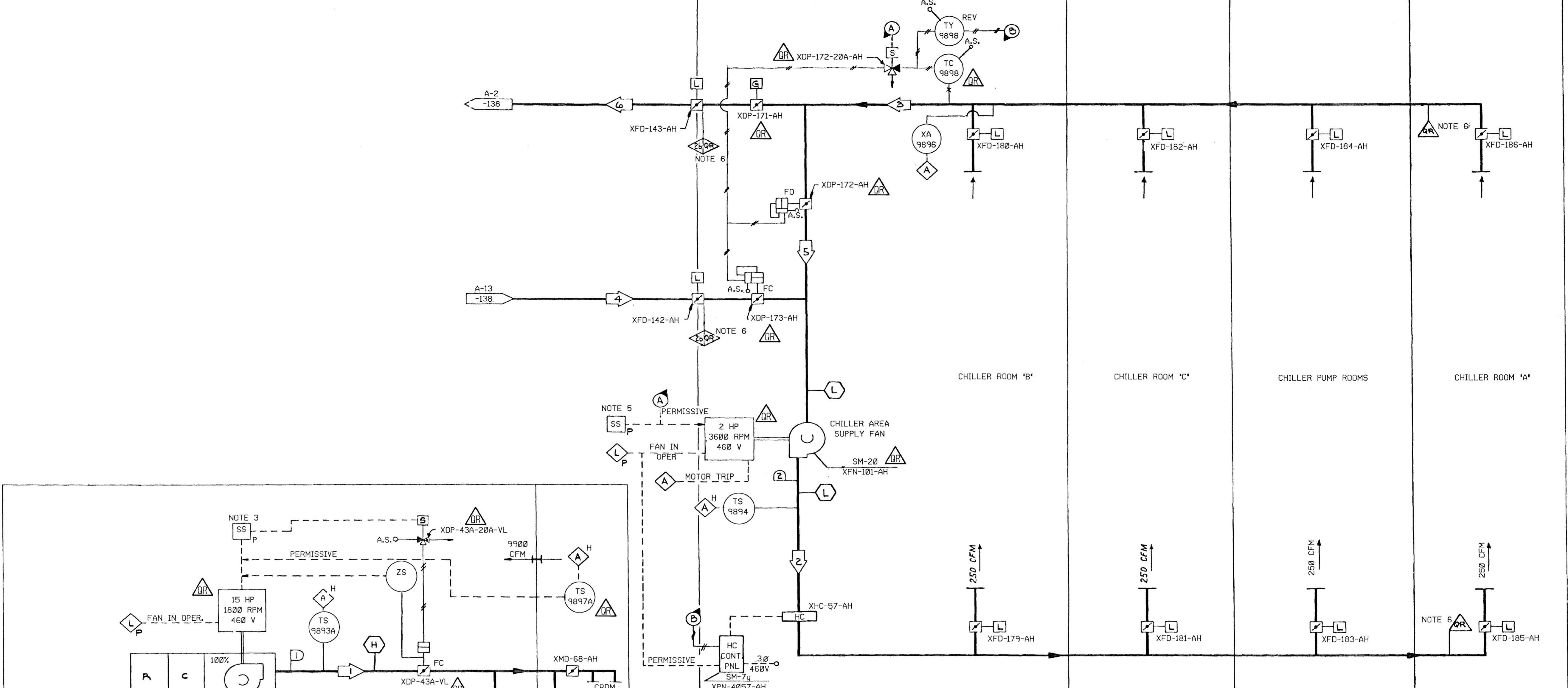


R012159_0001.m (S:\06\rm15043) RM15043@rm15043 Wed Sep 15 12:21:56 CDT 1999

SYSTEM OPERATING DATA

	AIR FLOW CFM	AIR TEMP. ° F
1	9900	54.5
2	1000	65/95
3	1000	65/104
4	1000 TO 0	19/95
5	0 TO 1000	65/85
6	1000 TO 0	65/104

SAFETY CLASS VERIFICATION
 ORIGINATED BY *W.A. Steidle*
 REVIEWED BY *W.A. Steidle*



WATER CHILLER AREA VENTILATION SYSTEM
 INTERMEDIATE BUILDING EL. 412'-0"

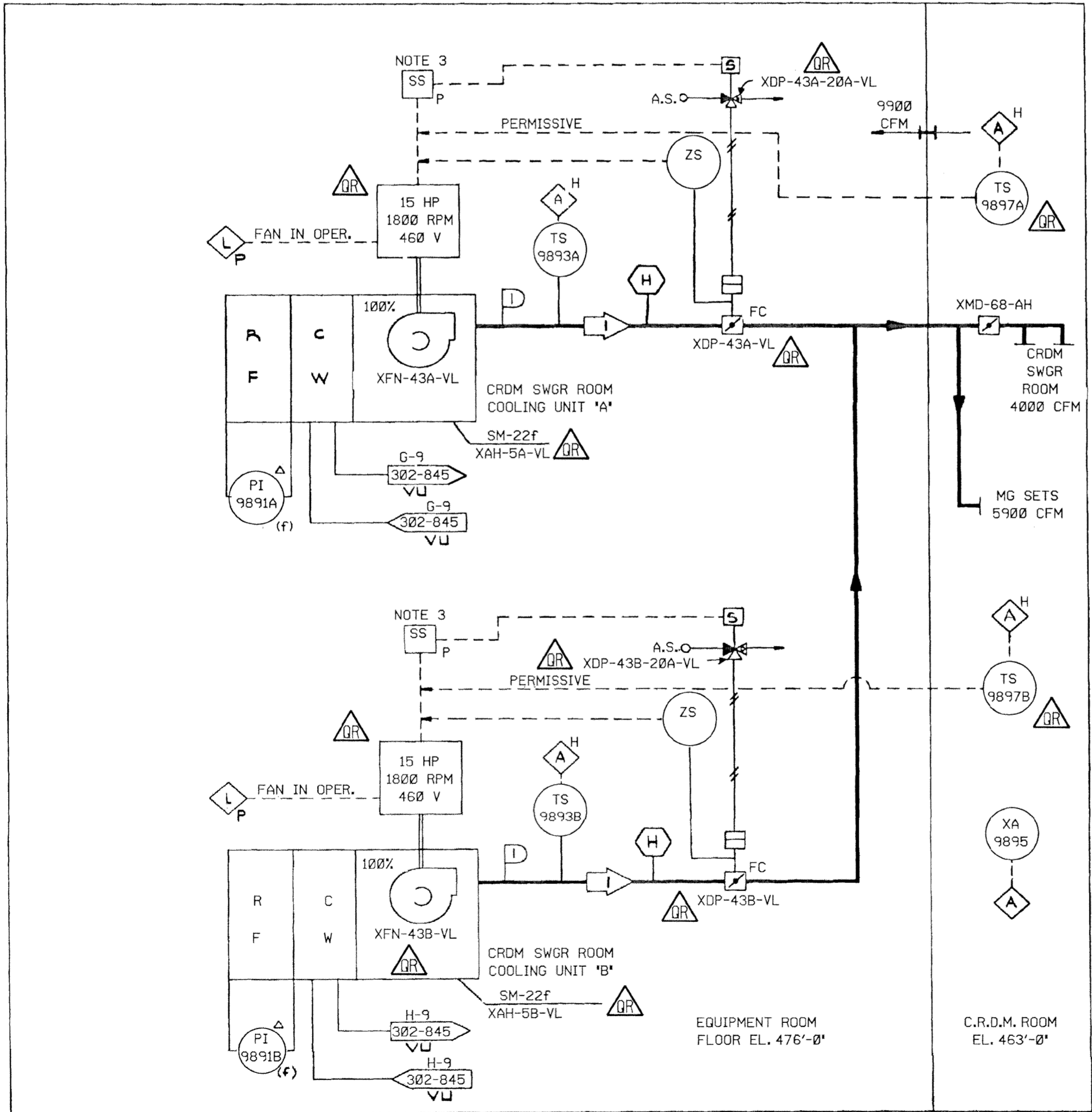
- NOTES:
- EXCEPT WHERE NOTED OTHERWISE ALL ALARMS AND INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM.
 - (F) INDICATES INSTRUMENT IS FURNISHED WITH EDPT.
 - CRDM SWGR ROOM AIR HANDLING UNIT CONTROL SWITCHES AND MOTOR STATUS LIGHTS ARE LOCATED ON LOCAL PANEL XPN-5134-VL.
 - FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.
 - WATER CHILLER AREA VENTILATING FAN CONTROL SWITCH AND MOTOR STATUS LIGHTS ARE LOCATED ON LOCAL PANEL XPN-5193-AH.
 - ALL DUCTWORK IDENTIFIED AS QR TO BE PER QRP-4
 - ALL EQUIPMENT IDENTIFIED AS QR TO BE PER TRP-31

*QUALITY RELATED - FABRICATION, ERECTION, AND INSPECTION PER SCE&G QRP FOR HVAC DUCTS AND SUPPORTS.

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

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

CRDM SWITCHGEAR ROOM COOLING SYSTEM
 INTERMEDIATE BUILDING



SYSTEM DESIGN DATA

	AIR FLOW CFM	AIR TEMP. ° F
1	9900	54.5
2	1000	65/95

ESSENTIAL

Amendment 02-01
 May 2002

DRIVING CLASS
 LEGIBILITY 1

FSAR Figure 9.4-14

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMNER NUCLEAR STATION

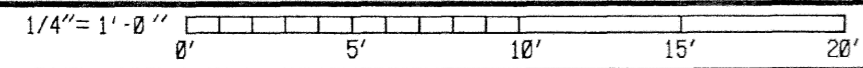
BUILDING SERVICE SYSTEM FLOW DIAGRAM
 CRDM SWITCHGEAR ROOM COOLING SYSTEM
 AND WATER CHILLER AREA VENTILATION SYSTEM

DESIGN ENGINEERING

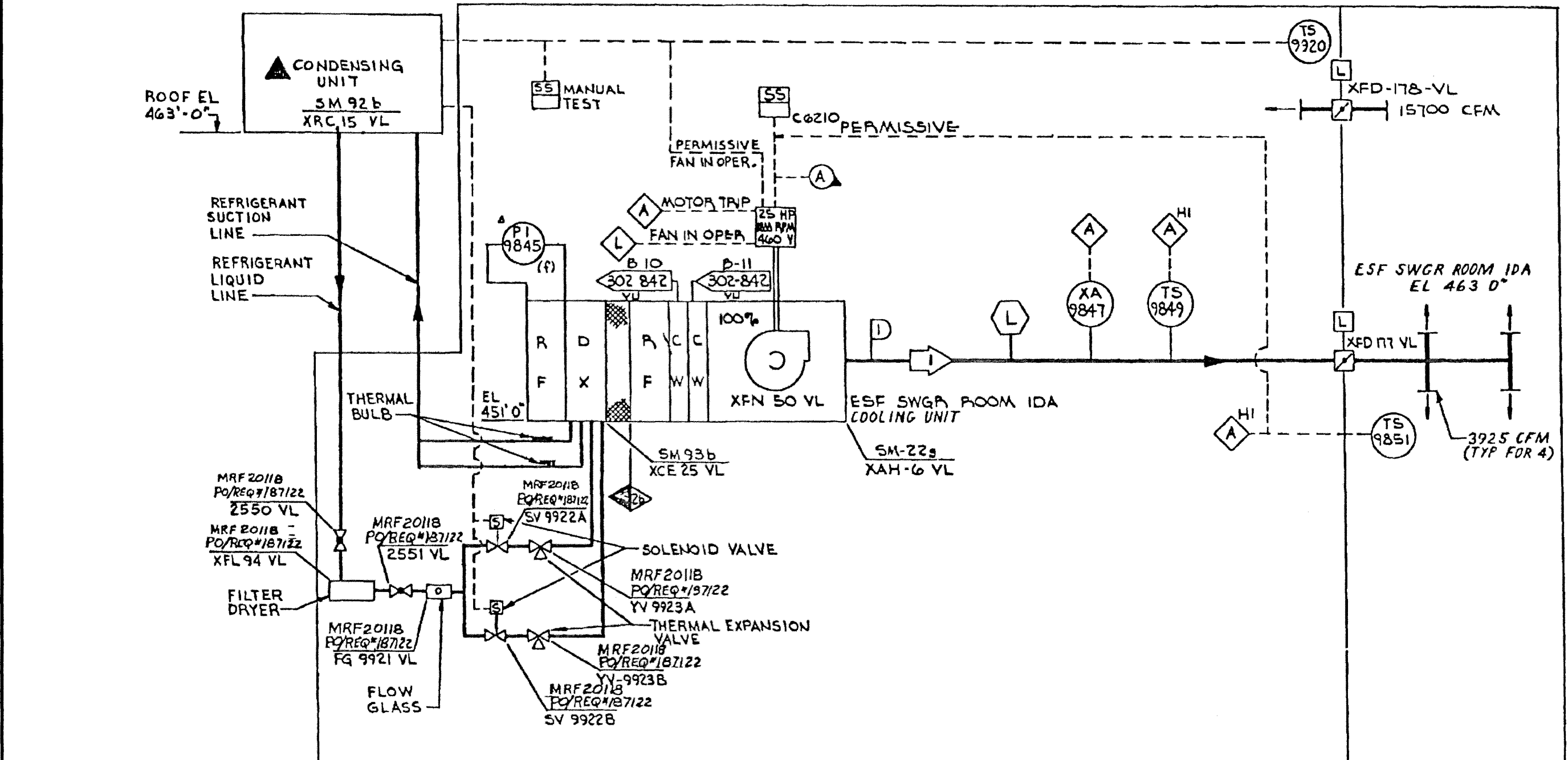
11	10/03/01	DDJ	REVISED PER ECR-70028	MGR	DDJ	LE APPROVAL
10	08/03/93	AVN	REVISED PER MRF-34054	JHR	DJC	LE APPROVAL
9	04/22/93	JMH	REVISED PER CGSS-93-0328	RHM	GAA	LE APPROVAL

D-912-139

NO. DATE BY REVISION CND. BY APPROVAL

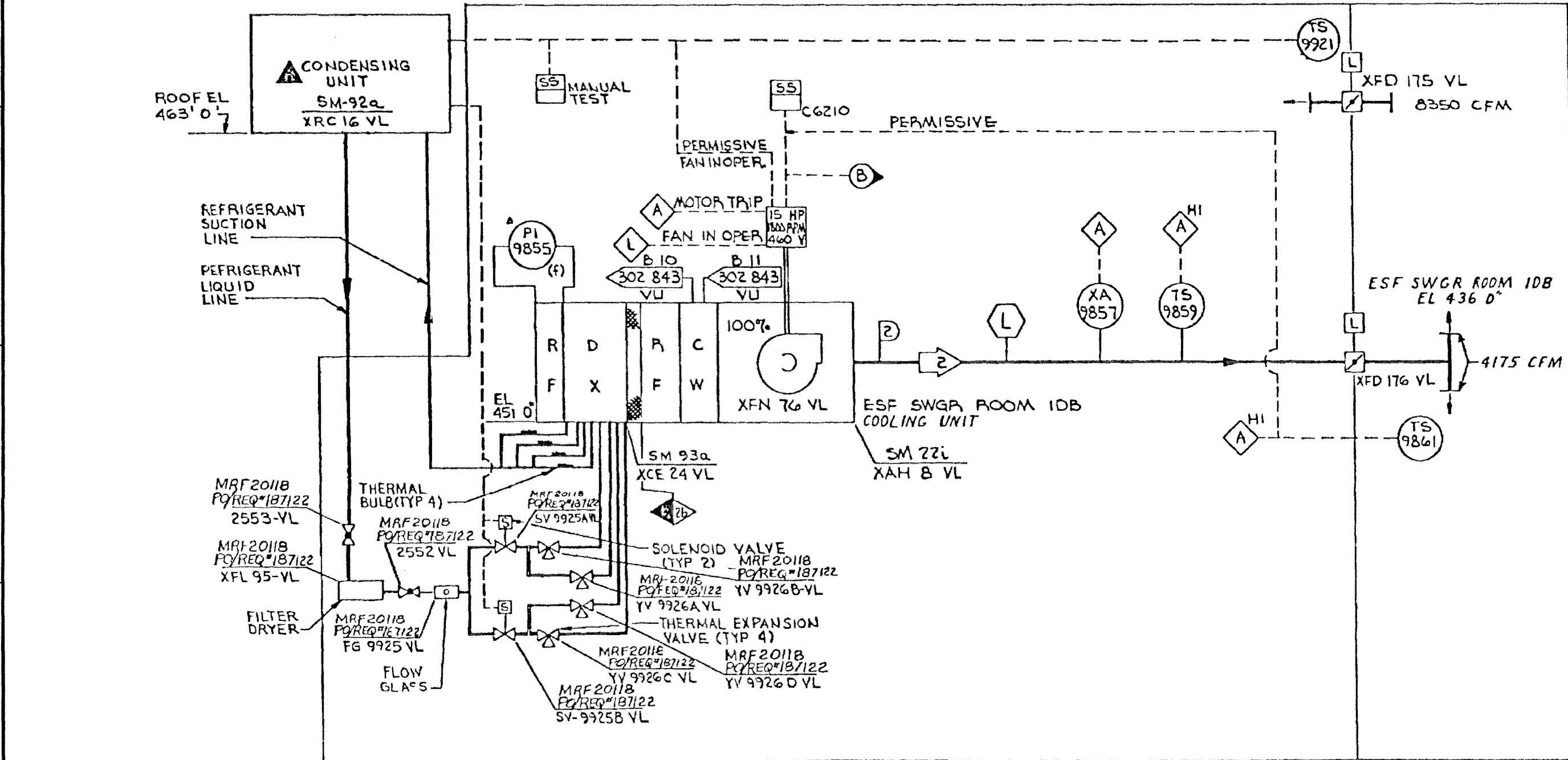


SYSTEM OPER. DATA		
AIR FLOW	AIR TEMP	
ACFM	°F	
1	15100	54.6
2	8350	54.6
3	6300	55.6



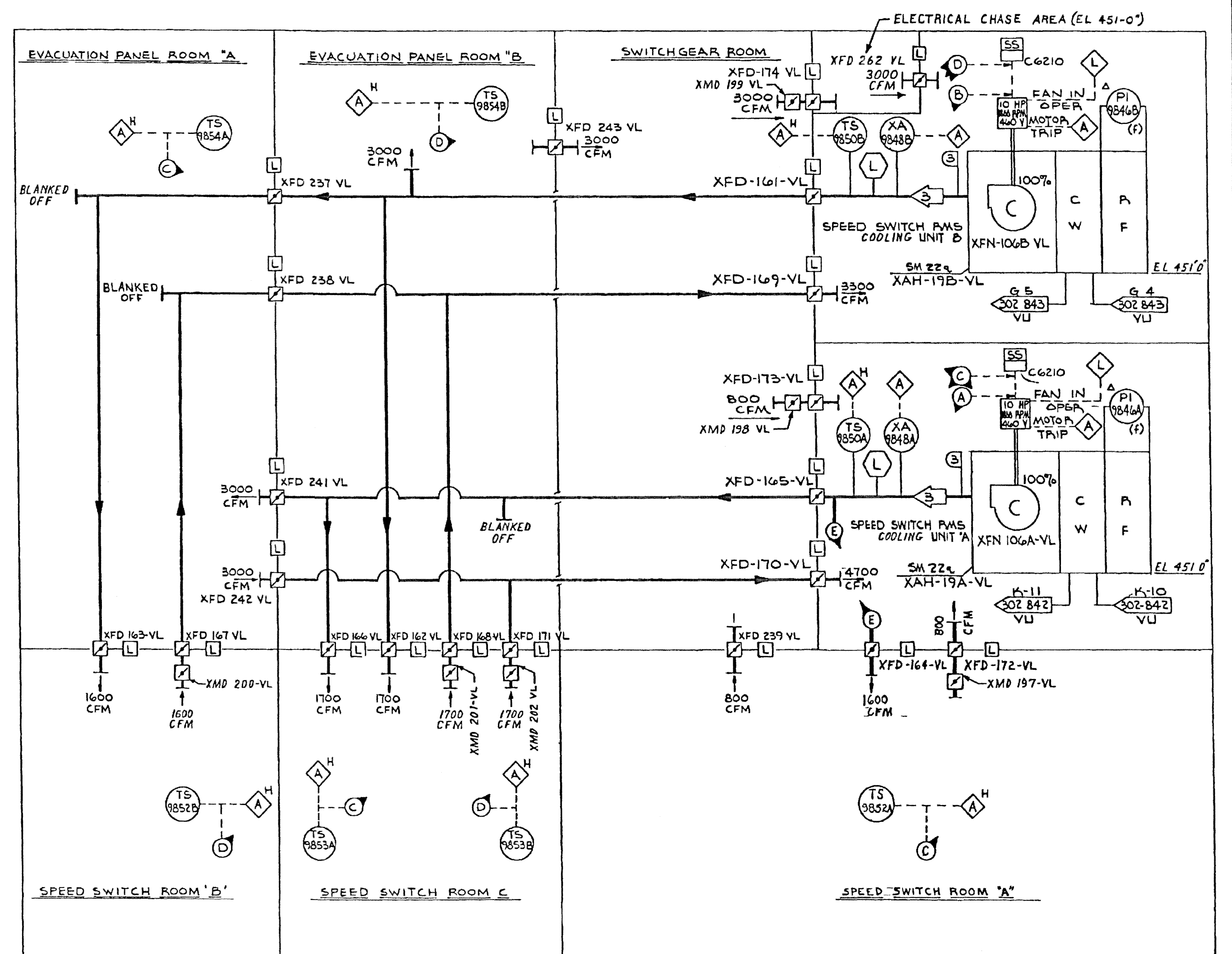
ESF SWGR ROOM IDA COOLING SYSTEM

SAFETY CLASS VERIFICATION
 ORIGINATED BY *pol.l.k. w/h/ls*
 REVIEWED BY *w.a. s/ra 4/14/16*



ESF SWGR ROOM IDB COOLING SYSTEM

SYSTEM DESIGN DATA		
AIR FLOW	AIR TEMP	
ACFM	°F	
3	6300	55.6
2	8350	54.6
1	15100	54.6



SPEED SWITCH ROOM COOLING SYSTEM

- Ⓐ ESF LOADING SEQUENCE SIGNAL CHANNEL 'A' START SIGNAL
- Ⓑ ESF LOADING SEQUENCE SIGNAL CHANNEL 'B' START SIGNAL

ALL SYSTEM COMPONENTS ARE SAFETY CLASS 2b

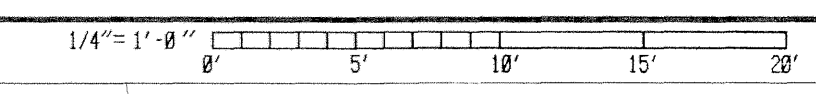
- NOTES
- 1 EXCEPT WHERE NOTED OTHERWISE ALL ALARMS AND INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (MCP 4210-AH) IN THE MAIN CONTROL ROOM.
 - 2 (I) INDICATES INSTA IS FURNISHED WITH EQUIPMENT.
 - 3 FOR SAFETY CLASSIFICATION OF INSTRUMENTATION SEE THE INSTR LIST.

Amendment 02-01
 May 2002

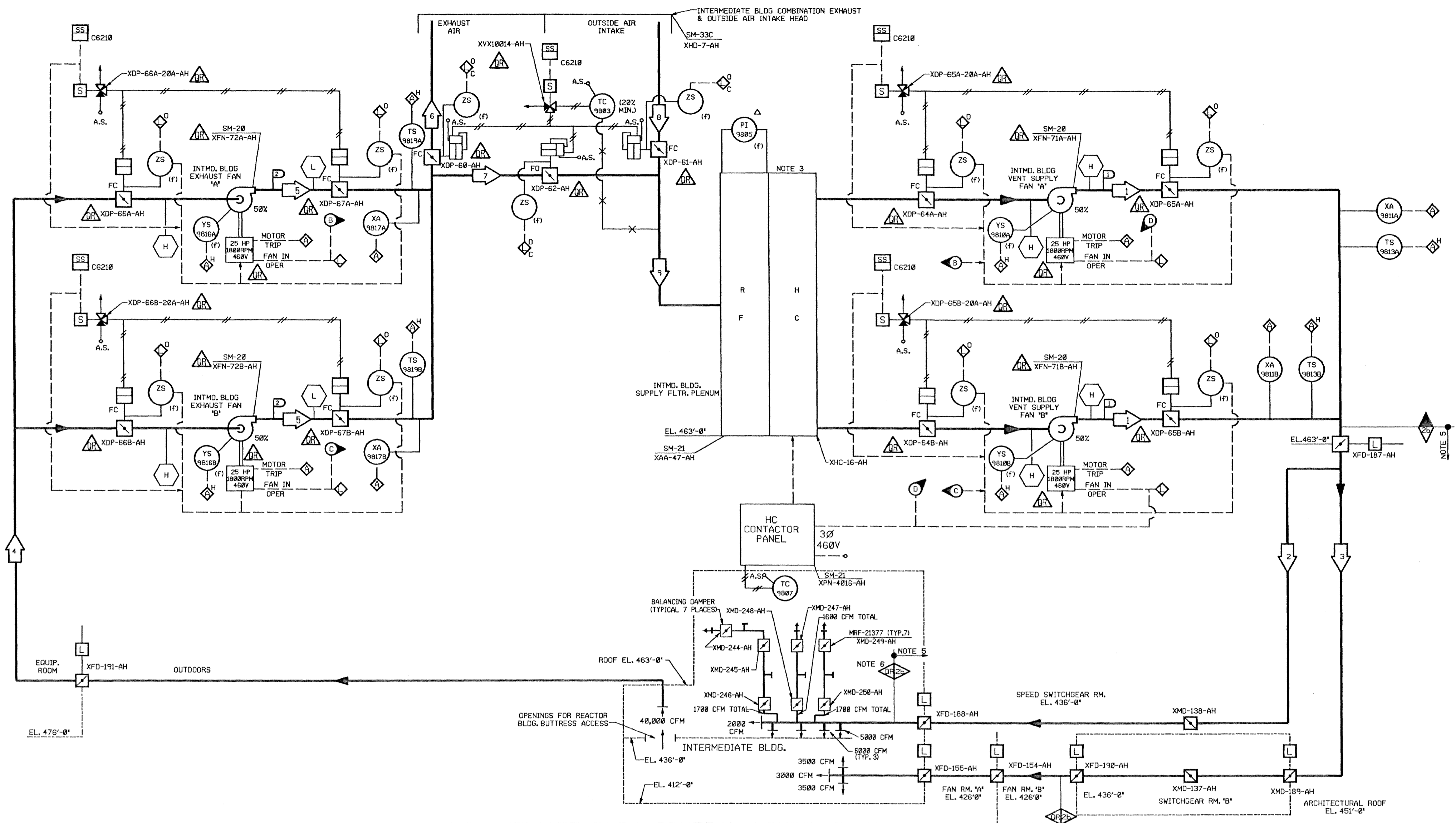
ESSENTIAL

DRAWING LEGIBILITY
 CLASS 1
 SCE&G CAD ENHANCED

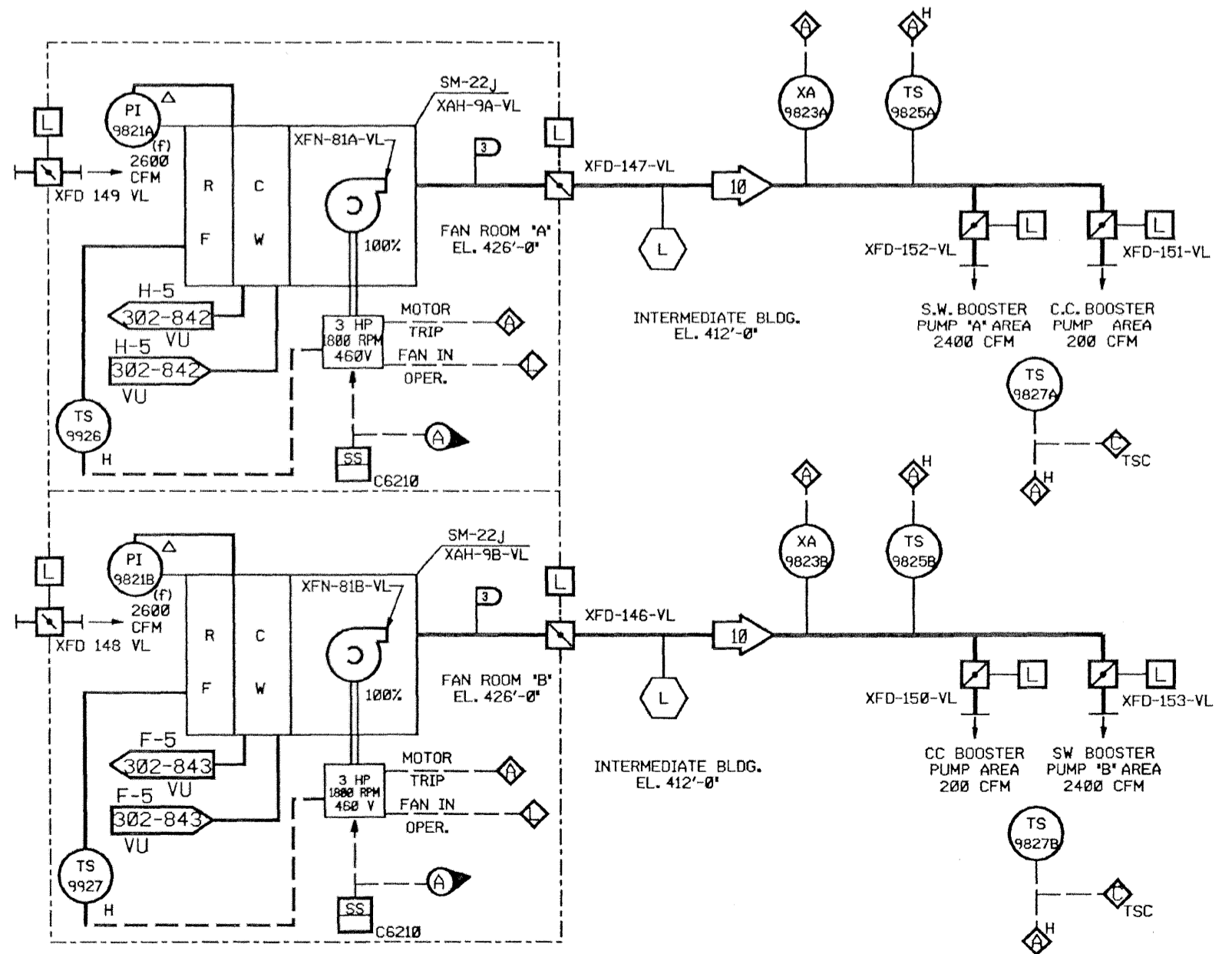
FSAR Figure 9.4-15			
SOUTH CAROLINA ELECTRIC & GAS COMPANY			
VIRGIL C. SUMNER NUCLEAR STATION			
BUILDING SERVICE SYSTEM FLOW DIAGRAM			
INTERMEDIATE BUILDING ESF SWGR			
ROOMS AND SPEED SWITCH ROOMS COOLING SYSTEMS			
DESIGN ENGINEERING			
V.C. SUMNER NUCLEAR STATION, JENKINSVILLE, S.C.			
NO.	DATE	BY	APPROVAL
12	10/04/08	DDJ	REVISED PER ECR-70028 MGR DDJ
11	11/20/87	PS	REV. PER MRF-20118, MCN-U PJS PJS
			PS PJS PJS
			D-912-157
NO.	DATE	BY	REVISION
			NO. DATE BY APPROVAL



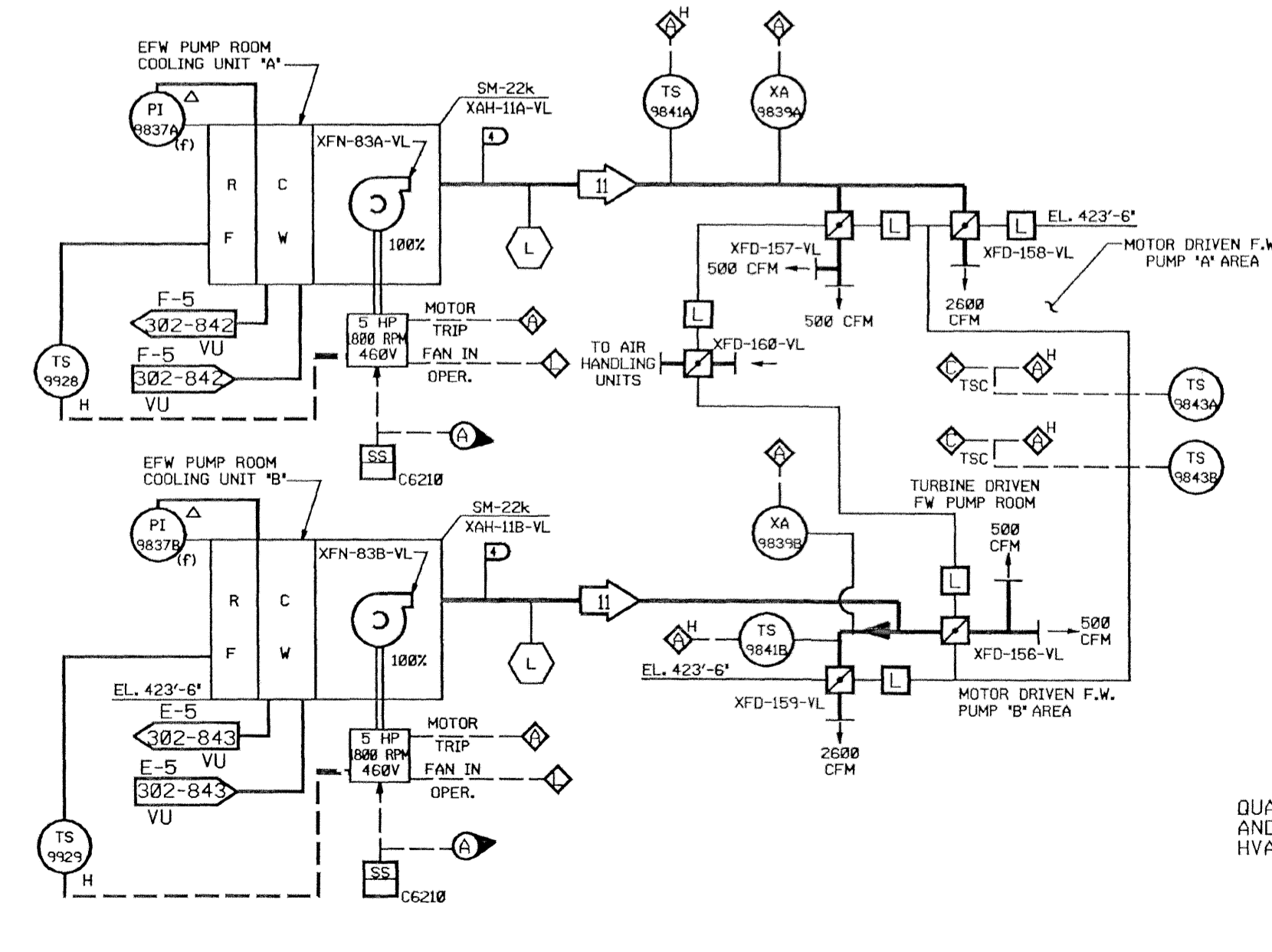
SYS. OPER. DATA		
#	AIR FLOW ACFM	AIR TEMP °F
1	20,000	65-95
2	30,000	65-95
3	10,000	65-95
4	40,000	65-104
5	20,000	65-104
6	8,000 TO 40,000	65-104
7	32,000 TO 8	65-104
8	8,000 TO 40,000	19-95
9	40,000	55-95
10	2600	56
11	3600	56



INTERMEDIATE BLDG. GENERAL VENTILATION SYSTEM
NON NUCLEAR SAFETY EXCEPT AS NOTED.



SERVICE WATER BOOSTER PUMP COOLING UNITS
SAFETY CLASS 2b



EMERGENCY FEEDWATER PUMP AREA COOLING UNITS
SAFETY CLASS 2b

- NOTES:
- EXCEPT WHERE OTHERWISE NOTED, ALL ALARMS & INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM.
 - (F) INDICATES INSTRUMENT IS FURNISHED WITH EQUIPMENT.
 - HEATING COIL INCLUDES OVER-TEMP. & LOW FLOW PROTECTIVE DEVICES.
 - FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.
 - SPECIAL HIGH PRESSURE DUCT CONSTRUCTION SPEED SWITCH ROOM AREA EL. 436'-0" (XFD-187-AH, XFD-188-AH & XFD-190-AH) ARE NON-NUCLEAR SAFETY. ONLY DUCT IS SAFETY CLASS 2b)
 - ALL DUCTWORK IDENTIFIED AS OR TO BE PER ORP-4.
 - ALL EQUIPMENT IDENTIFIED AS OR TO BE PER TRP-31.
- ⓐ UNIT STARTS WHEN ASSOCIATED PUMP STARTS. (4 PLCS)

ESSENTIAL

QUALITY RELATED-FABRICATION, ERECTION AND INSPECTION PER SCE&G DRP FOR HVAC DUCTS AND SUPPORTS

Amendment 02-01
May 2002

DRAWING CLASS
LEGIBILITY 1

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

FSAR Figure 9.4-17
SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMNER NUCLEAR STATION
INTERMEDIATE BUILDING GENERAL VENTILATION AND PUMP AREA COOLING SYSTEMS

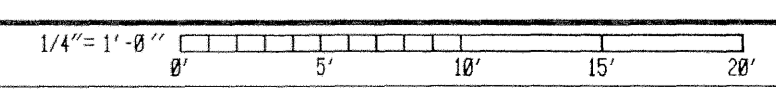
DESIGN ENGINEERING
MADE
CHECKED
LE APPROVAL

SRM CRR R.S.

D-912-158

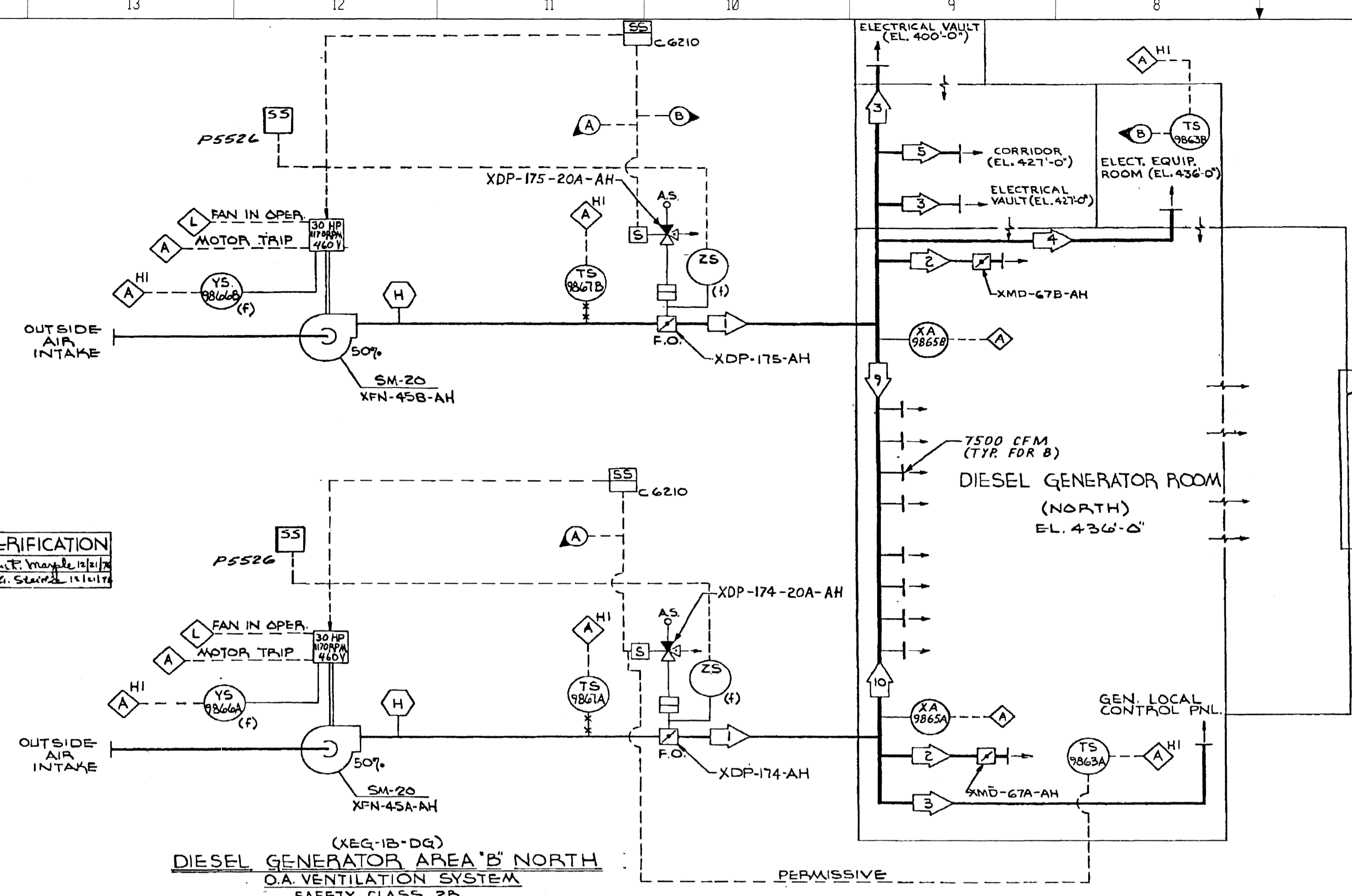
NO.	DATE	BY	REVISION	CHK. BY	APPROVAL	DRAWING NUMBER	SHT. NUMBER	REV.
16	10/04/01	DDJ	REVISED PER ECR-70028	MGR	DDJ			
15	04/27/01	JMH	REVISED PER CGSS-930328	DVW	GAA			
14	08/03/00	CRR	REVISED PER MRF-21377	SRM	DJL			
13	07/29/00	SRM	REVISED PER MRF-22010	CRR	R.S.			

SYS. DESIGN DATA		
#	AIR FLOW ACFM	AIR TEMP °F
4	3600	56
3	2600	56
2	20,000	65/104
1	20,000	65/95



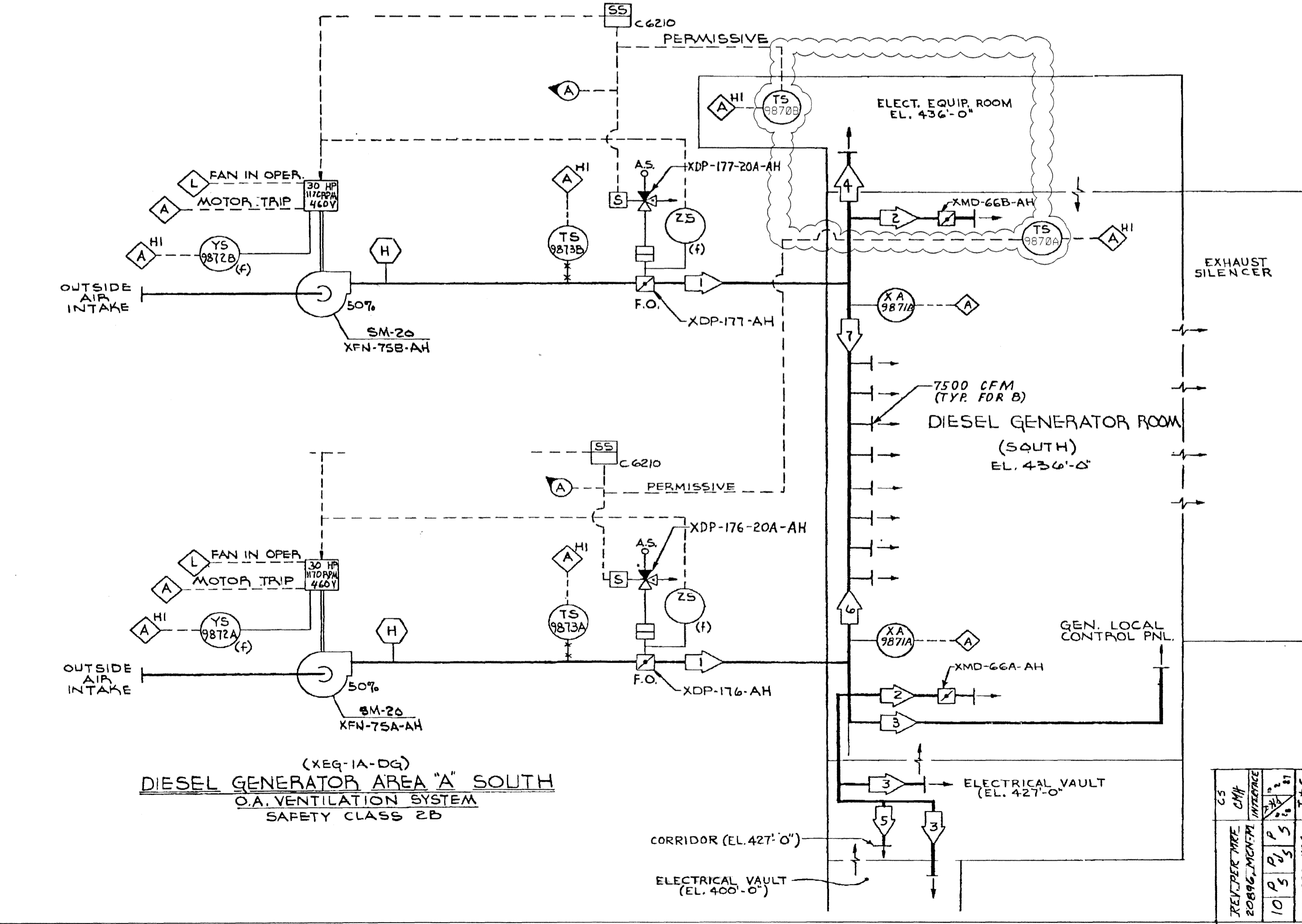
NO.	AIR QTY. ACFM	AIR TEMP. °F
1	50,000	19-95
2	16,500	19-95
3	300	19-95
4	6000	19-95
5	100	19-95
6	32,500	19-95
7	27,500	19-95
8		
9	26,000	19-95
10	33,200	19-95

SAFETY CLASS VERIFICATION
 ORIGINATED BY: [Signature]
 REVIEWED BY: [Signature]

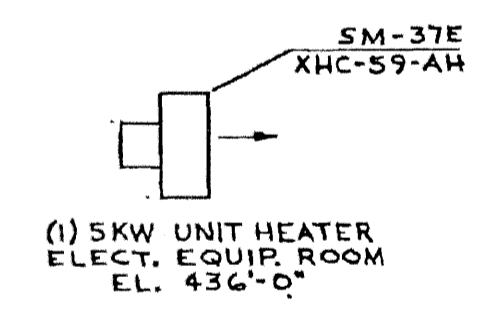
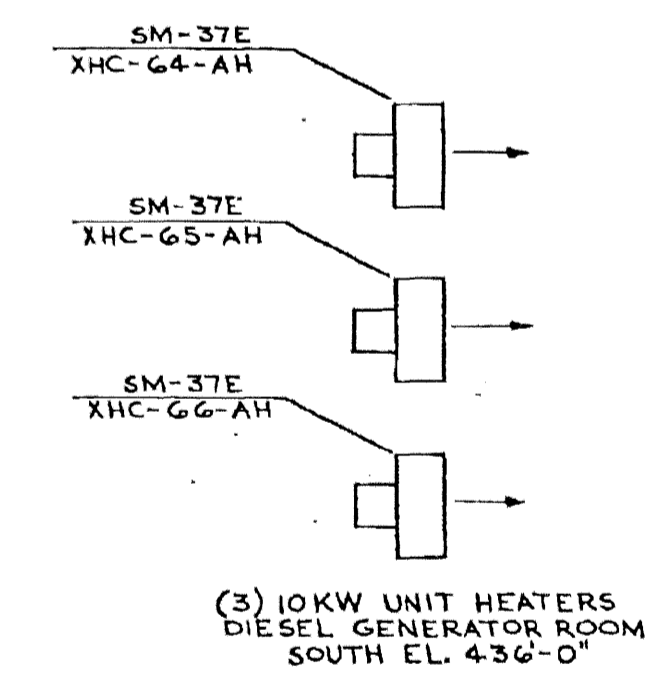
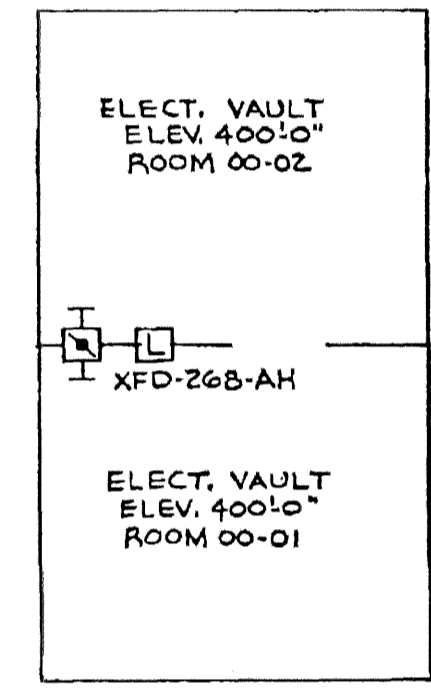
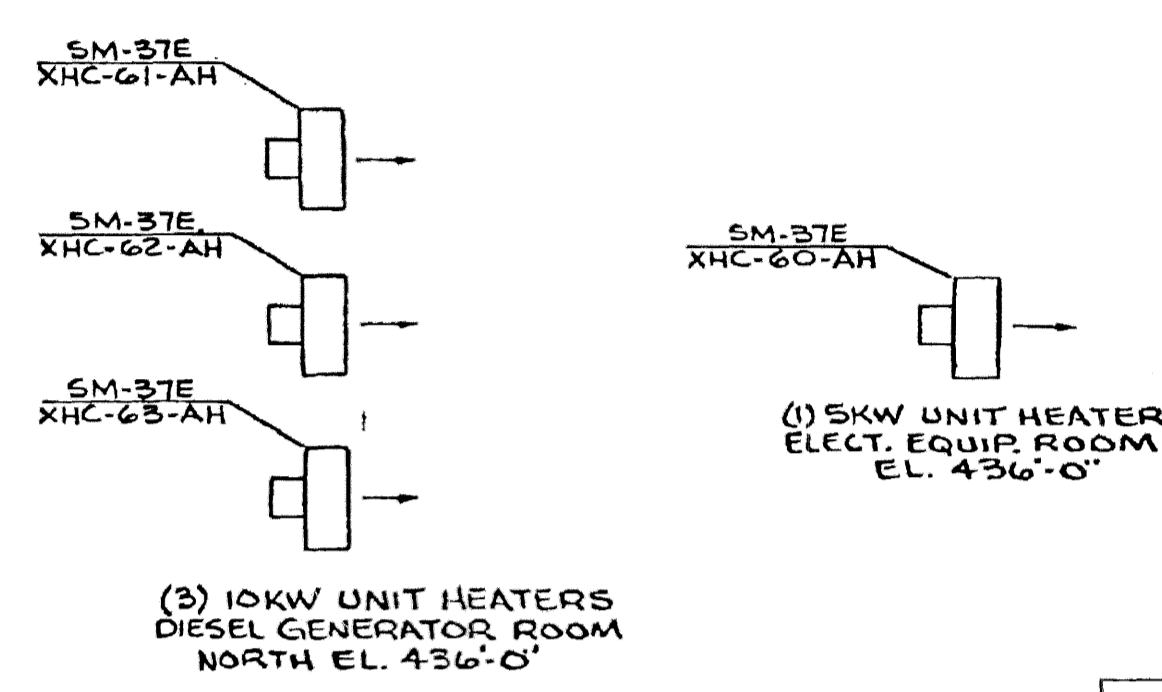


(XEQ-1B-DG)
DIESEL GENERATOR AREA 'B' NORTH
 O.A. VENTILATION SYSTEM
 SAFETY CLASS 2B

(4 PLACES) (A) DAMPERS OPEN (4 FANS START) WHEN RESPECTIVE DIESEL GEN. STARTS



(XEQ-1A-DG)
DIESEL GENERATOR AREA 'A' SOUTH
 O.A. VENTILATION SYSTEM
 SAFETY CLASS 2B



NOTES:
 1 EXCEPT WHERE NOTED OTHERWISE ALL ALARMS & INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XDP-6210-AH) IN THE MAIN CONTROL ROOM.
 2 (F) INDICATES INSTR. IS FURNISHED WITH EQUIPMENT.
 3 FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTR. LIST.

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

ESSENTIAL
 RN 01-108
 March 2003

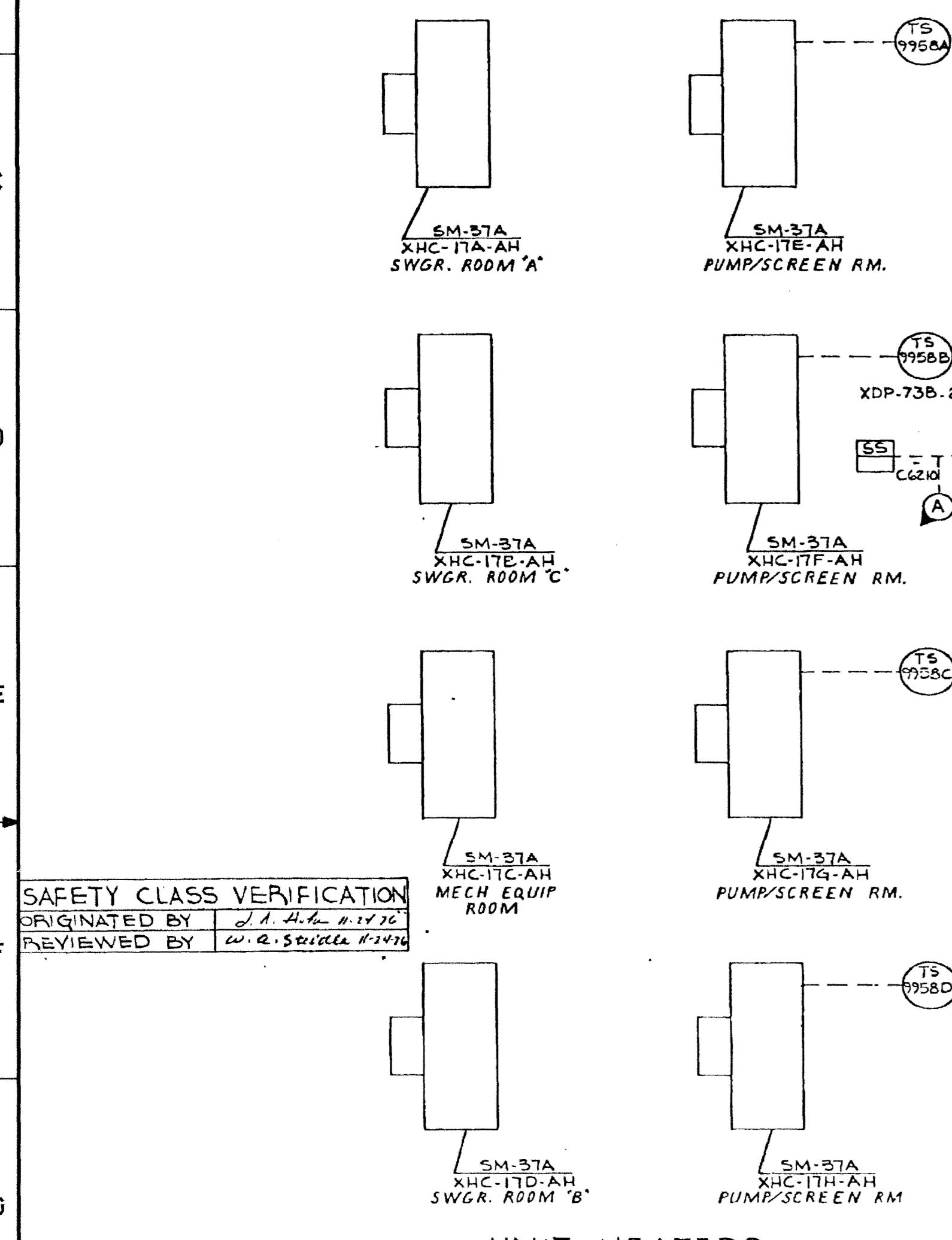
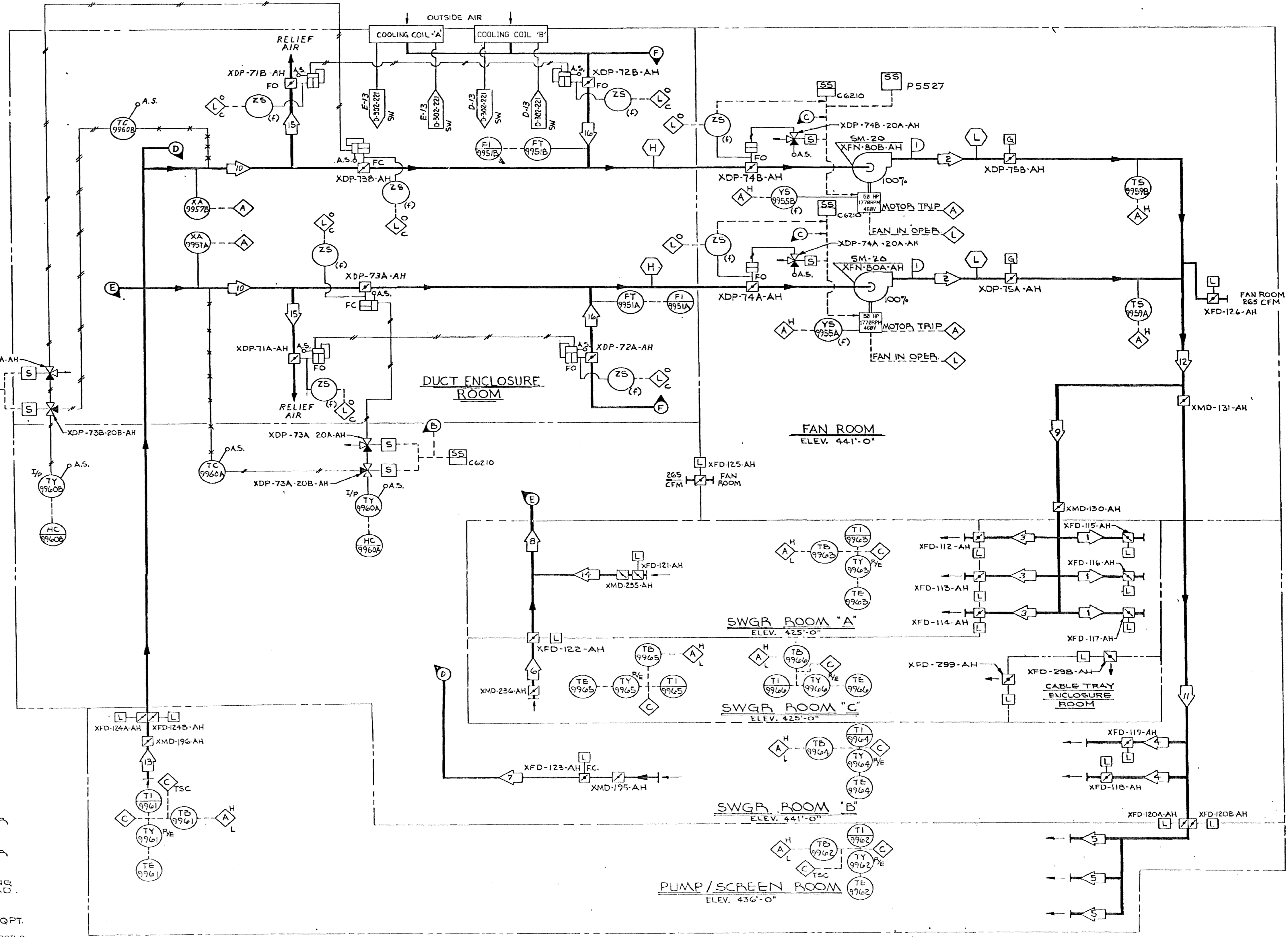
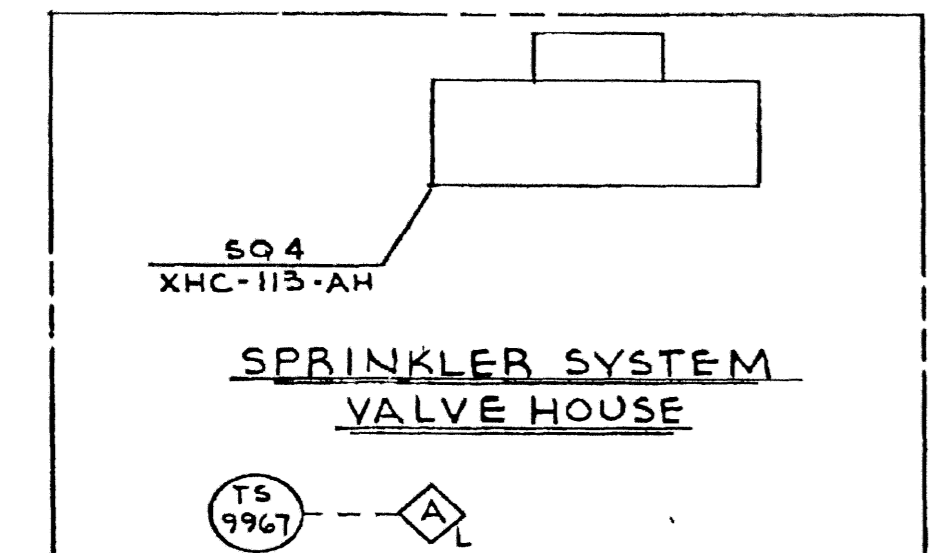
FSAR Figure 9.4-18			
SOUTH CAROLINA ELECTRIC & GAS COMPANY			
VIRGIL C. SUMNER NUCLEAR STATION			
BUILDING SERVICE SYSTEM FLOW DIAGRAM			
DIESEL GENERATOR AREAS			
VENT SYSTEM			
DESIGN ENGINEERING			
A. [Signature] V. C. SUMNER NUCLEAR STATION, JENKINSVILLE, S.C.			
CHECKED: [Signature] LE APPROVAL: [Signature]			
1	TGB	MGR	CCO
D-912-134			
DRAWING NUMBER			

NO.	DATE	BY	REVISION	CHKD.	APPROVAL
11	7/4/02	DDJ	REVISED PER ECR-50449	MGR	CO

1/4" = 1'-0"

SYS. OPER. DATA

#	AIR FLOW ACFM	AIR TEMP °F	COMMENT
1	740	97.8 MAX	NOTE 4
2	45000	*	NOTE 4
3	3823	*	NOTE 4
4	5300	*	NOTE 4
5	6815	*	NOTE 4
6	2220	104 MAX	
7	18865	*	
8	13690	*	
9	13690	97.8 MAX	NOTE 4
10	45000	113 MAX	
11	31045	97.8 MAX	NOTE 4
12	44735	*	
13	20445	122 MAX	
14	11469	104 MAX	
15	045000	113 MAX	
16	45000	119-95	



SAFETY CLASS VERIFICATION
 ORIGINATED BY: J. A. H. 11-14-76
 REVIEWED BY: W. R. S. 11-14-76

- (A) CHANNEL 'A' SI SIGNAL VENTS AIR FROM POSITIONER
 - (B) CHANNEL 'B' SI SIGNAL VENTS AIR FROM POSITIONER
 - (2 PLC5) (C) ESFLS AUTO START SIGNAL
1. UNLESS NOTED OTHERWISE, ALL ALARMS & INDICATING LIGHTS ARE LOCATED ON THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM.
 2. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.
 3. (F) INDICATES THAT THE INSTR. IS FURNISHED WITH EQPT.
4. A MAXIMUM TEMPERATURE OF 98.4° F COULD OCCUR WITH THE COOLING COILS ISOLATED/NOT IN OPERATION AND AN OUTSIDE AIR TEMPERATURE OF 95° F WITH THE COOLING COILS IN OPERATION PER DESIGN AND A 95° F OUTSIDE AIR TEMPERATURE, THE MAXIMUM TEMPERATURE WOULD BE 97.8° F.

ALL SYSTEM COMPONENTS EXCEPT UNIT HEATERS ARE SAFETY CLASS 2b.

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

SYS. DESIGN DATA

#	AIR FLOW ACFM	AIR TEMP °F	COMMENT
1	45,000	97.8 MAX	NOTE 4

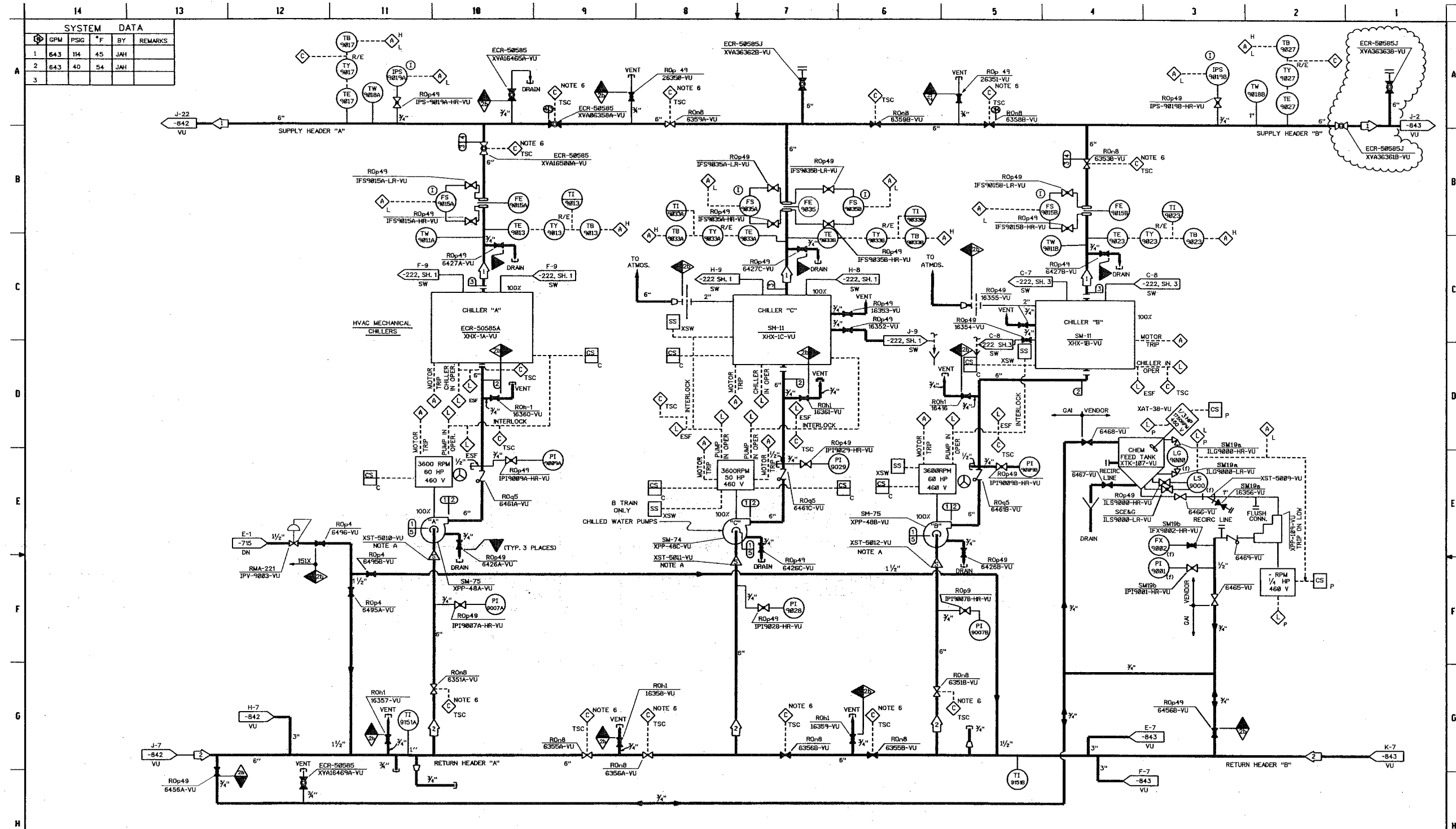
1/4" = 1'-0"

ESSENTIAL

17	10/01	DDJ	REVISED PER ECR-70028	MGR	DDJ	RHM	MGR	DJL
16	03/16/94	RHM	REVISED PER CGSS-94-0404	MGR	DJL	RHM	MGR	DJL

Amendment 02-01
 May 2002
 DRAWING LEGIBILITY
 CLASS 1
 SCE&G CAD ENHANCED

FSAR Figure 9.4-19
 SOUTH CAROLINA ELECTRIC & GAS COMPANY
 VIRGIL C. SUMNER NUCLEAR STATION
 BUILDING SERVICE SYSTEM FLOW DIAGRAM
 SERVICE WATER INTAKE SCREEN AND
 PUMP HOUSE BLDG VENTILATION SYSTEM
 DESIGN ENGINEERING
 V. C. SUMNER NUCLEAR STATION JENKINSVILLE, S. C.



SYSTEM DATA					
ID	GPM	PSIG	*F	BY	REMARKS
1	643	114	45	JAH	
2	643	40	54	JAH	
3					

ID	PSIG	*F	DURATION	HYDRO	BY	REMARKS
1	42	54			136	D.J.L. NOTE 7
2	123	54			136	D.J.L. NOTE 7
3	123	45			136	D.J.L. NOTE 7
4	123	45			136	D.J.L. NOTE 7
5	123	54			136	D.J.L. NOTE 7

DESIGN DATA

- NOTES:
- ALL EQUIPMENT TO BE SAFETY CLASS 2B UNLESS NOTED OTHERWISE
 - ALL SAFETY CLASS PIPING TO BE IN ACCORDANCE WITH LINE SPEC 152N
 - ALL NON-SAFETY CLASS PIPING TO BE IN ACCORDANCE WITH LINE SPEC 151X
 - EXCEPT WHERE NOTED OTHERWISE ALL ALARMS & INDICATING LIGHTS ARE LOCATED ON THE HVAC CONTROL BOARD (XCP-8210-4H) IN THE MAIN CONTROL ROOM
 - CHEM. FEED TANK SWITCHES & INDICATING LIGHTS ARE LOCATED AT LOCAL PANEL XPN-44-VU
 - OPERATOR INITIATED INPUT TO THE TSC COMPUTER
 - THE HYDROSTATIC PRESSURE LISTED ON THIS DRAWING IN THE DESIGN DATA BOX IS PER SECTION XI OF THE ASME CODE. THIS VALUE IS BASED ON DEAD HEAD PRESSURE AT THE PUMP DISCHARGE. THE VALUE DOES NOT INCLUDE ELEVATION CORRECTIONS.

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

DRAWING LEGIBILITY CLASS 1

ESSENTIAL

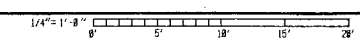
THE ASSOCIATED 307 DRAWING SHALL BE REVISED IN CONJUNCTION WITH REVISION TO THIS 302 IF THE CROSS HATCHED AREA IS AFFECTED.

RN 11-018 THIS IS A NUCLEAR SAFETY RELATED DOCUMENT. NO DEVIATION SHALL BE INITIATED OR PERFORMED WITHOUT PRIOR DOCUMENTATION AND WRITTEN APPROVAL.

FSAR Figure 9.4-22
SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMNER NUCLEAR STATION

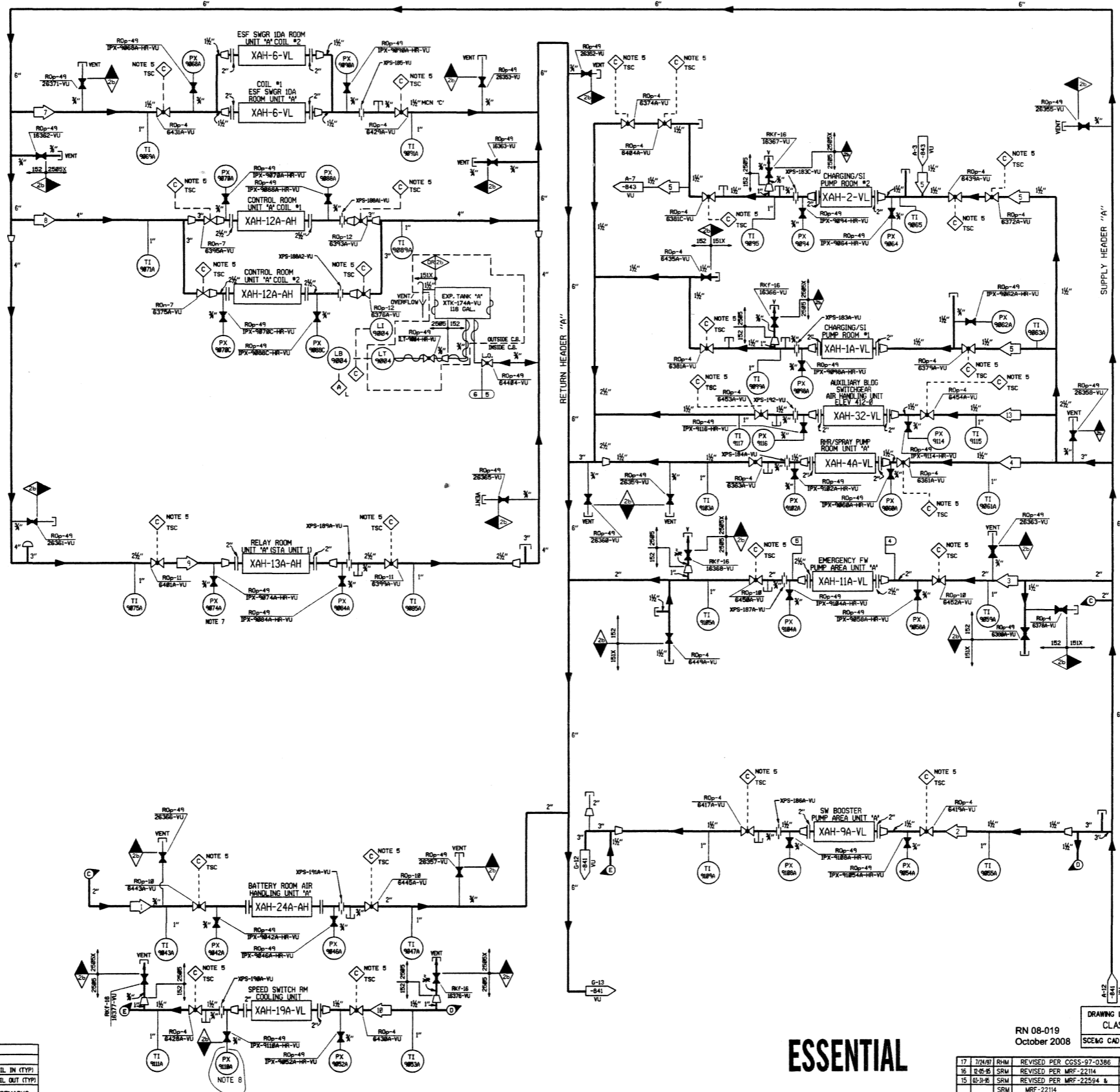
DESIGN ENGINEERING		
DATE	BY	CHKD.
27	12/08	JMS
28	12/08	JMS
29	12/08	JMS
30	12/08	JMS
31	12/08	JMS

NO.	DATE	BY	REVISION	CHKD.	APPROVAL
30	12/08	DDJ	REVISED PER ECR50585J	MGR	RS
29	12/08	RHM	REVISED PER ECR-71395	MGR	RS
28	12/08	JMS	REVISED PER ECR-50585	RHM	GM
27	12/08	RHM	REVISED PER ECR-50585	RHM	GM
26	11/08	JNC	REVISED PER ECR-71215	PAH	MGC
31	12/08	DDJ	REVISED PER ECR50585J	MGR	RS



SYSTEM DATA					
OPN	PSIG	OPN	PSIG	BY	REMARKS
1	52	98	---	45	JAH
2	53	93	---	45	JAH
3	73	95	---	45	JAH
4	58	104	---	45	JAH
5	58	108	---	45	JAH
6	65	83	---	45	JAH
7	128	77	---	45	JAH
8	65	76	---	45	JAH
9	23	89	---	45	JAH
10	---	---	---	45	JAH
11	---	---	---	45	JAH
12	---	---	---	45	JAH
13	---	---	---	45	JAH

DESIGN DATA					
ATM	PSIG	DURATION	HYDRO	BY	CKD
6	123	54	---	---	---
5	123	45	---	---	---
4	123	45	---	---	---



- NOTES:
1. ALL EQUIPMENT SAFETY CLASS 2B, UNLESS NOTED OTHERWISE.
 2. ALL SAFETY CLASS PIPING TO BE IN ACCORDANCE WITH LINE SPEC 152H.
 3. ALL NON SAFETY CLASS PIPING TO BE IN ACCORDANCE WITH LINE SPEC 152X.
 4. ALL ALARMS AND INDICATING LIGHTS ARE LOCATED ON THE HVAC CONTROL BOARD (DCP-520-41) IN THE MAIN CONTROL ROOM, EXCEPT WHERE NOTED OTHERWISE.
 5. OPERATOR INITIATED INPUT TO THE TSC COMPUTER.
 6. THE HYDROSTATIC PRESSURE LISTED ON THIS DRAWING IN THE DESIGN DATA BOX IS PER SECTION XI OF THE NRC CODE. THE VALUE IS BASED ON DEAD HEAD PRESSURE AT THE PUMP DISCHARGE. THE VALUE DOES NOT INCLUDE ELEVATION CORRECTIONS.
 7. CONNECTION CONTAINS PERMANENT SAMPLE CONNECTION. REFER TO INS-22-165N FOR DETAILS.
 8. ALL PIPING AND COMPONENTS DOWNSTREAM OF IPX ROOT VALVES ARE NON SAFETY RELATED. SEE TYPICAL DEVIATION AT IPX VALV.

THE ASSOCIATED 307 DRAWING SHALL BE REVISED IN CONJUNCTION WITH REVISION TO THIS 302 IF THE CROSS HATCHED AREA IS AFFECTED.

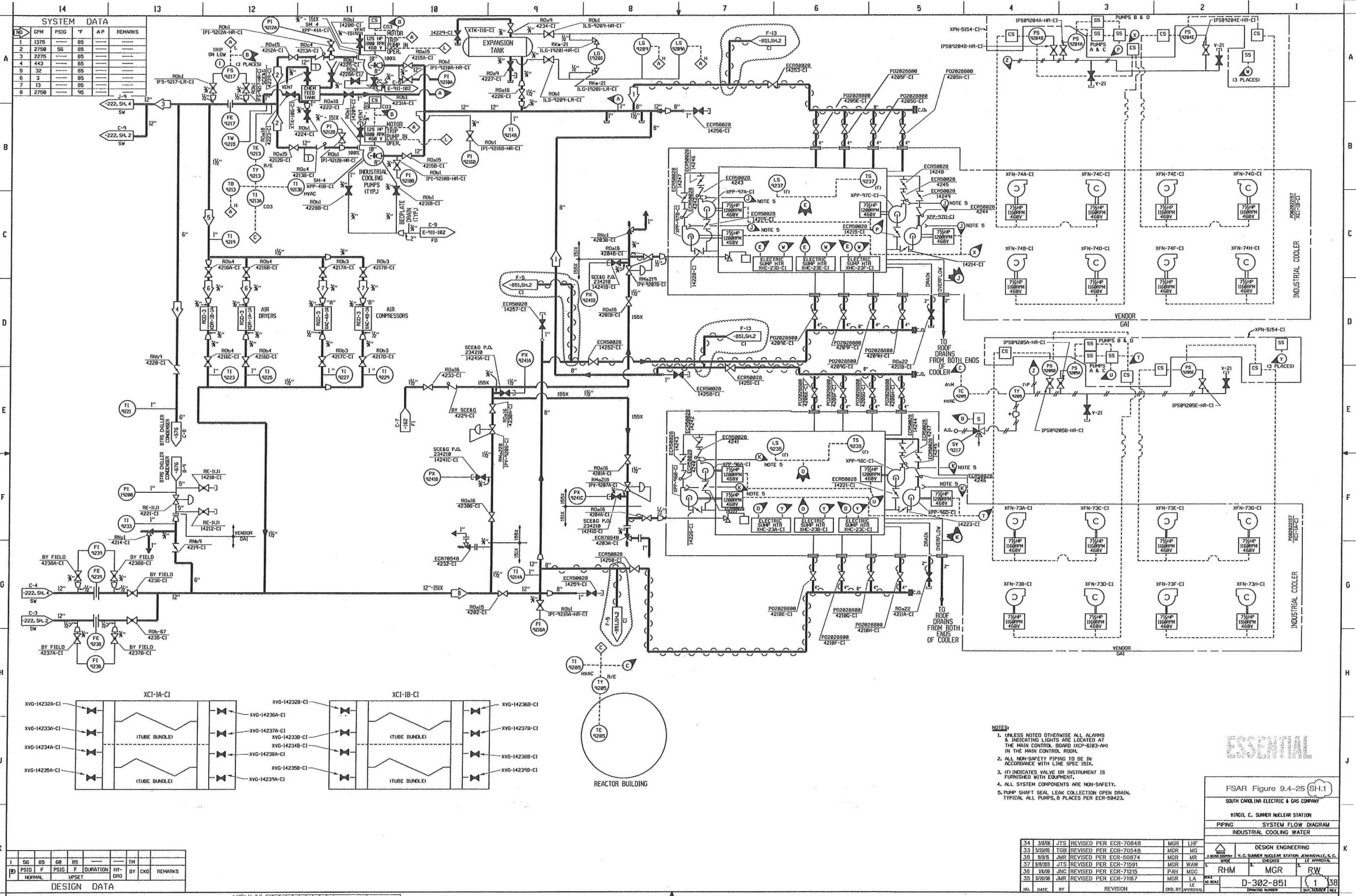
THIS IS A NUCLEAR SAFETY RELATED DOCUMENT. REVISIONS SHALL BE DOCUMENTED AND WRITTEN APPROVAL.

FSAR Figure 9.4-23		
SOUTH CAROLINA ELECTRIC & GAS COMPANY		
VIRGIL C. SUMNER NUCLEAR STATION		
PIPING SYSTEM FLOW DIAGRAM		
CHILLED WATER - TO COOLING COILS		
CLASS 1		
DESIGN ENGINEERING		
V.C. SUMNER NUCLEAR STATION, JARROVILLE, S.C.		
DATE: 10/08/08		
CRR	RHM	DJC
D-302-842		
NO.	DATE	BY

ESSENTIAL

RN 08-019
October 2008
DRAWING LEGIBILITY
CLASS 1
SCE&G CAD ENHANCED

NO.	DATE	BY	REVISION	CHK. BY	APPROVAL
17	7/14/07	RHM	REVISED PER COSS-97-0386	MGR	GJM
16	12-05-06	SRW	REVISED PER MRF-22114	MGR	DJL
15	03-31-06	SRW	REVISED PER MRF-22594 &	MGR	CHR
14	07-20-05	RHM	REVISED PER MRF-22114	MGR	DJL
13	07-20-05	RHM	REVISED PER ECR-71086	MGR	LF
12	03-24-05	JTS	CADD ENHANCED PER ECR-50239	MGR	DDJ
11	03-24-05	JTS	CADD ENHANCED PER ECR-50239	MGR	LE



SYSTEM DATA				
ID	GPM	PSIG	T	REMARKS
1	1375	85		
2	2750	85		
3	2275	85		
4	443	85		
5	32	85		
6	3	85		
7	13	85		
8	2750	95		

DESIGN DATA				
ID	PSIG	T	DURATION	HYDRO
1	85	85		
2	85	85		
3	85	85		
4	85	85		
5	85	85		
6	85	85		
7	85	85		
8	85	85		

- NOTES:
- UNLESS NOTED OTHERWISE ALL ALARMS & INDICATING LIGHTS ARE LOCATED AT THE MAIN CONTROL BOARD (CCR-5103-40) IN THE MAIN CONTROL ROOM.
 - ALL NON-SAFETY PIPING TO BE IN ACCORDANCE WITH LINE SPEC 151X.
 - (F) INDICATES VALVE OR INSTRUMENT IS FURNISHED WITH EQUIPMENT.
 - ALL SYSTEM COMPONENTS ARE NON-SAFETY.
 - PUMP SHAFT SEAL LEAK COLLECTION OPEN DRAIN. TYPICAL. ALL PUMPS, 8 PLACES PER ECR-50423.



FSAR Figure 9.4-25 (SH.1)

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIROIL C. SUMNER NUCLEAR STATION

PIPING SYSTEM FLOW DIAGRAM

INDUSTRIAL COOLING WATER

DESIGN ENGINEERING

V. C. SHANKER NUCLEAR STATION, JENKINSVILLE, S.C.

DATE: 8/20/01

BY: RHM, MGR, RW

NO. DATE BY REVISION

34 3/1/06 JTS REVISED PER ECR-70848 MGR LHF

33 5/2/05 TGB REVISED PER ECR-70548 MGR MG

38 8/9/05 JMR REVISED PER ECR-50874 MGR MR

37 9/8/05 JTS REVISED PER ECR-71591 MGR WAW

38 1/6/09 JNC REVISED PER ECR-71215 PAH MGC

35 5/30/08 JMR REVISED PER ECR-71167 MGR LA

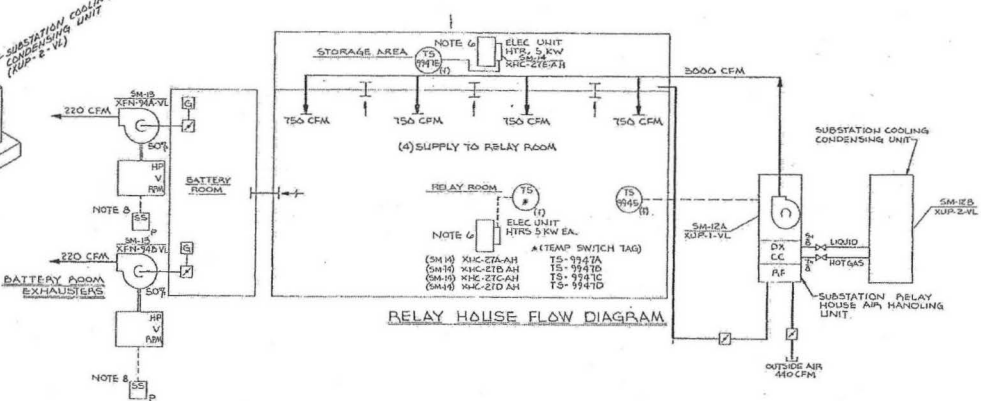
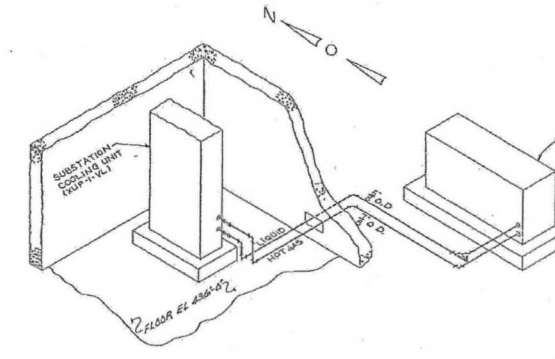
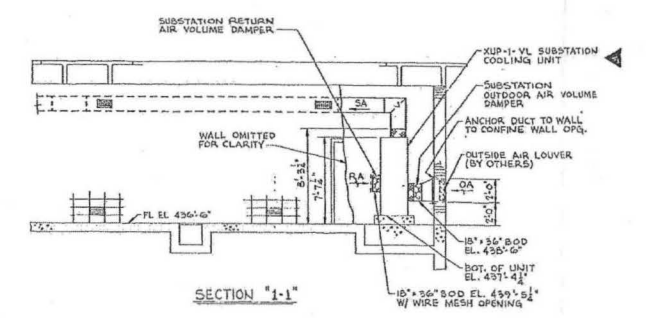
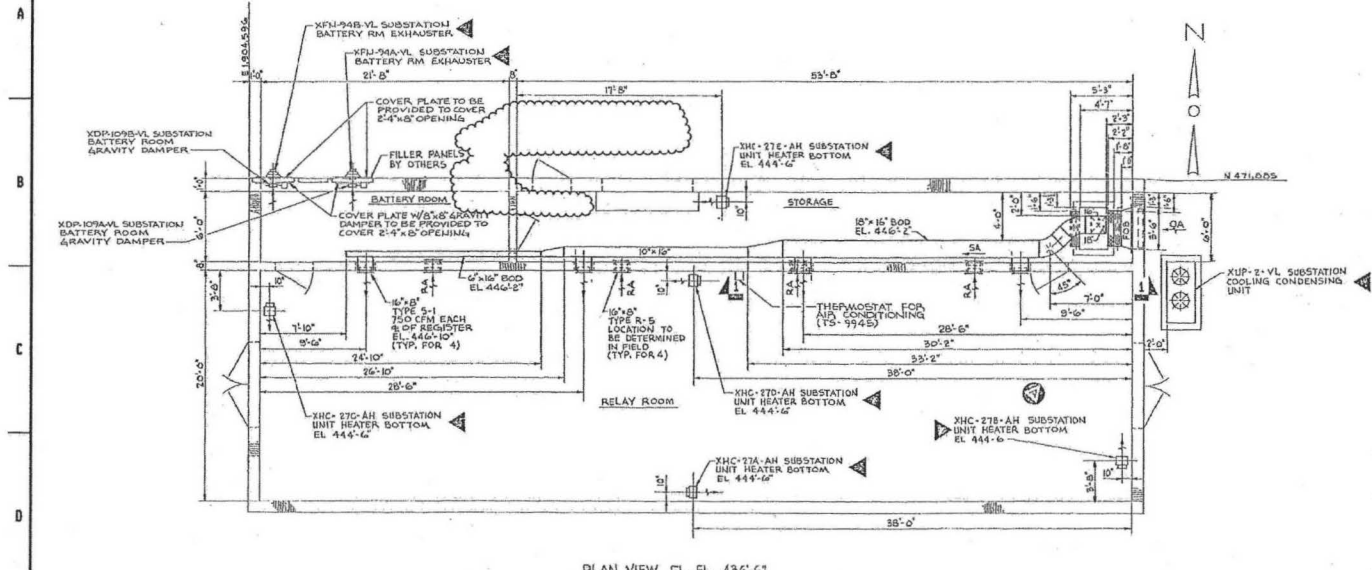
NO. DATE BY REVISION

D-302-851

1/38

1/4" = 1'-0"

17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1



- NOTES:
1. REFER TO SPECIFICATION 27-120-0401-01 FOR THE DIMENSIONAL MATERIALS AND CONSTRUCTION.
 2. REFRIGERATION TUBING SHALL BE TYPE L, HARD TEMPER COPPER TUBING WITH WOODGATE COPPER FITTINGS. JOINTS SHALL BE MADE WITH 95-5 SOLDER.
 3. REFRIGERANTS TO BE AS SAFETY CLASSIFICATION R40.
 4. REFER TO SPECIFICATION 27-222-04440-001 FOR THE IDENTIFICATION OF EQUIPMENT.
 5. COOL DRY AIR WATER IS CONTROLLED BY AN INVERTER SPEED CONTROLLER.
 6. (C) INDICATES THAT THE INSTRUMENT IS EQUIPPED WITH THE EQUIPMENT.
 7. SWITCHES FOR BATTERY ROOM EXHAUSTERS ARE LOCATED AT A LOCAL OUTSIDE STATION.
 8. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.

REFERENCES:
E-421-008 230KV SUBSTATION RELAY HOUSE FOUNDATION PLAN AND SECTIONS

DRAWING LEGIBILITY CLASS 1
SEE 80 CAD ENHANCED

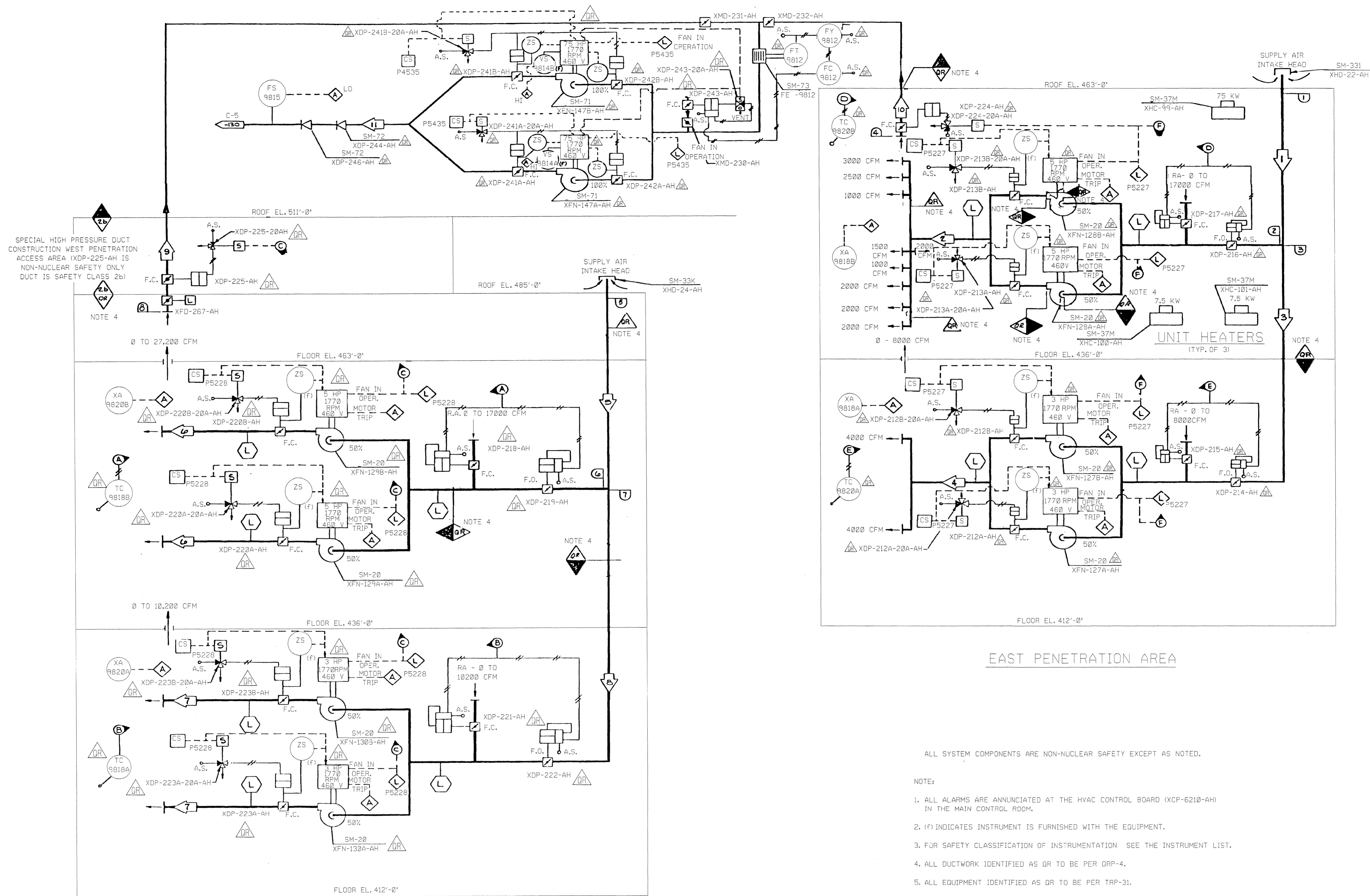
RN 11-003
FSAR Figure 9.4-26
SOUTH CAROLINA ELECTRIC & GAS COMPANY
YVIRIL C. SUMNER MOLEAR STATION
BUILDING SERVICE HVAC
SUBSTATION RELAY HOUSE FLOOR EL. 436'-8"

NO.	DATE	BY	REVISION	CHK. BY	APPROVAL
6	3/25/84	TGB	REVISED PER ECR-58748D	MGR	DH
5	3/16/84	DDJ	REVISED PER ECR-70828D	MGR	DDJ
4					
3					
2					
1					

DESIGN ENGINEERING
SOUTH CAROLINA ELECTRIC & GAS COMPANY
YVIRIL C. SUMNER MOLEAR STATION, JARROVILLE, S.C.
CHECKED BY: DDJ
DESIGNED BY: MGR
DATE: E-922-541
SCALE: AS SHOWN
SHEET NUMBER: 6

SYSTEM OPERATION DATA

	AIR FLOW CFM	AIR TEMP. ° F
1	0-25000	19 - 95
2	17000	65 - 95
3	0-8000	19 - 95
4	8000	65 - 95
5	0-27200	19 - 95
6	8500	65 - 95
7	5100	65 - 95
8	0-10200	19 - 95
9	0-27200	65 - 104
10	0-25000	65 - 104
11	52200	19 - 104



SPECIAL HIGH PRESSURE DUCT CONSTRUCTION WEST PENETRATION ACCESS AREA (XDP-225-AH IS NON-NUCLEAR SAFETY ONLY DUCT IS SAFETY CLASS 2b)

EAST PENETRATION AREA

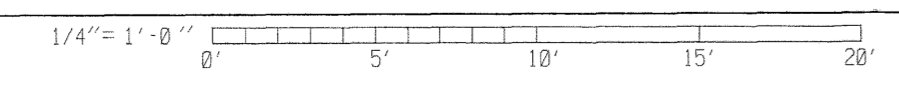
ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY EXCEPT AS NOTED.

- NOTE:
- ALL ALARMS ARE ANNUNCIATED AT THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM.
 - (F) INDICATES INSTRUMENT IS FURNISHED WITH THE EQUIPMENT.
 - FOR SAFETY CLASSIFICATION OF INSTRUMENTATION SEE THE INSTRUMENT LIST.
 - ALL DUCTWORK IDENTIFIED AS OR TO BE PER ORP-4.
 - ALL EQUIPMENT IDENTIFIED AS OR TO BE PER TRP-31.

QUALITY RELATED-FABRICATION, ERECTION, AND INSPECTION PER SCE&G ORP FOR HVAC DUCTS AND SUPPORTS.

SYSTEM DESIGN DATA

P	AIR FLOW CFM	AIR TEMP. ° F
1	25000	19 - 95
2	17000	19 - 95
3	8000	19 - 95
4	25000	65 - 104
5	27200	19 - 95
6	17000	19 - 95
7	10200	19 - 95
8	27200	65 - 104



ESSENTIAL

RN 02-042
June 2003

FSAR Figure 9.4-26a
ASSOCIATED WITH
FSAR Figure 12.2-2

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMNER NUCLEAR STATION
BUILDING SERVICE SYSTEM FLOW DIAGRAM
EAST AND WEST PENETRATION AREA
COOLING SYSTEM

DATE	BY	REVISION	CHK. BY	APPROVAL
15	9/17/02	DDJ	MGR	DKW
14	10/04/01	DDJ	MGR	DDJ
13	04/20/03	JMH	DVW	GAA

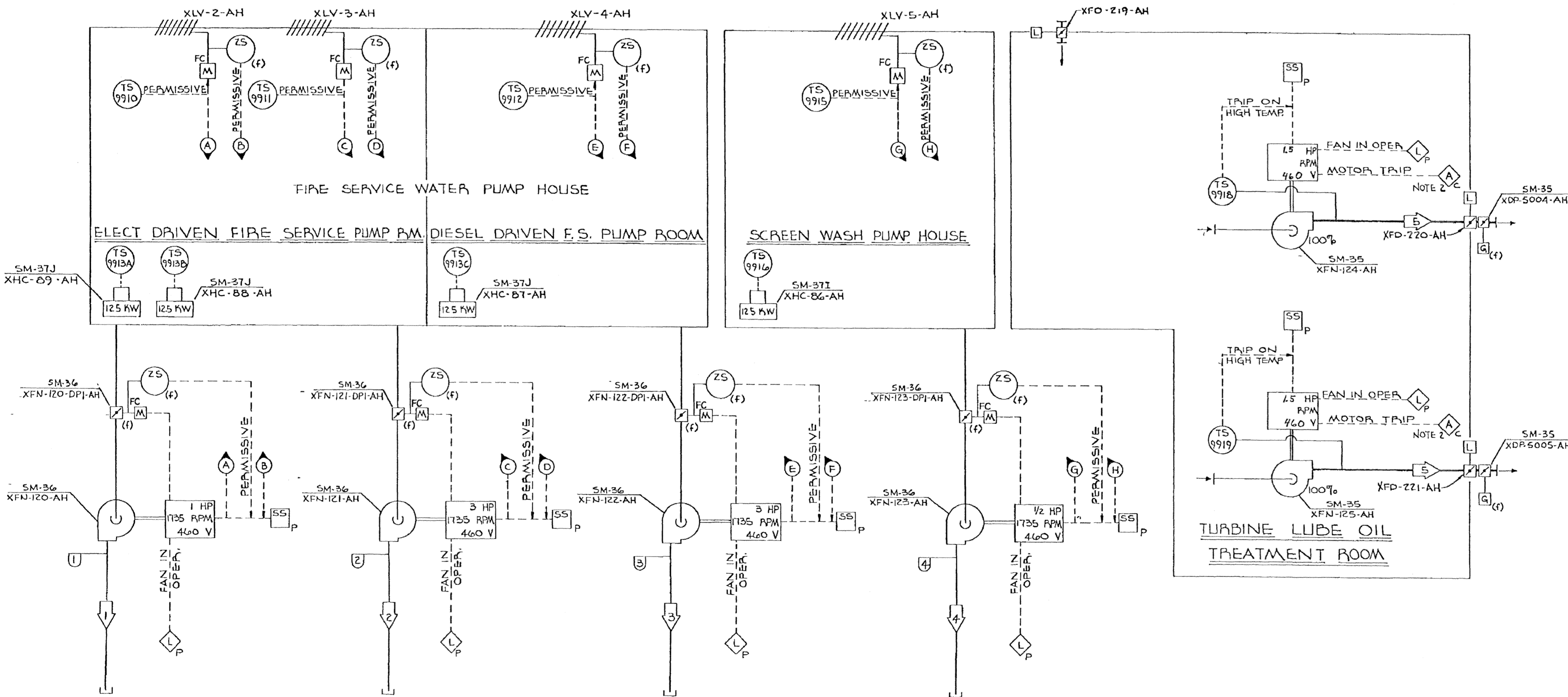
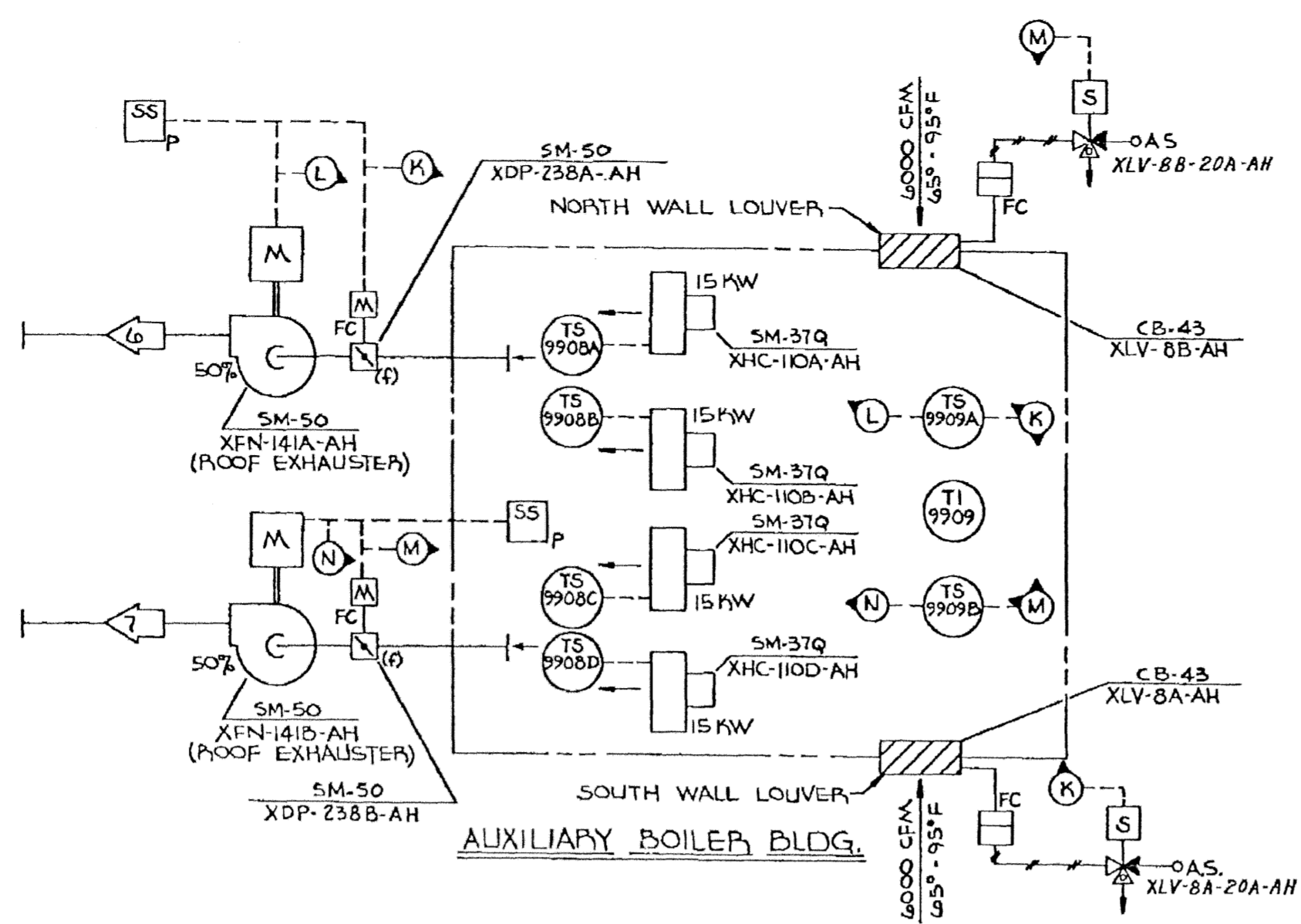
THIS IS A NUCLEAR SAFETY RELATED DOCUMENT. NO DEVIATION SHALL BE INITIATED OR PERFORMED WITHOUT PRIOR DOCUMENTATION AND WRITTEN APPROVAL.

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

NO.	DATE	BY	REVISION	CHK. BY	APPROVAL
15	9/17/02	DDJ	REVISED PER ECR-70249	MGR	DKW
14	10/04/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
13	04/20/03	JMH	REVISED PER CGSS-93-0328	DVW	GAA

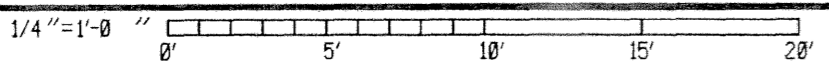
D-912-171
DRAWING NUMBER

SYS. OPER. DATA		
#	AIR FLOW ACFM	AIR TEMP °F
1	4550	40-104
2	10353	40-104
3	10353	40-115
4	3393	40-104
5	8812	40-110
6	6000	65-110
7	6000	65-110



- NOTES:**
1. SELECTOR SWITCHES (SS) and INDICATING LIGHTS FOR FANS ARE LOCATED ON LOCAL PANELS:
 ELECT. FIRE PUMP RM. - XFN-517-AH
 DIESEL " " - XFN-518-AH
 SCREEN WASH " HOUSE - XFN-519-AH
 LUPE OIL TREAT. ROOM - XFN-520-AH
 AUX. BOILER BLDG. - XFN-521-AH
 2. MOTOR TRIP ALARMS ARE ANNUNCIATED AT THE HVAC CONTROL BOARD (XCF-6210-AH) IN THE MAIN CONTROL ROOM.
 3. (f) INDICATES DEVICE IS FURNISHED WITH THE EQPT.
 4. FOR SAFETY CLASSIFICATION, SEE THE INSTRUMENT LIST.

SYS. DESIGN DATA		
#	AIR FLOW ACFM	AIR TEMP °F
5	8800	
4	3393	
3	10353	
2	10353	
1	4550	



ESSENTIAL

Amendment 02-01
 May 2002

ALL SYSTEM COMPONENTS
 ARE NON-NUCLEAR SAFETY

DRAWING LEGIBILITY
 CLASS 1
 SCE&G CAD ENHANCED

FSAR Figure 9.4-26b

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMNER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM
 MISCELLANEOUS PUMP ROOM SYSTEMS
 AND LUBE OIL ROOM SYSTEM

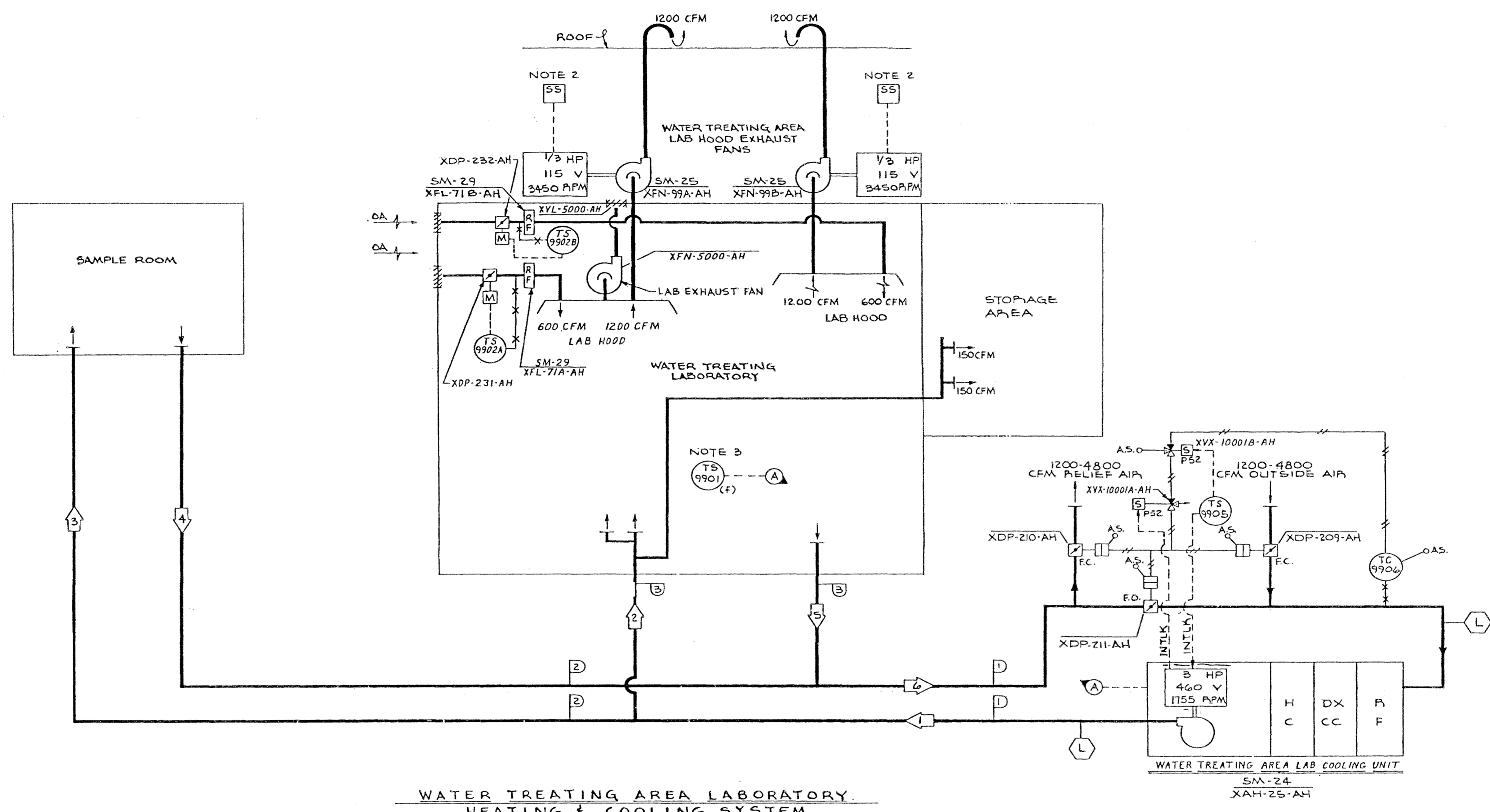
DESIGN ENGINEERING

DATE: 08/04/01
 CHECKED: DDJ
 V.C. SUMNER NUCLEAR STATION, JENKINSVILLE, S.C.
 MADE: DDJ
 LE APPROVAL: MGR
 LE: DDJ

NO. DATE BY REVISION REVISION CKD. BY APPROVAL

NO. SCALE: D-912-170
 DRAWING NUMBER: 1
 SHEET NUMBER: 1

SYSTEM OPERATING DATA		
AIR FLOW	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

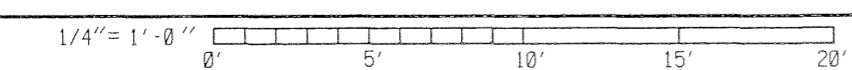


- NOTES:-
1. (F) INDICATES INSTRUMENT IS FURNISHED WITH THE EQUIPMENT.
 2. SELECTOR SWITCHES FOR LAB HOOD EXHAUST FANS ARE LOCATED ON THE RESPECTIVE HOODS.
 3. COMBINATION HEATING, COOLING, & THERMOSTAT LOCATED IN LAB.
 4. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.

ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY CLASS

- 5** 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
- 7** ELECTRIC UNIT HEATERS
WATER TREATING BUILDING
GENERAL FLOOR AREA
- XHC-0033-AH 30 KW SM-27
 - XHC-0034-AH 30 KW SM-27
 - XHC-0035-AH 30 KW SM-27
 - XHC-0036-AH 30 KW SM-27
 - XHC-0037-AH 30 KW SM-27
 - XHC-0038-AH 30 KW SM-27
 - XHC-0039-AH 30 KW SM-27

SYSTEM DESIGN DATA		
AIR FLOW	AIR TEMP.	°F
3	3360	50-75
2	1440	50-75
1	4800	50-75

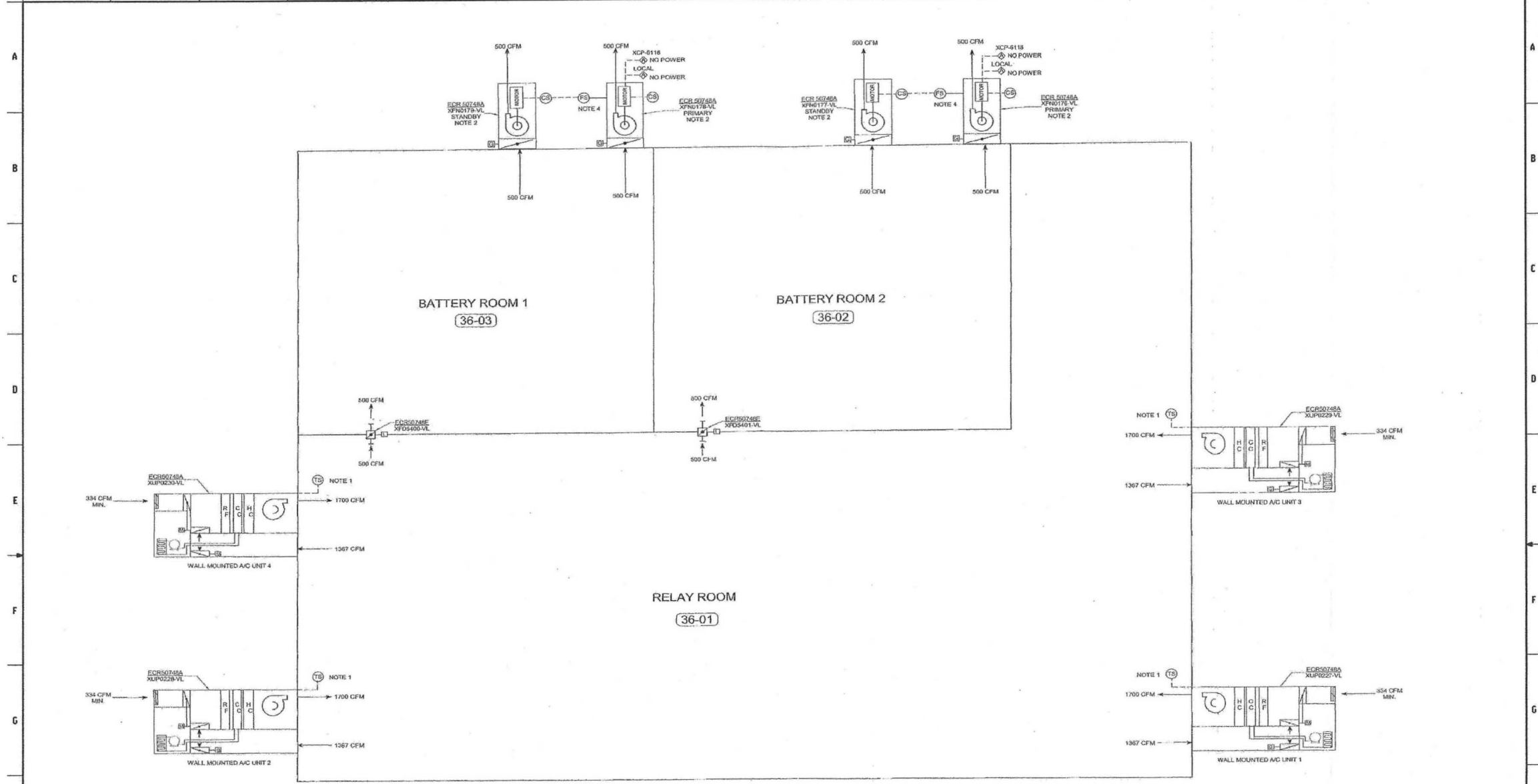


ESSENTIAL

Amendment 00-01
December 2000

DRAWING LEGIBILITY CLASS 1		SOUTH CAROLINA ELECTRIC & GAS COMPANY	
SCE&G CAD ENHANCED		VIRGIL C. SUMNER NUCLEAR STATION	
		BUILDING SERVICE SYSTEM FLOW DIAGRAM	
		WATER TREATING BUILDING	
		HEATING AND COOLING SYSTEM	
		DESIGN ENGINEERING	
		V.C. SUMNER NUCLEAR STATION, JENKINSVILLE, S.C.	
DATE	BY	REVISION	CHK. BY
7/24/98	JMR	REVISED PER COSS-98-0341	MGR DKW
6/15/94	AVN	REVISED AS PER MRF-21335	MGR DJC
NO.		DATE	
7		D-912-153	
DRAWING NUMBER		SHEET NUMBER	
7		7	

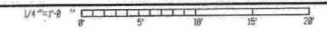
17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1



UNIT 1 RELAY HOUSE FLOW DIAGRAM

- NOTES:
1. AIR CONDITIONING UNITS ARE FOUR (4) 225 CAPACITY UNITS. EACH UNIT IS A SELF CONTAINED UNIT WITH AIR CONDITIONING AND HEATING EQUIPMENT. EACH UNIT HAS ITS OWN WALL MOUNTED THERMOSTAT. UNITS HAVE BUILT IN ECONOMIZER WITH EXHAUST DAMPER. THE UNITS ARE 5 TON UNITS WITH 6 KW HEATERS, BARD MODEL WASS1-COEE1000L.
 2. EACH BATTERY ROOM HAS TWO (2) 100% EXHAUST FANS. ONE FAN IS RUNNING WHILE THE OTHER IS IN STANDBY. LOSS OF FLOW TO THE PRIMARY FAN AUTOMATICALLY STARTS THE STANDBY FAN. THE FANS ARE GREENHECK MODEL CW-059-B.
 3. EACH BATTERY ROOM HAS A TRANSFER DUCT FROM THE RELAY ROOM. THIS PROVIDES CONDITIONED AIR FROM THE RELAY ROOM FOR COOLING AND HEATING.
 4. SAK SWITCH SUPPLIED WITH FANS. REFERENCE DRAWING E-229-156.

ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY CLASS



ESSENTIAL

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

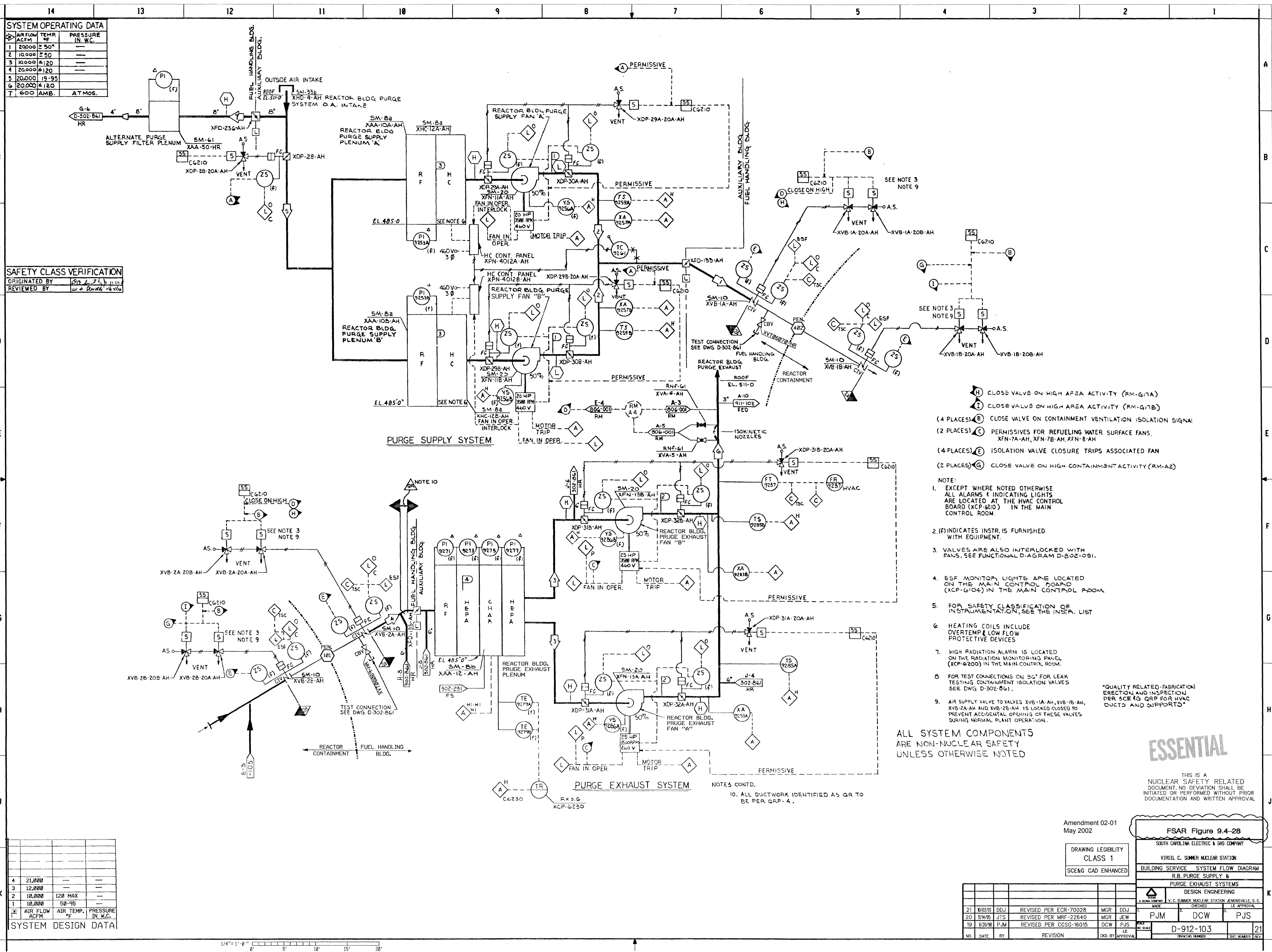
NO.	DATE	BY	REVISION	CHK. BY	APPROVAL
B	4/7/84	TGB	ISSUED PER ECR-68748	MGR	JWL

RN 12-001		
FSAR Figure 9.4-26d		
SOUTH CAROLINA ELECTRIC & GAS COMPANY		
VIRGINIA C. SIMPSON NUCLEAR STATION		
BUILDING SERVICE SYSTEM FLOW DIAGRAM		
UNIT 1 RELAY HOUSE		
HVAC		
DESIGN ENGINEERING		
MADE	CHECKED	LE APPROVAL
TGB	MGR	JWL
E-912-191		
NO. WALL	REV.	REV.

SYSTEM OPERATING DATA		
ACFM	TEMP. °F	PRESSURE IN. W.C.
1	20,000	± 50*
2	10,000	± 50
3	10,000	± 120
4	20,000	± 120
5	20,000	19-95
6	20,000	± 120
7	600	AMB. AT.MOS.

SAFETY CLASS VERIFICATION	
ORIGINATED BY	W. J. ...
REVIEWED BY	W. J. ...

SYSTEM DESIGN DATA		
ACFM	AIR TEMP. °F	PRESSURE IN. W.C.
4	21,000	---
3	12,000	---
2	10,000	120 MAX
1	10,000	50-95



- (H) CLOSE VALVE ON HIGH AREA ACTIVITY (RM-G17A)
- (I) CLOSE VALVE ON HIGH AREA ACTIVITY (RM-G17B)
- (4 PLACES) (B) CLOSE VALVE ON CONTAINMENT VENTILATION ISOLATION SIGNAL
- (2 PLACES) (C) PERMISSIVES FOR REFUELING WATER SURFACE FANS, XFN-7A-AH, XFN-7B-AH, XFN-8-AH
- (4 PLACES) (E) ISOLATION VALVE CLOSURE TRIPS ASSOCIATED FAN
- (2 PLACES) (G) CLOSE VALVE ON HIGH CONTAINMENT ACTIVITY (RM-A2)

- NOTE:
1. EXCEPT WHERE NOTED OTHERWISE ALL ALARMS & INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-610) IN THE MAIN CONTROL ROOM.
 2. (f) INDICATES INSTR. IS FURNISHED WITH EQUIPMENT.
 3. VALVES ARE ALSO INTERLOCKED WITH FANS, SEE FUNCTIONAL DIAGRAM D-802-051.
 4. ESF MONITOR LIGHTS ARE LOCATED ON THE MAIN CONTROL BOARD (XCP-610) IN THE MAIN CONTROL ROOM.
 5. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTR. LIST
 6. HEATING COILS INCLUDE OVERTEMP & LOW FLOW PROTECTIVE DEVICES
 7. HIGH RADIATION ALARM IS LOCATED ON THE RADIATION MONITORING PANEL (XCP-6200) IN THE MAIN CONTROL ROOM.
 8. FOR TEST CONNECTIONS ON 30\"/>

ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY UNLESS OTHERWISE NOTED

ESSENTIAL

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

NOTES CONTD.
10. ALL DUCTWORK IDENTIFIED AS QR TO BE PER QRP-4.

Amendment 02-01
May 2002

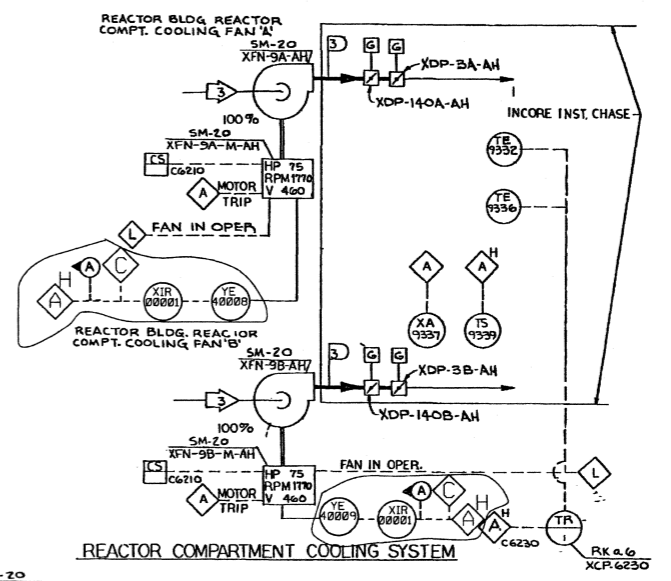
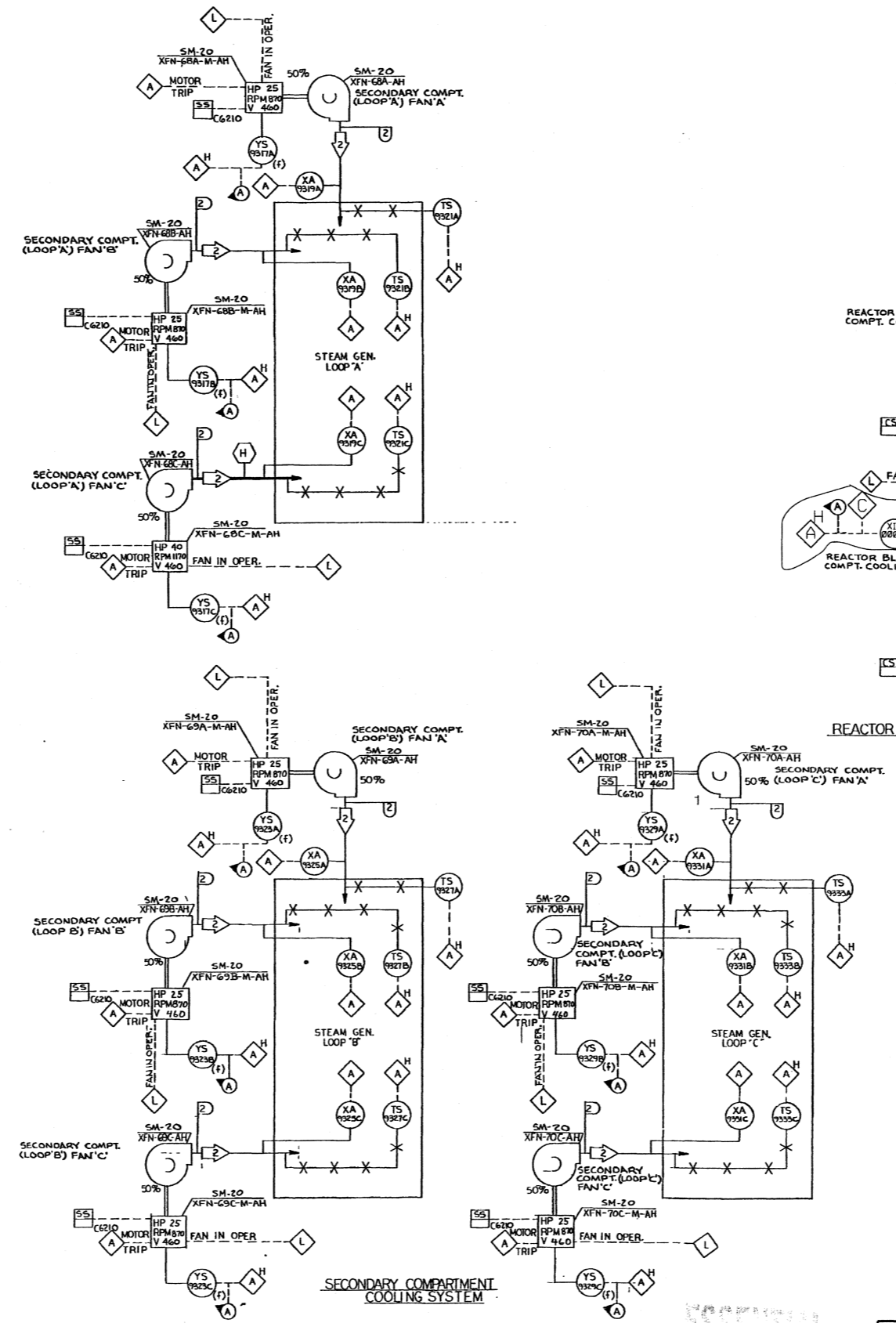
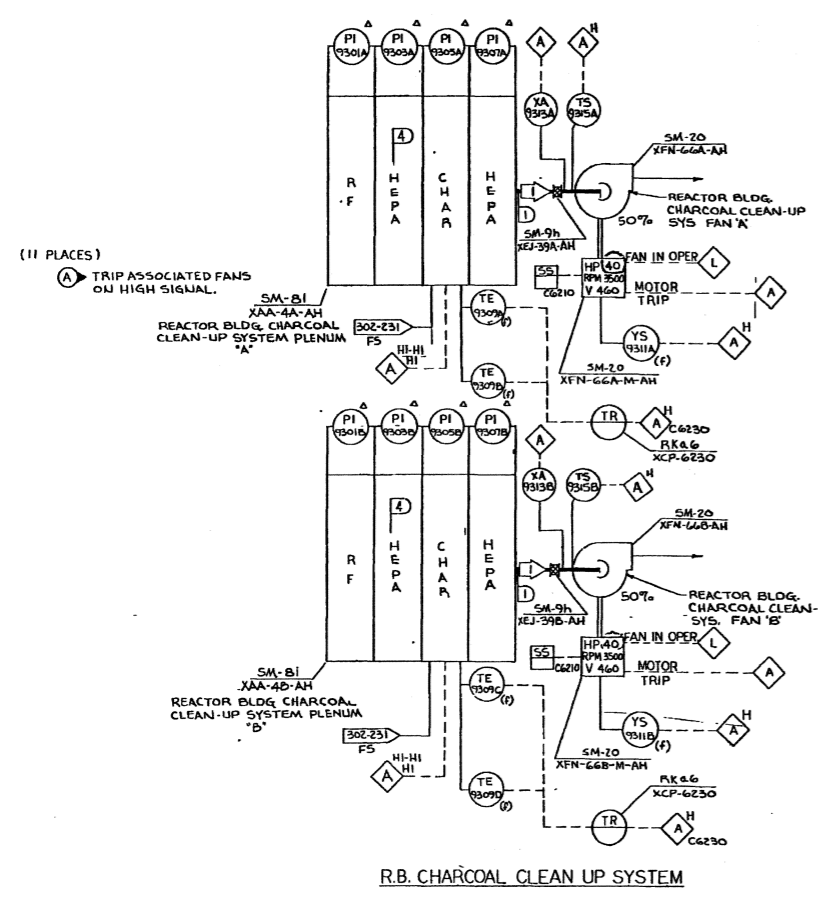
DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

FSAR Figure 9.4-28		
SOUTH CAROLINA ELECTRIC & GAS COMPANY		
VIRGIL C. SUMNER NUCLEAR STATION		
BUILDING SERVICE SYSTEM FLOW DIAGRAM		
R.B. PURGE SUPPLY & PURGE EXHAUST SYSTEMS		
DESIGN ENGINEERING		
DATE	BY	CHECKED
21 10/01/01	DDJ	REVISOR
20 10/19/95	JTS	REVISOR
19 8/20/90	PJM	REVISOR

NO.	DATE	BY	REVISION	CHKD. BY	APPROVAL
21	10/01/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
20	10/19/95	JTS	REVISED PER MRF-22640	MGR	JEW
19	8/20/90	PJM	REVISED PER CCGS-16015	DCW	PJS

D-912-103
21

SYS. OPERATING DATA		
NO	AIR FLOW ACFM	AIR TEMP °F
1	12,000	120°
2	45,000	100°
3	35,000	100°



- NOTE:
- UNLESS NOTED OTHERWISE, ALL ALARMS INDICATING LIGHTS ARE LOCATED ON THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM.
 - (f) INDICATES INSTR. IS FURNISHED WITH EQUIPMENT.
 - FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.
- ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY

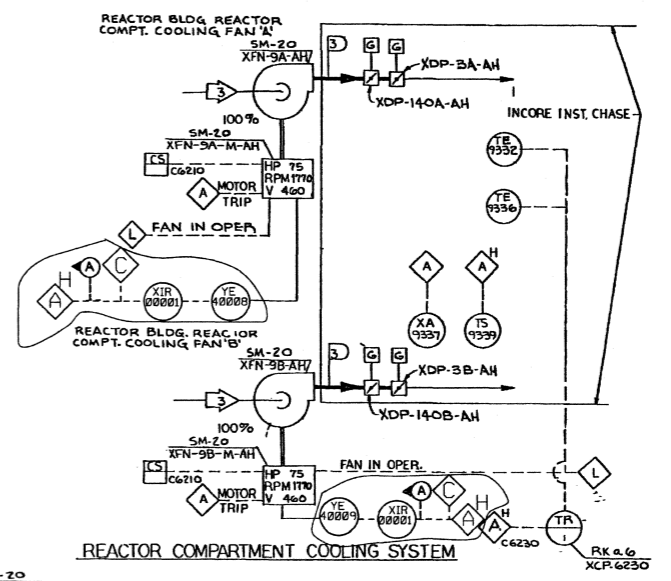
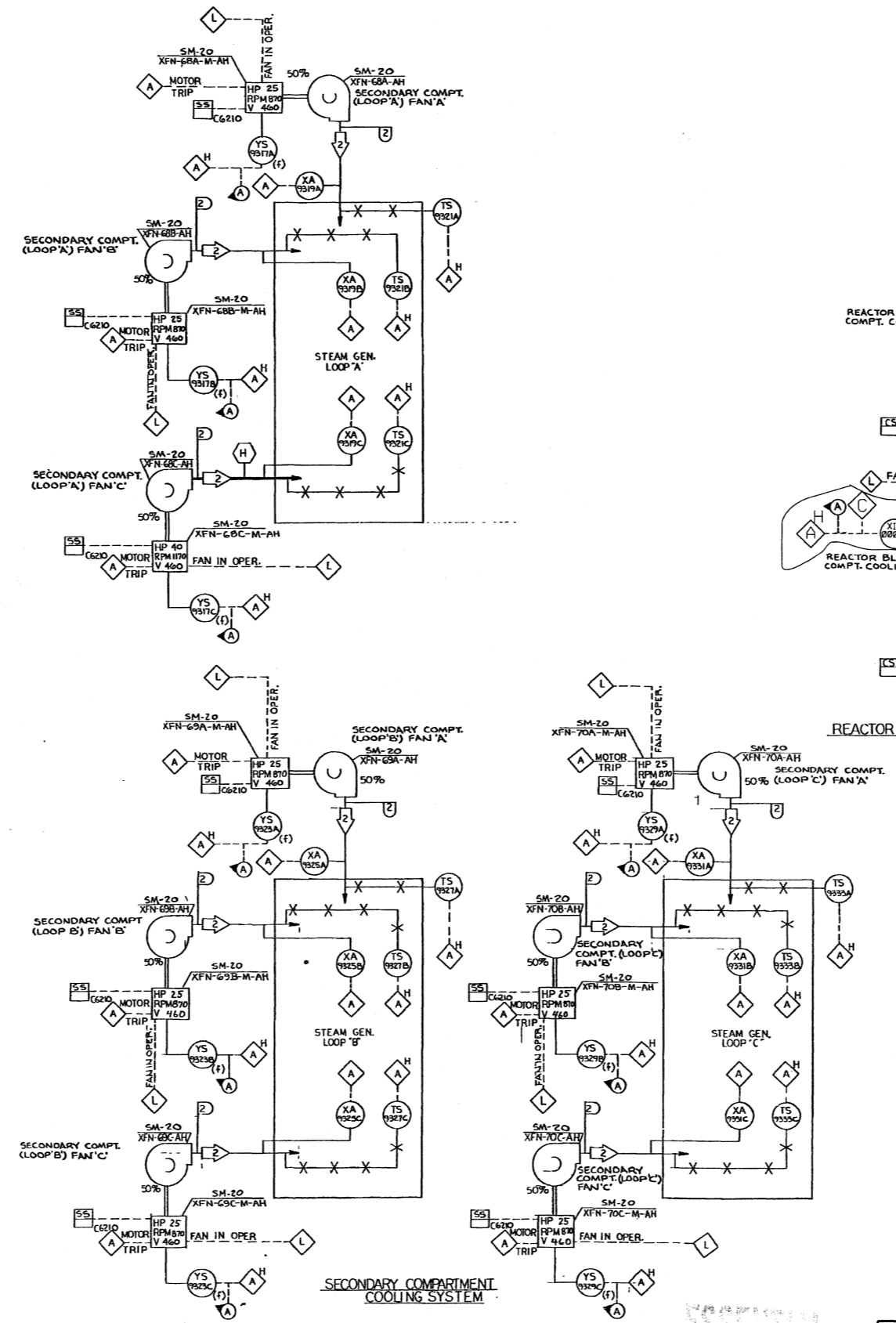
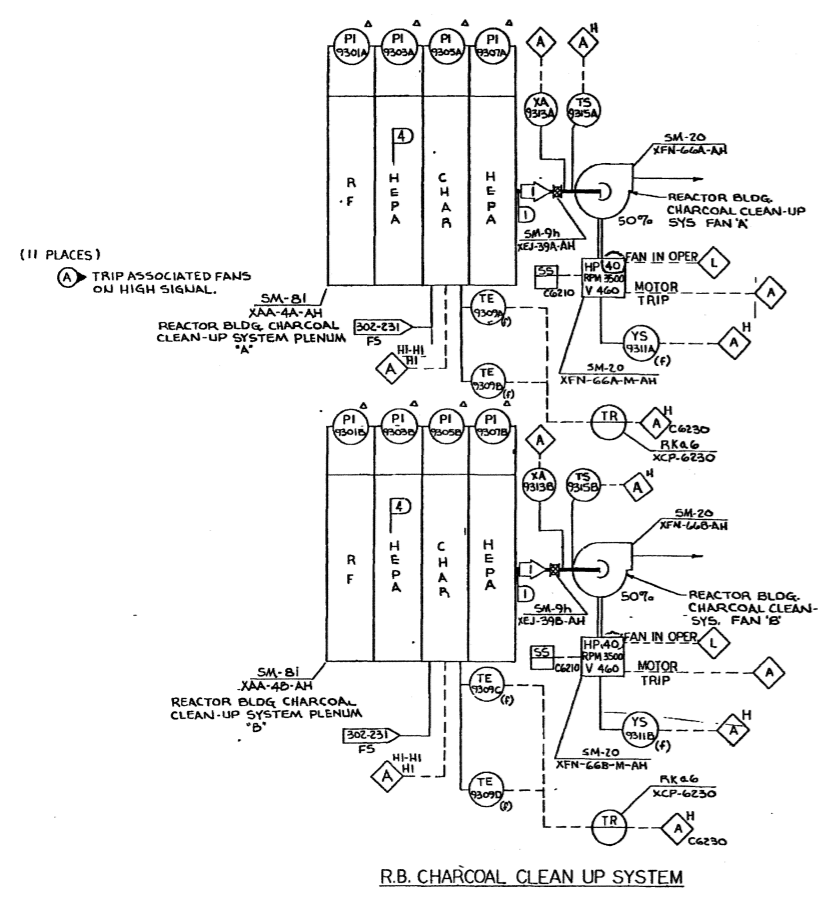
SYS DESIGN DATA		
NO	AIR FLOW ACFM	AIR TEMP °F
4	12,000	120°
3	35,000	100°
2	45,000	100°
1	12,000	120°

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

RN 09-023
June 2010

FSAR Figure 9.4-29	
SOUTH CAROLINA ELECTRIC & GAS COMPANY	
VIRGIL C. SUMNER NUCLEAR STATION	
BUILDING SERVICE SYSTEM FLOW DIAGRAM	
R.B. CHARCOAL CLEAN-UP, SECONDARY COMPT. COOLING & REACTOR COMPT. COOLING	
DESIGN ENGINEERING	
V.C. SUMNER NUCLEAR STATION, HENNINGVILLE, S.C.	
DDJ	MGR
DDJ	DDJ
D-912-104	
NO. DATE BY REVISION	CHK. BY APPROVAL
12 11/20/09 RHM	REVISOR ECR-58683 RHM NM
11 11/20/09 DDJ	REVISOR ECR-78828 MGR DDJ
NO. DATE BY REVISION	CHK. BY APPROVAL
12	12

SYS. OPERATING DATA		
NO.	AIR FLOW ACFM	AIR TEMP °F
1	12,000	120°
2	45,000	100°
3	35,000	100°



NOTE:
 1. UNLESS NOTED OTHERWISE, ALL ALARMS INDICATING LIGHTS ARE LOCATED ON THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM.
 2. (f) INDICATES INSTR. IS FURNISHED WITH EQUIPMENT.
 3. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.

ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY

SYS DESIGN DATA		
NO.	AIR FLOW ACFM	AIR TEMP °F
4	12,000	120°
3	35,000	100°
2	45,000	100°
1	12,000	120°

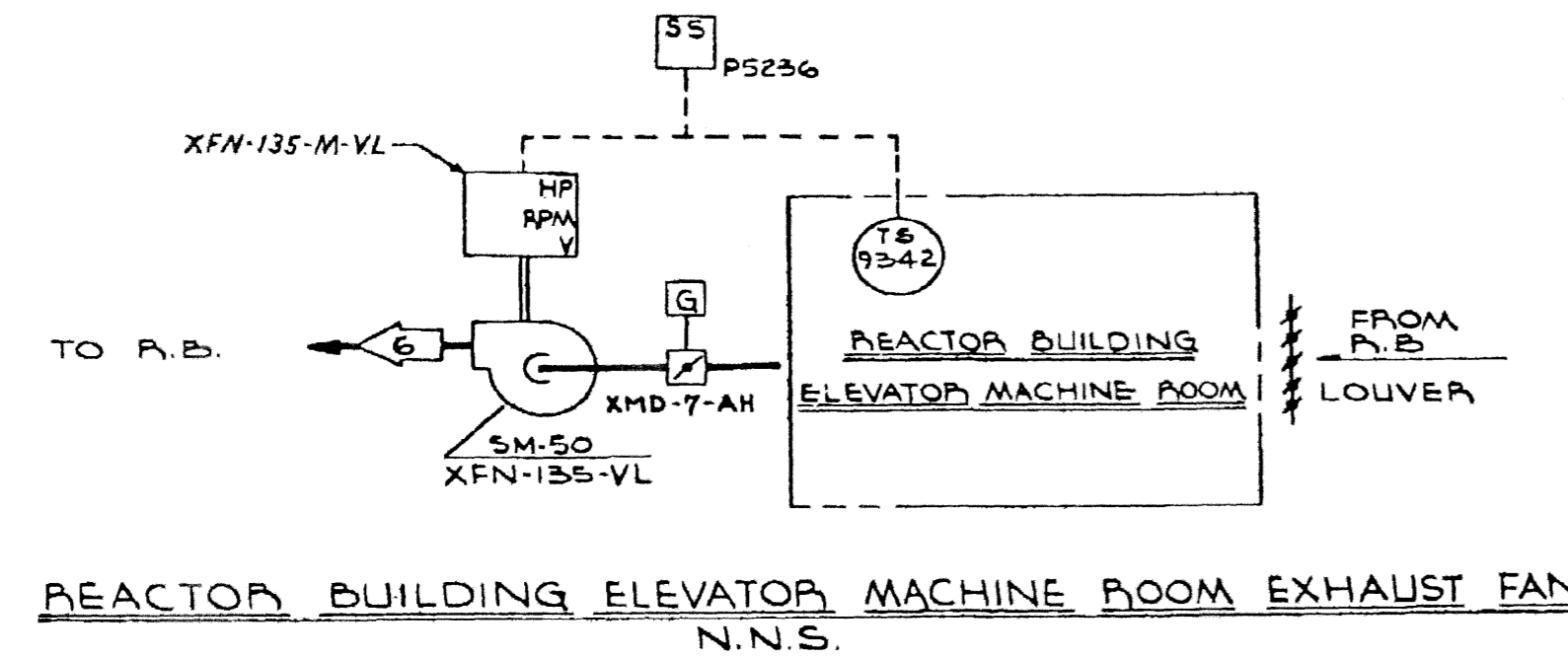
DRAWING LEGIBILITY CLASS 1
 SCE&G CAD ENHANCED

RN 09-023
 June 2010

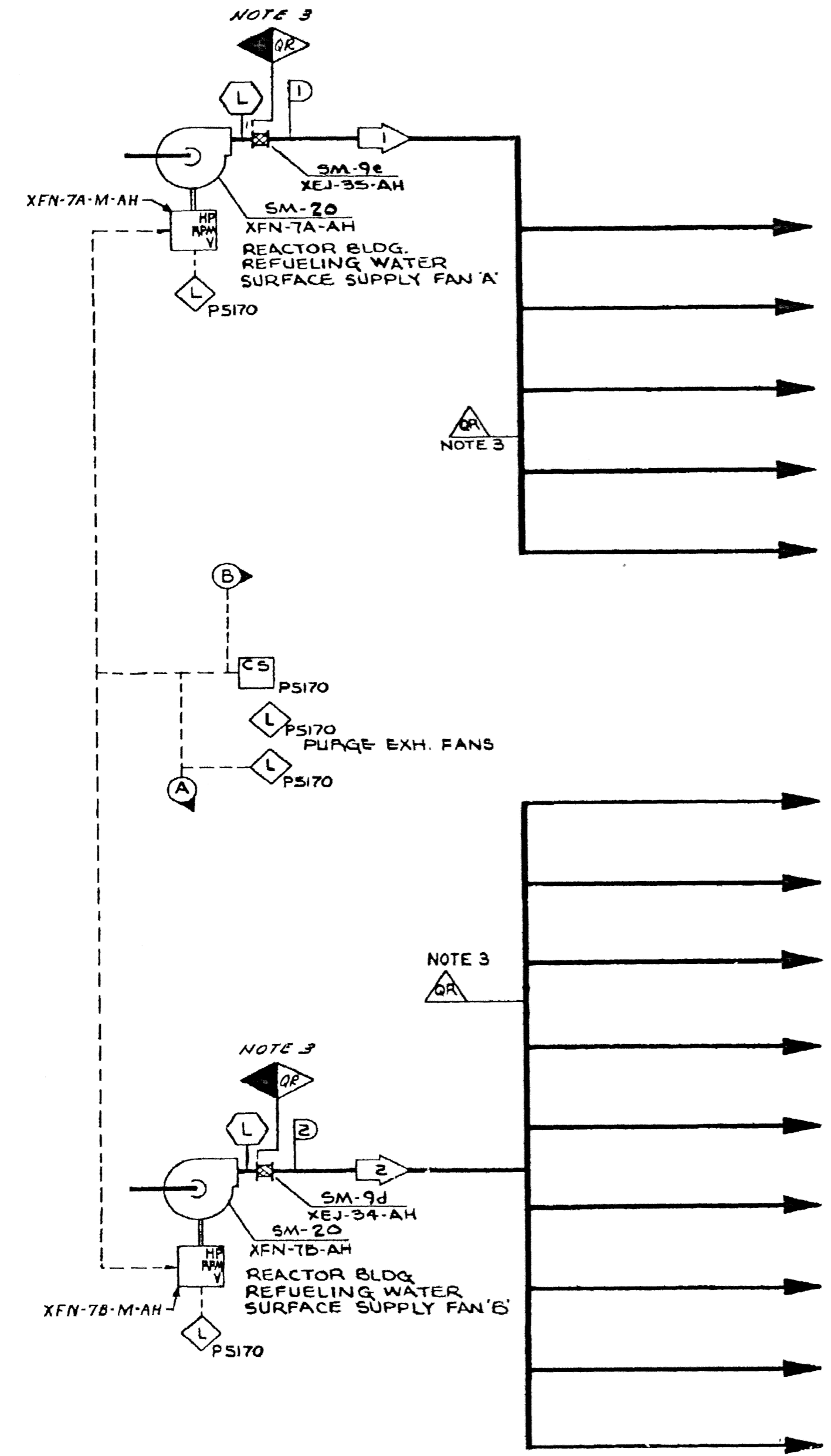
FSAR Figure 9.4-29	
SOUTH CAROLINA ELECTRIC & GAS COMPANY	
VIRGIL C. SUMNER NUCLEAR STATION	
BUILDING SERVICE SYSTEM FLOW DIAGRAM	
R.B. CHARCOAL CLEAN-UP, SECONDARY COMPT. COOLING & REACTOR COMPT. COOLING	
DESIGN ENGINEERING	
V.C. SUMNER NUCLEAR STATION, HENNINGVILLE, S.C.	
DDJ	MGR
DDJ	DDJ
D-912-104	
NO.	DATE
BY	REVISION
CHK. BY	APPROVAL

NO.	DATE	BY	REVISION	CHK. BY	APPROVAL
12	11/20/09	RHM	REVISED PER ECR-58683	RHM	NM
11	11/10/09	DDJ	REVISED PER ECR-7882B	MGR	DDJ

SYSTEM OPERATING DATA		
AIR FLOW ACFM	AIR TEMP. °F	
1	1600	60-120
2	2880	60-120
3	13,500	60-120
4	1,000	90
5	1,000	90
6	2670	60-120
7	1,500	89-95



REACTOR BUILDING ELEVATOR MACHINE ROOM EXHAUST FAN
 N.N.S.

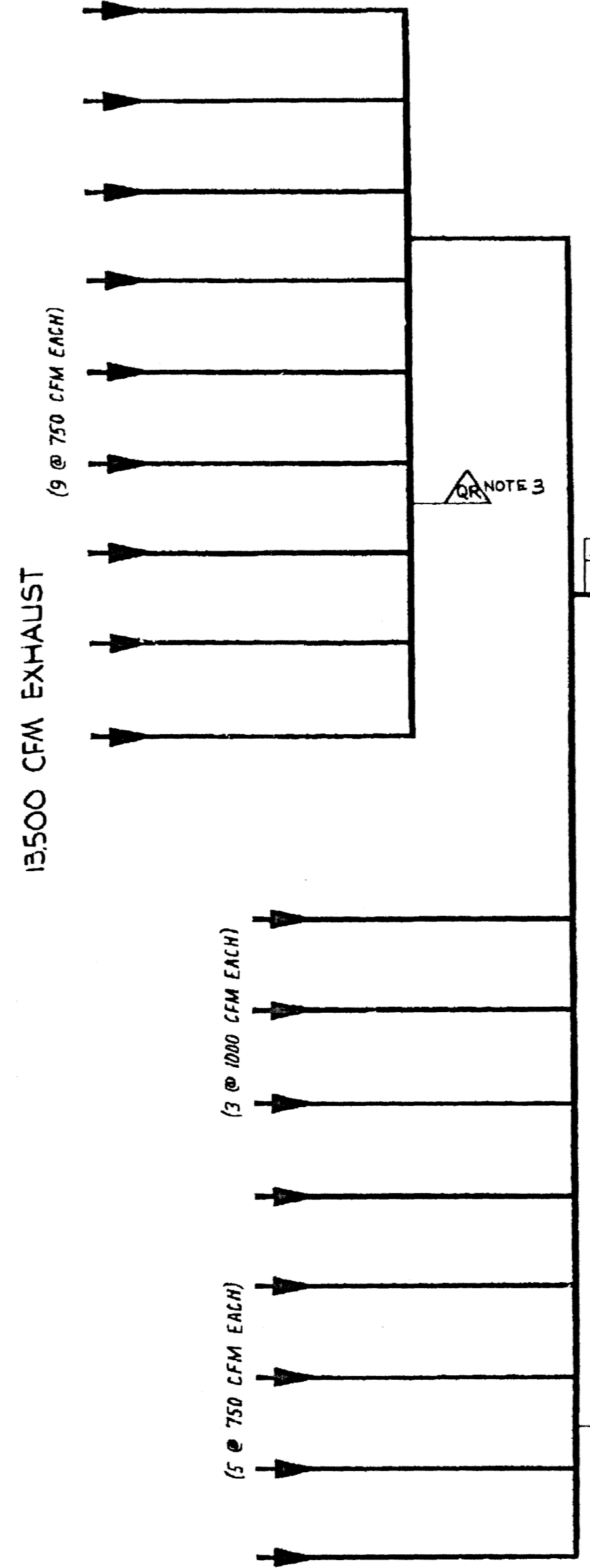
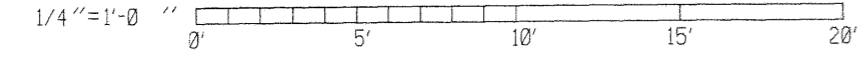


REACTOR BUILDING REFUELING WATER SURFACE SYSTEM

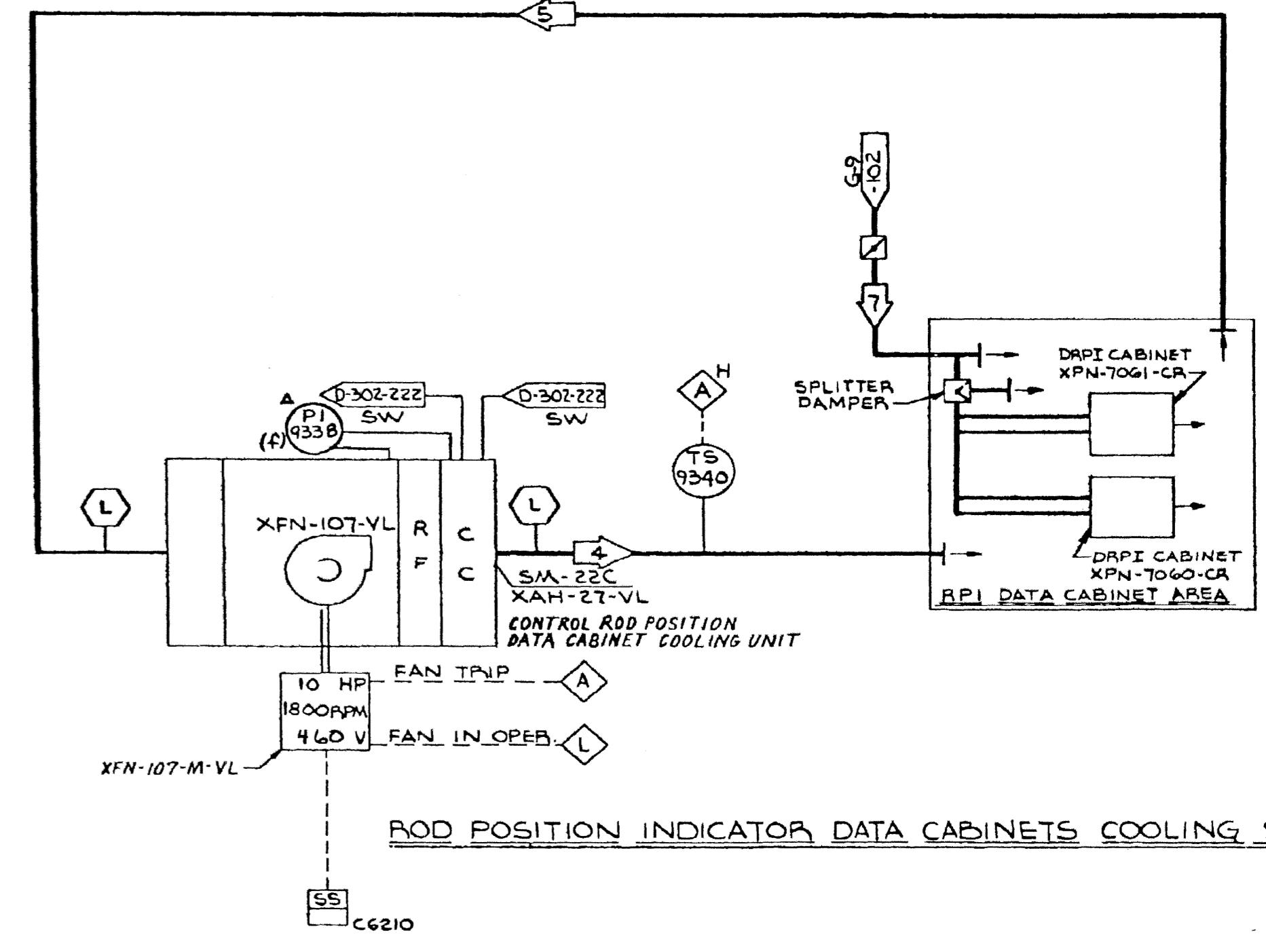
REACTOR BLDG. PURGE EXHAUST FAN XFN-13A-AH OR XFN-13B-AH MUST BE RUNNING TO ALLOW THE REFUELING WATER SURFACE FANS TO OPERATE

AIR FLOW ACFM	AIR TEMP. °F	
5	1,000	95
4	1,000	90
3	13,500	60-120
2	2880	60-120
1	1600	60-120

SYSTEM DESIGN DATA



REFUELING CANAL



ROD POSITION INDICATOR DATA CABINETS COOLING SYSTEM

- NOTES:-
1. ALL ALARMS AND INDICATING LIGHTS ARE LOCATED ON THE HVAC CONTROL BOARD (XCP-6210), UNLESS OTHERWISE NOTED.
 2. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.
 3. ALL DUCTWORK IDENTIFIED AS QR TO BE PER GRP-4.

QUALITY RELATED - FABRICATION, ERECTION AND INSPECTION PER SCE&G GRP FOR HVAC DUCTS AND SUPPORTS

THE ENTIRE SYSTEM IS NON NUCLEAR SAFETY.

Amendment 02-01
 May 2002

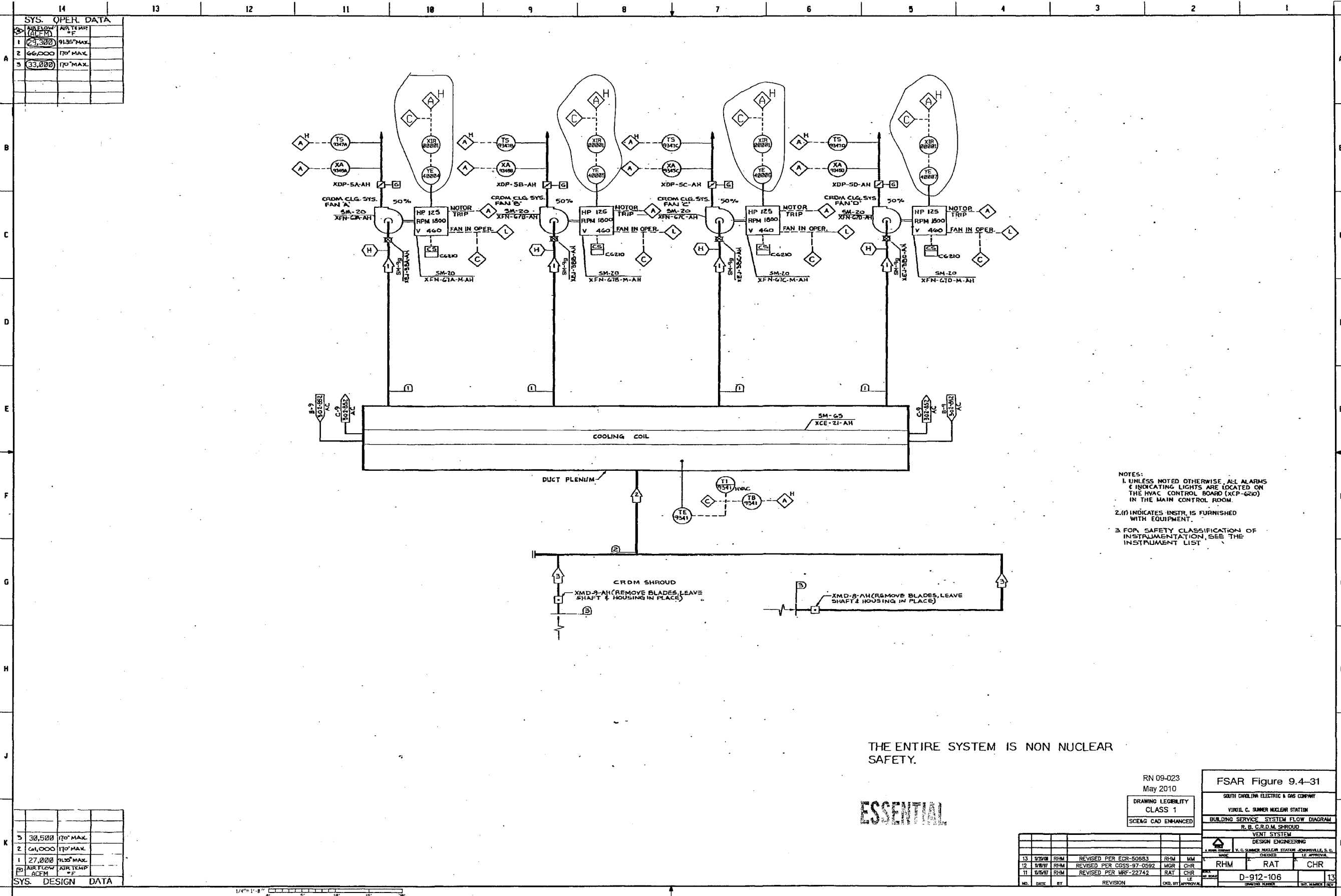
FSAR Figure 9.4-30

SOUTH CAROLINA ELECTRIC & GAS COMPANY			
VERGIL C. SUMNER NUCLEAR STATION			
BUILDING SERVICE SYSTEM FLOW DIAGRAM			
R.B. REFUELING WATER SURFACE SYSTEM			
DESIGN ENGINEERING			
DATE	BY	CHECKED	APPROVED
10/11/01	DDJ	MGR	DDJ
DRAWING NUMBER			10
D-912-105			

ESSENTIAL

DRAWING LEGIBILITY CLASS 1
 SCE&G CAD ENHANCED

NO.	DATE	BY	REVISION	CHKD. BY	APPROVAL
10	11/14/01	DDJ	REVISED PER ECR-70028	MGR	DDJ



SYS. OPER. DATA		
NO.	AIR FLOW (CFM)	AIR TEMP (°F)
1	23,000	91.35° MAX.
2	66,000	170° MAX.
3	33,000	170° MAX.

SYS. DESIGN DATA		
NO.	AIR FLOW (CFM)	AIR TEMP (°F)
1	27,000	91.35° MAX.
2	61,000	170° MAX.
3	30,500	170° MAX.

NOTES:
 1. UNLESS NOTED OTHERWISE, ALL ALARMS & INDICATING LIGHTS ARE LOCATED ON THE HVAC CONTROL BOARD (XCP-6210) IN THE MAIN CONTROL ROOM.
 2. (I) INDICATES INSTR. IS FURNISHED WITH EQUIPMENT.
 3. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.

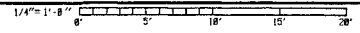
THE ENTIRE SYSTEM IS NON NUCLEAR SAFETY.

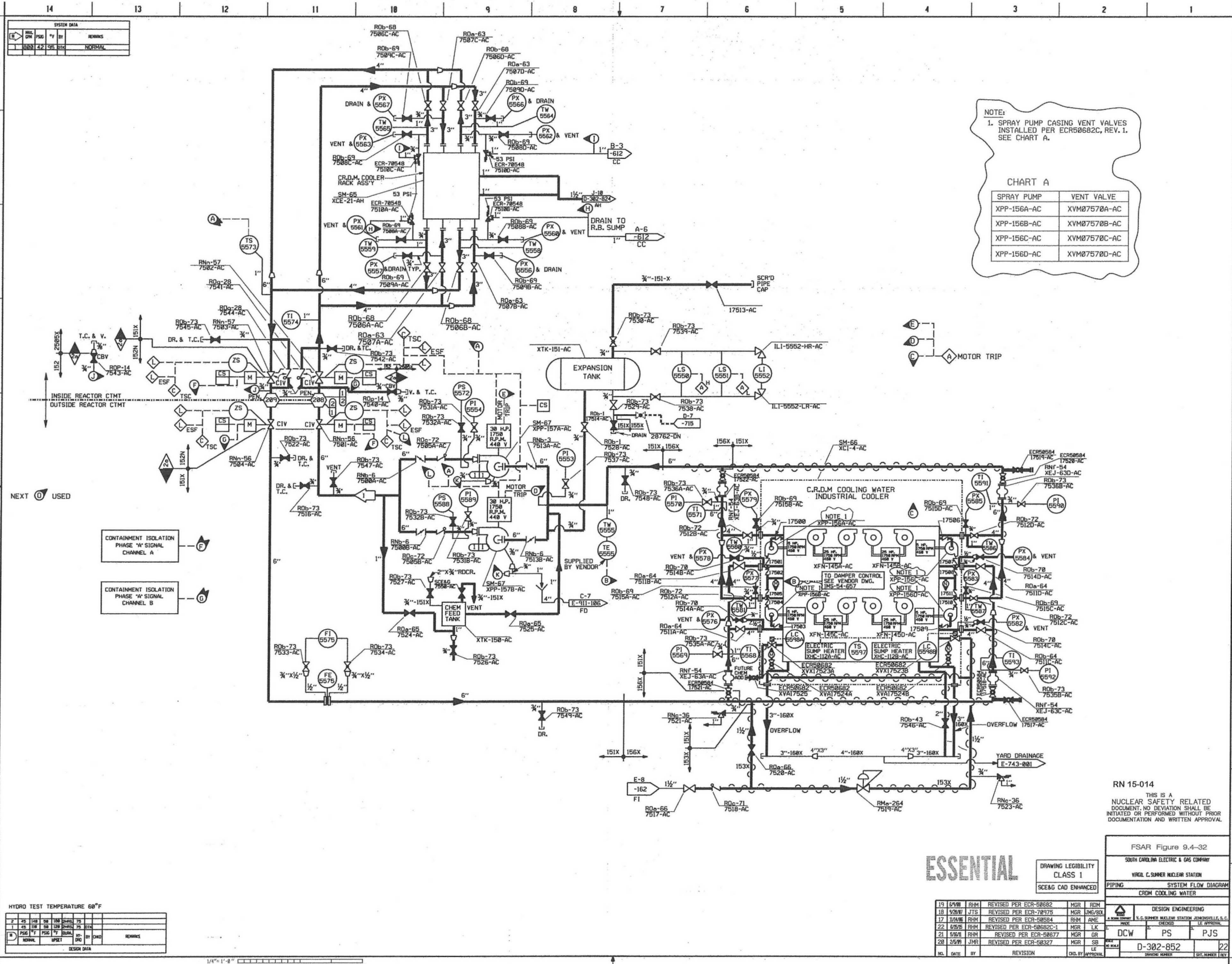
ESSENTIAL

RN 09-023
 May 2010
 DRAWING LEGIBILITY CLASS 1
 SCEMG CAD ENHANCED

FSAR Figure 9.4-31							
SOUTH CAROLINA ELECTRIC & GAS COMPANY							
VIRGIL C. SUMNER NUCLEAR STATION							
BUILDING SERVICE SYSTEM FLOW DIAGRAM							
R. B. C.R.D.M. SHROUD							
VENT SYSTEM							
DESIGN ENGINEERING							
DATE	BY						
13 1/20/09	RHM						
12 1/8/07	RHM						
11 1/6/97	RHM						
NO.	DATE	BY	REVISION	NO.	DATE	BY	REVISION

NO.	DATE	BY	REVISION	NO.	DATE	BY	REVISION
13	1/20/09	RHM	REVISED PER ECR-50893	RHM	MM		
12	1/8/07	RHM	REVISED PER CDS-97-0592	MGR	CHR		
11	1/6/97	RHM	REVISED PER MRF-22742	RAT	CHR		





NOTE:
1. SPRAY PUMP CASING VENT VALVES INSTALLED PER ECR50682C, REV. 1. SEE CHART A.

CHART A

SPRAY PUMP	VENT VALVE
XPP-156A-AC	XVM07570A-AC
XPP-156B-AC	XVM07570B-AC
XPP-156C-AC	XVM07570C-AC
XPP-156D-AC	XVM07570D-AC

NEXT 0 USED

CONTAINMENT ISOLATION PHASE 'A' SIGNAL CHANNEL A

CONTAINMENT ISOLATION PHASE 'B' SIGNAL CHANNEL B

HYDRO TEST TEMPERATURE 60°F

NO.	DATE	BY	REVISION
1	11/18/77	JMS	REVISED PER ECR-50682
2	11/18/77	JMS	REVISED PER ECR-50682-1
3	11/18/77	JMS	REVISED PER ECR-50682-2
4	11/18/77	JMS	REVISED PER ECR-50682-3
5	11/18/77	JMS	REVISED PER ECR-50682-4
6	11/18/77	JMS	REVISED PER ECR-50682-5
7	11/18/77	JMS	REVISED PER ECR-50682-6
8	11/18/77	JMS	REVISED PER ECR-50682-7
9	11/18/77	JMS	REVISED PER ECR-50682-8
10	11/18/77	JMS	REVISED PER ECR-50682-9
11	11/18/77	JMS	REVISED PER ECR-50682-10
12	11/18/77	JMS	REVISED PER ECR-50682-11
13	11/18/77	JMS	REVISED PER ECR-50682-12
14	11/18/77	JMS	REVISED PER ECR-50682-13
15	11/18/77	JMS	REVISED PER ECR-50682-14
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28	11/18/77	JMS	REVISED PER ECR-50682-27
29	11/18/77	JMS	REVISED PER ECR-50682-28
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31	11/18/77	JMS	REVISED PER ECR-50682-30
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99	11/18/77	JMS	REVISED PER ECR-50682-98
100	11/18/77	JMS	REVISED PER ECR-50682-99
101	11/18/77	JMS	REVISED PER ECR-50682-100

ESSENTIAL

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

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

FSAR Figure 9.4-32
SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMNER NUCLEAR STATION
PIPING SYSTEM FLOW DIAGRAM
C.R.D.M. COOLING WATER

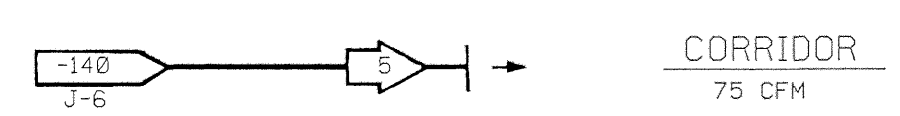
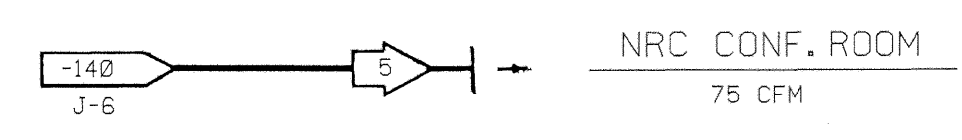
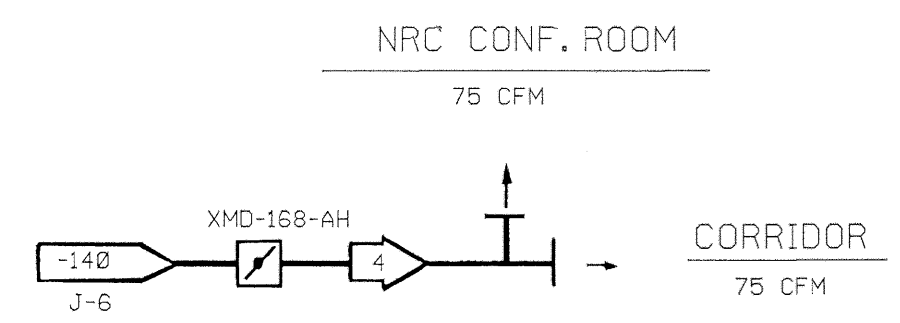
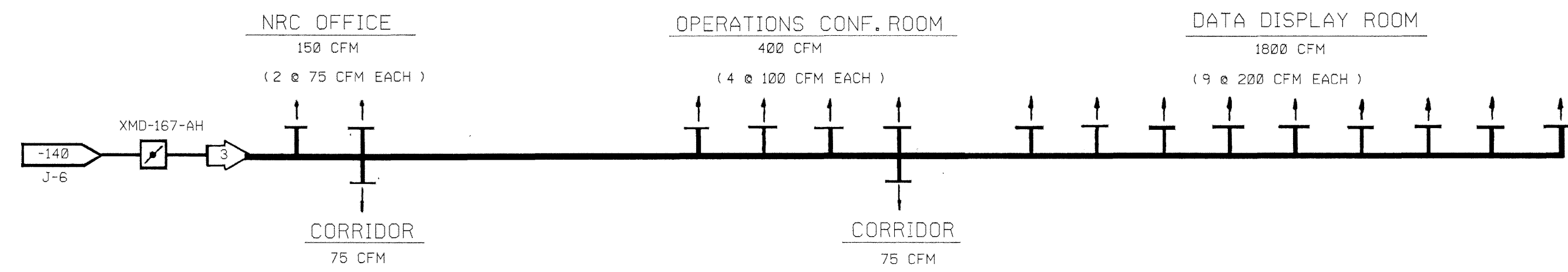
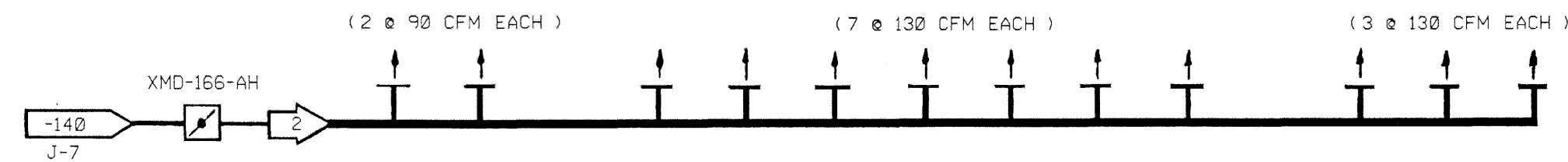
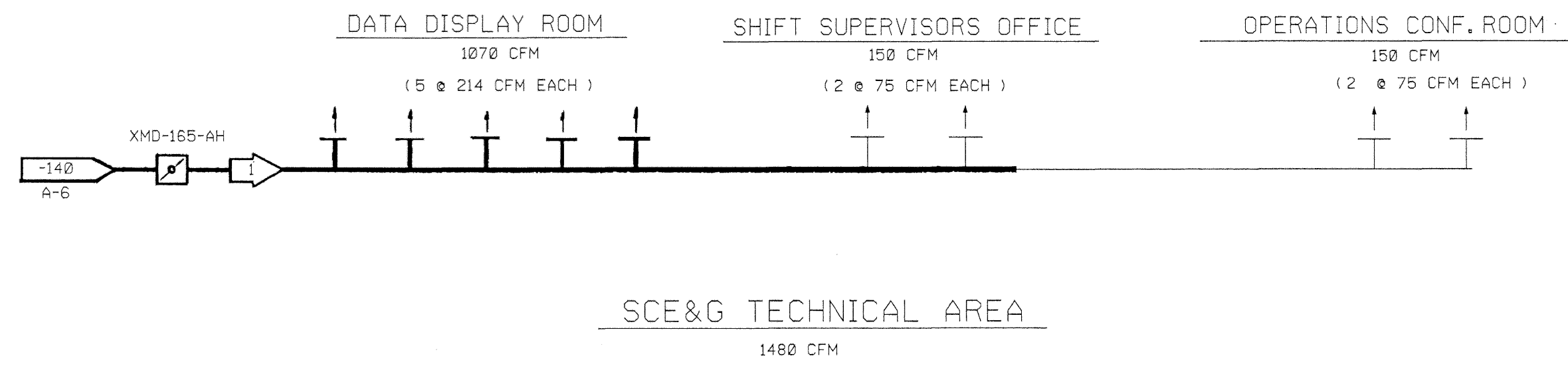
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17	5/18/77	RHM	REVISED PER ECR-50684	RHM	AME
22	5/15/75	RHM	REVISED PER ECR-50682C-1	MGR	LK
21	5/15/75	RHM	REVISED PER ECR-50677	MGR	GR
20	3/5/71	JMR	REVISED PER ECR-50637	MGR	SB

DESIGN ENGINEERING
V. C. SUMNER NUCLEAR STATION, JENSEN/RODOLPH & CO.
DCW PS PJS
D-302-852
DRAWING NUMBER

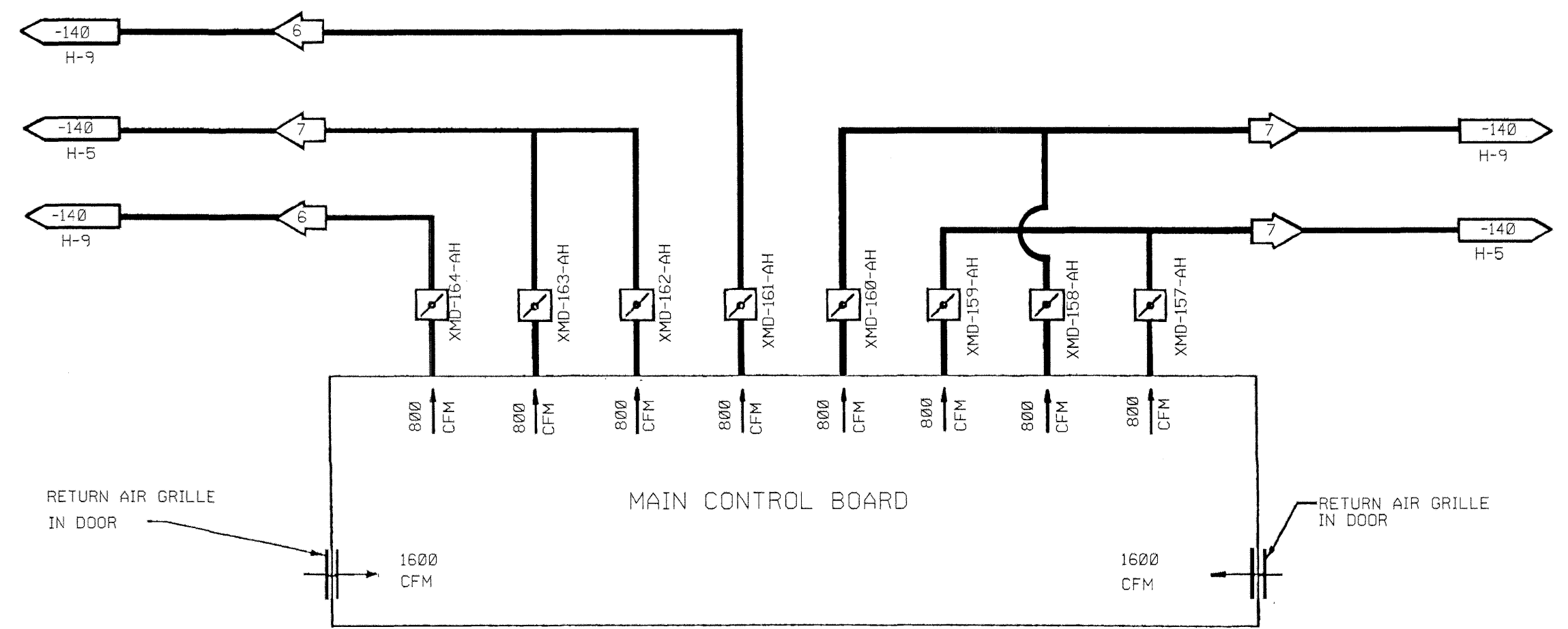
NO.	AIR FLOW (CFM)	AIR TEMP (°F)
1	1370	56.3
2	1480	56.3
3	2500	56.3
4	150	56.3
5	75	56.3
6	800	
7	1600	

SAFETY CLASS VERIFICATION

ORIGINATED BY: J. F. Wilson
 REVIEWED BY: S. W. G. 1/1/02



TECHNICAL SUPPORT CENTER VENTILATION SYSTEM



CONTROL ROOM MAIN CONTROL BOARD VENTILATION SYSTEM

ALL SYSTEM COMPONENTS ARE SAFETY CLASS 2B

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

RN 02-012
May 2002

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

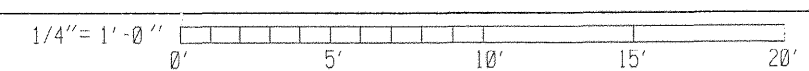
FSAR Figure 9.4-33

SOUTH CAROLINA ELECTRIC & GAS COMPANY
 VIRGIL C. SUMNER NUCLEAR STATION
 BUILDING SERVICE SYSTEM FLOW DIAGRAM
 TECHNICAL SUPPORT CENTER AND MAIN CONTROL BOARD VENTILATION SYSTEM

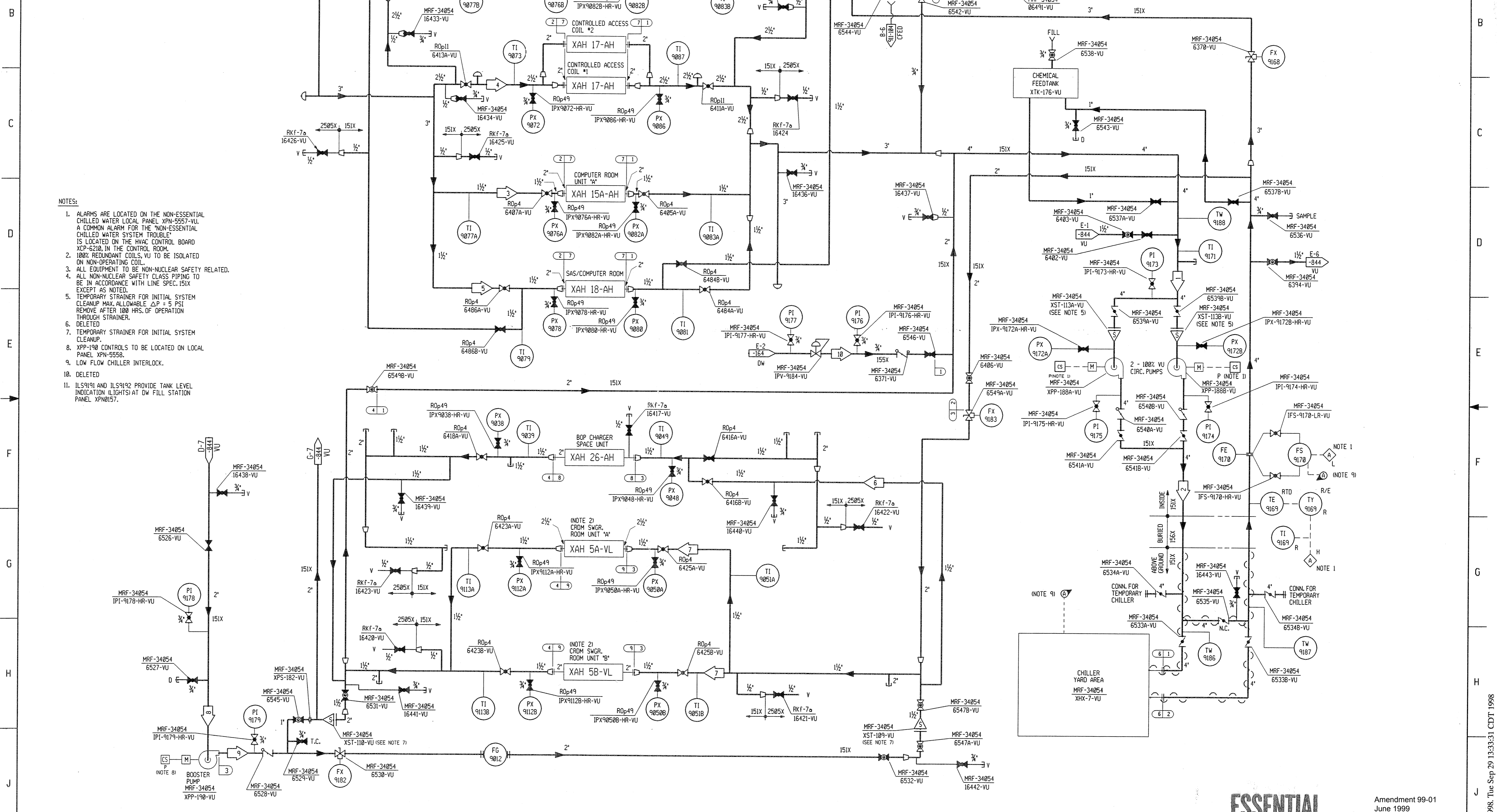
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5	10/03/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
4	10-05-93	SRM	REVISED PER MRF-21475	MGR	RLJ

ESSENTIAL

NO.	DATE	BY	REVISION	CRD. BY	APPROVAL
1					
2					
3					
4					
5					
6					



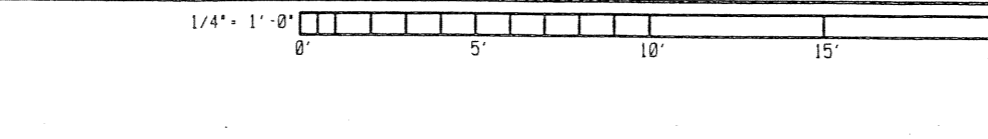
SYSTEM DATA					
#	GPM	PSIG	°F	BY	REMARKS
1	263	33	55	DJC	
2	263	93	55	DJC	
3	30	33	45	DJC	
4	130	25	45	DJC	
5	11	35	45	DJC	
6	16	64	45	DJC	
7	46	28	45	DJC	
8	49	36	45	DJC	BACKUP COOLING TO CROM COILS
9	49	100	45	DJC	BACKUP COOLING TO CROM COILS
10	15	45	90	DJC	DEMIN WTR MAKEUP (INTERMIT. FLOW)



- NOTES:
- ALARMS ARE LOCATED ON THE NON-ESSENTIAL CHILLED WATER LOCAL PANEL XPN-5557-VU. A COMMON ALARM FOR THE "NON-ESSENTIAL CHILLED WATER SYSTEM TROUBLE" IS LOCATED ON THE HVAC CONTROL BOARD XCP-6210, IN THE CONTROL ROOM.
 - 100% REDUNDANT COILS, VU TO BE ISOLATED ON NON-OPERATING COIL.
 - ALL EQUIPMENT TO BE NON-NUCLEAR SAFETY RELATED.
 - ALL NON-NUCLEAR SAFETY CLASS PIPING TO BE IN ACCORDANCE WITH LINE SPEC. ISIX EXCEPT AS NOTED.
 - TEMPORARY STRAINER FOR INITIAL SYSTEM CLEANUP MAX. ALLOWABLE ΔP = 5 PSI REMOVE AFTER 100 HRS. OF OPERATION THROUGH STRAINER.
 - DELETED.
 - TEMPORARY STRAINER FOR INITIAL SYSTEM CLEANUP.
 - XPP-190 CONTROLS TO BE LOCATED ON LOCAL PANEL XPN-5558.
 - LOW FLOW CHILLER INTERLOCK.
 - DELETED.
 - ILS9191 AND ILS9192 PROVIDE TANK LEVEL INDICATION (LIGHTS) AT DW FILL STATION PANEL XPN0157.

#	PSIG	°F	PSIG	°F	DURA.	HY-DRG	BY	CHKD	REMARKS
9	82	55	-	-	-	-	DJC		DESIGN PRESSURE CORRECTED FOR COIL ELEVATION
8	105	55	-	-	-	-	DJC		DESIGN PRESSURE CORRECTED FOR COIL ELEVATION
7	80	55	-	-	-	-	DJC		DESIGN PRESSURE CORRECTED FOR COIL ELEVATION
6	100	45	-	-	-	-	DJC		DESIGN PRESSURE CORRECTED FOR COIL ELEVATION
5	ATM	AMB	-	-	-	-	DJC	DVR	
4	110	55	120	55	1%	-	DJC	DVR	
3	110	45	120	45	1%	-	DJC	DVR	
2	110	45	-	-	-	-	DJC	DVR	
1	110	55	-	-	-	-	DJC	DVR	

#	PSIG	°F	PSIG	°F	DURA.	HY-DRG	BY	CHKD	REMARKS
	NORMAL	UPSET							



HOLD
Use with reference to
ECR No. 50587
DATE: 3-13-01
INITIALS: CVT

ESSENTIAL

Amendment 99-01
June 1999

FSAR Figure 9.4-34

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMNER NUCLEAR STATION

PIPING SYSTEM FLOW DIAGRAM

NON-NUCLEAR SAFETY

CHILLED WATER SYSTEM

DESIGN ENGINEERING

2	3/24/98	DDJ	REVISED PER CGSS-98-0428	MGR	JEG
1	10/17/97	AVN	REVISED PER CGSS-97-0579	LEK	MGR
0	02/09/94	AVN	ISSUED PER MRF-34054	MGR	DJC

DATE: 3-13-01

NO. DATE BY REVISION

CHD. BY APPROVAL

DRAWING NUMBER: D-302-845

SHEET NUMBER: 2

302845_0001

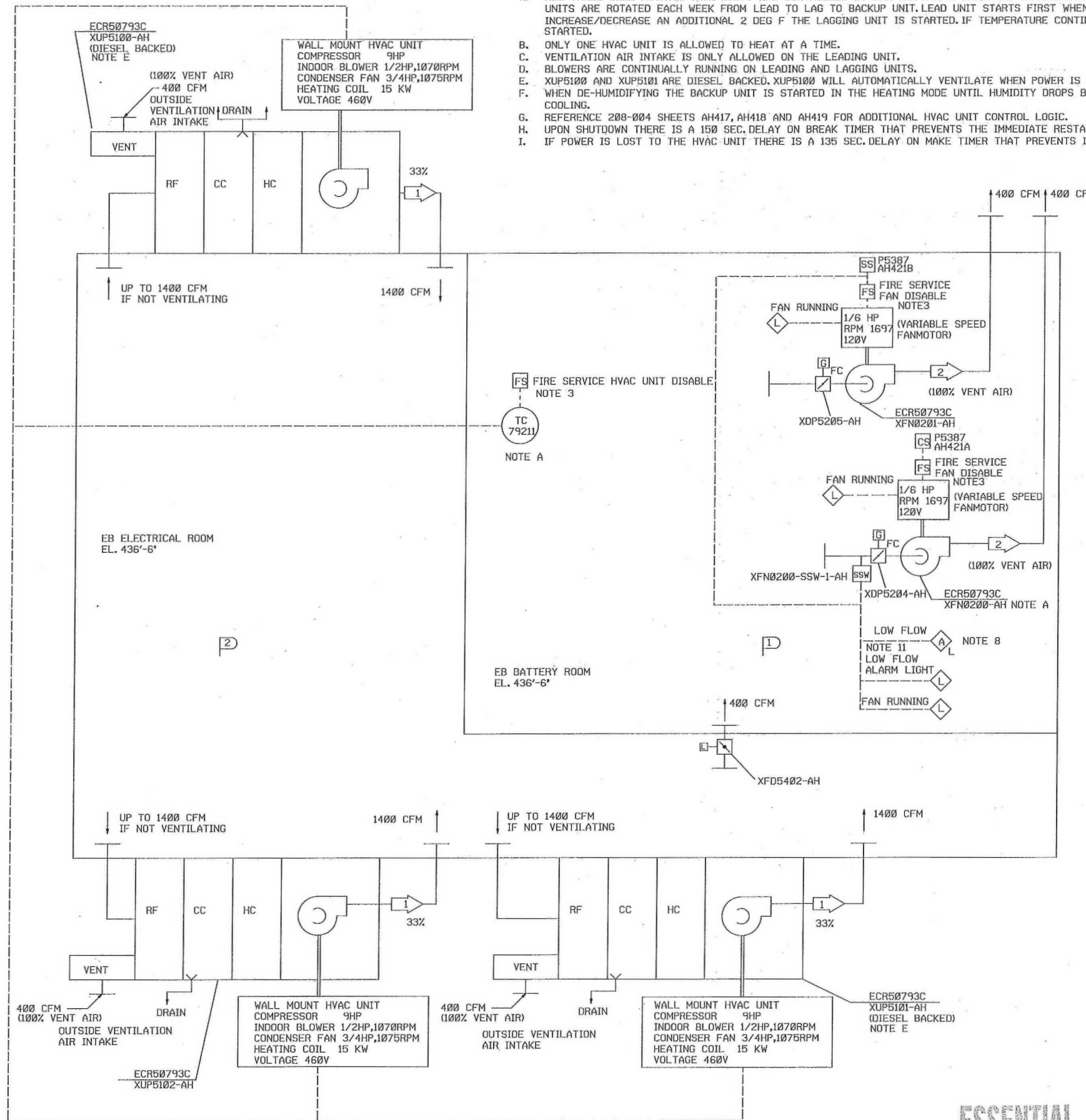
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SYSTEM OPERATING DATA NOTE 10

	AIR FLOW CFM	AIR TEMP. ° F
1	1400	45/90
2	400	65/77

HVAC UNIT OPERATION NOTES:

- ALL THREE WALL MOUNTED HVAC UNITS ARE CONTROLLED BY ITC79211 (TEC40 LEAD/LAG THERMOSTAT). LEAD LAG CONTROL ALLOWS ALL UNITS TO OPERATE WITH BALANCED RUN TIMES. UNITS ARE ROTATED EACH WEEK FROM LEAD TO LAG TO BACKUP UNIT. LEAD UNIT STARTS FIRST WHEN ROOM TEMP. SETPOINT IS EXCEEDED. IF TEMPERATURE CONTINUES TO INCREASE/DECREASE AN ADDITIONAL 2 DEG F THE LAGGING UNIT IS STARTED. IF TEMPERATURE CONTINUES TO INCREASE/DECREASE YET AN ADDITIONAL 2 DEG F THE BACKUP UNIT IS STARTED.
- ONLY ONE HVAC UNIT IS ALLOWED TO HEAT AT A TIME.
- VENTILATION AIR INTAKE IS ONLY ALLOWED ON THE LEADING UNIT.
- BLOWERS ARE CONTINUALLY RUNNING ON LEADING AND LAGGING UNITS.
- XUP5100 AND XUP5101 ARE DIESEL BACKED. XUP5100 WILL AUTOMATICALLY VENTILATE WHEN POWER IS PROVIDED BY DG.
- WHEN DE-HUMIDIFYING THE BACKUP UNIT IS STARTED IN THE HEATING MODE UNTIL HUMIDITY DROPS BELOW SETPOINT. DE-HUMIDIFICATION IS DISABLED IF THE LAGGING UNIT IS COOLING.
- REFERENCE 208-004 SHEETS AH417, AH418 AND AH419 FOR ADDITIONAL HVAC UNIT CONTROL LOGIC.
- UPON SHUTDOWN THERE IS A 150 SEC. DELAY ON BREAK TIMER THAT PREVENTS THE IMMEDIATE RESTART OF THE COMPRESSOR.
- IF POWER IS LOST TO THE HVAC UNIT THERE IS A 135 SEC. DELAY ON MAKE TIMER THAT PREVENTS IMMEDIATE RESTART OF THE COMPRESSOR.



GENERAL NOTES:

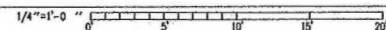
- ONLY XUP5100 AND XUP5101 ARE DIESEL BACKED.
- ALL FANS ARE BACKED BY EB DIESEL GENERATORS.
- IF A FIRE IS DETECTED IN ELECTRICAL OR BATTERY ROOM ALL HVAC UNITS AND VENTILATION FANS ARE STOPPED.
- IF A FIRE IS DETECTED IN DG ROOM ALL FANS ARE STOPPED AND DG IS STOPPED.
- ALL CONTROL RELAYS ARE LOCATED IN XPN5387.
- FAN CONTACTORS ARE LOCATED IN XPN5391.
- BATTERY ROOM DOES NOT HAVE TO BE KEPT BETWEEN 60 AND 77 DEG F AFTER THE BATTERIES HAVE DISCHARGED (AFTER DG HAS STARTED). ACCEPTABLE EMERGENCY TEMPERATURE RANGE INCREASES TO 54-95 DEG F.
- HVAC ALARMS ARE INDICATED ON XPN5387. GENERAL 'EB HVAC TROUBLE ALARM' IS INDICATED ON TEMP MONITORING SYSTEM AND ANNUNCIATED IN MAIN CONTROL ROOM. SEE 208-004 SH. AH422 PAGE C.
- REFERENCE 208-004 SHEETS AH417 THROUGH AH423 FOR HVAC UNIT AND FAN CONTROL LOGIC AS WELL AS ALARMS.
- REFERENCE DC07690-010 ISFSI ELECTRICAL BUILDING HVAC CALCULATION FOR ADDITIONAL INFORMATION.
- LOW AIRFLOW ALARMS HAVE A 20 SECOND ON DELAY TO PREVENT FALSE ALARMS WHEN THE FANS ARE STARTED.

*EMERGENCY CONDITION EXISTS WHEN NORMAL POWER IS LOST AND DG IS PROVIDING POWER

SYSTEM DESIGN DATA

	AREA AIR FLOW CFM	AREA AIR TEMP. ° F	AREA EMERGENCY* AIR TEMP. ° F
2	400	65/75	54/95
1	400	60/77	54/95

NOTE 10



ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY RELATED

DRAWING CLASS LEGIBILITY 1

FSAR Figure 9.4-35 SH. 1

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMNER NUCLEAR STATION
BUILDING SERVICE - SYSTEM FLOW DIAGRAM
EB HVAC - ELECTRICAL AND BATTERY ROOM

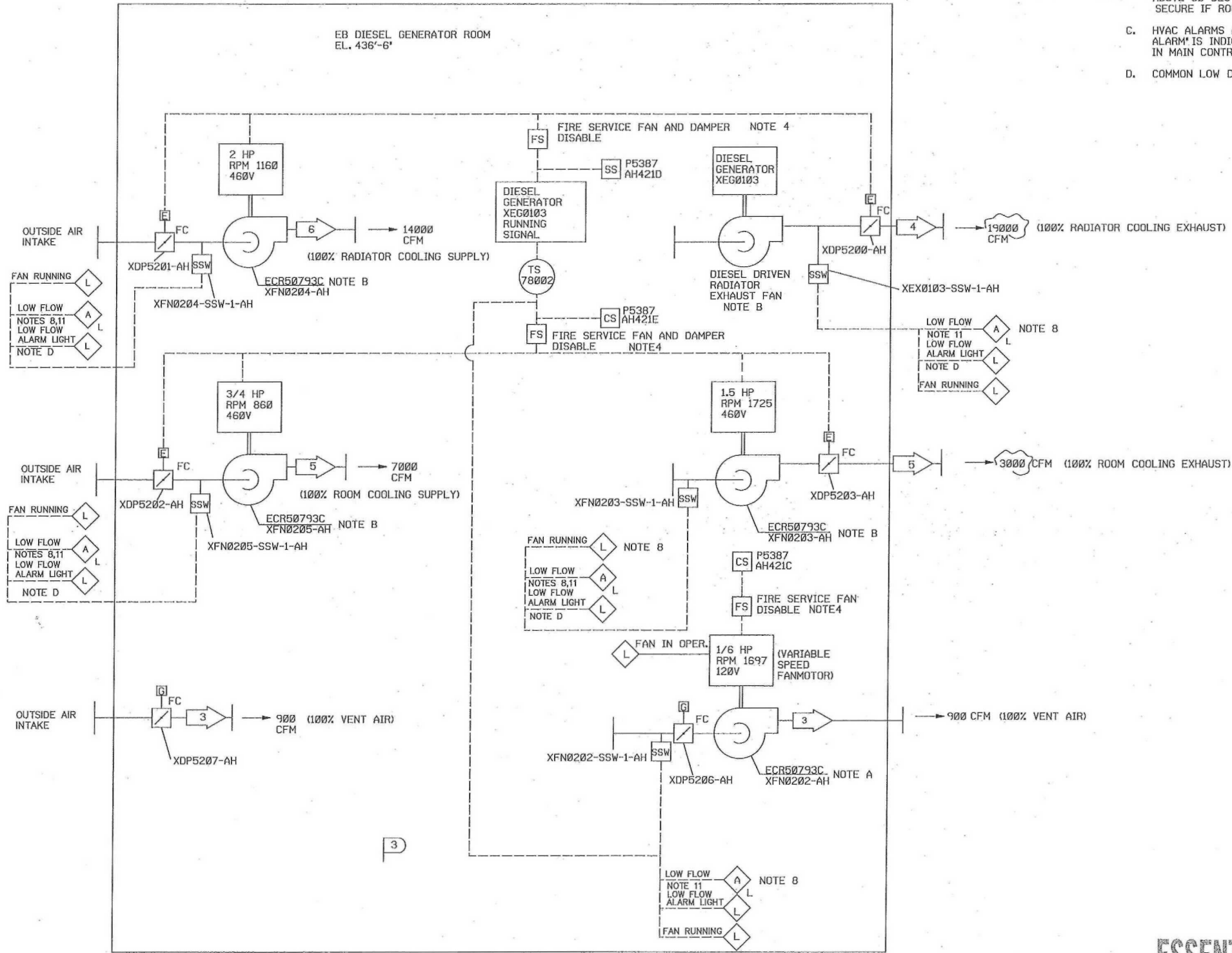
DESIGN ENGINEERING			
NO.	DATE	BY	REVISION
0	2/3/15	JMR	ISSUED PER ECR-50753

ESSENTIAL

SYSTEM OPERATING DATA NOTE 10

AREA	AIR FLOW CFM	AIR TEMP. °F
3	980	19-120
4	19000	95-200
5	3000	19/120
6	14000	19/95

- FAN OPERATION NOTES:
- VENTILATION FANS XFN0200 AND XFN0202 OPERATE AT ALL TIMES. IF A LOSS OF FLOW IS DETECTED AN ALARM IS GENERATED AND ADDITIONAL FANS ARE STARTED AUTOMATICALLY.
 - XFN0204 STARTS AUTOMATICALLY WHEN XEG0103 IS STARTED. XFN0203 AND XFN0205 WILL START AUTOMATICALLY IF DG ROOM TEMPERATURE INCREASES ABOVE 80 DEG F AND DG IS RUNNING. XFN0203 AND XFN0205 WILL SECURE IF ROOM TEMPERATURE DROPS BELOW 60 DEG F.
 - HVAC ALARMS ARE INDICATED ON XPN5387. GENERAL 'EB HVAC TROUBLE ALARM' IS INDICATED ON TEMP MONITORING SYSTEM AND ANNUNCIATED IN MAIN CONTROL ROOM.
 - COMMON LOW DG COOLING FLOW ALARM LIGHT ON XPN5387.



- FAN RUNNING L
- LOW FLOW NOTES 8,11 L
- LOW FLOW ALARM LIGHT L
- NOTE D L

- FAN RUNNING L
- LOW FLOW NOTES 8,11 L
- LOW FLOW ALARM LIGHT L
- NOTE D L

- LOW FLOW NOTE 11 L
- LOW FLOW ALARM LIGHT L
- NOTE D L
- FAN RUNNING L

- LOW FLOW NOTE 11 L
- LOW FLOW ALARM LIGHT L
- FAN RUNNING L

GENERAL NOTES (1-11):
SEE SHEET 1

ESSENTIAL

ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY RELATED.

DRAWING CLASS LEGIBILITY 1

FSAR Figure 9.4-35 SH. 2

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGL C. SUMNER NUCLEAR STATION
BUILDING SERVICE SYSTEM FLOW DIAGRAM
EB HVAC DGI ROOM

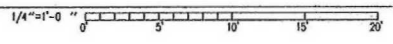
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0	2/3/15	JMR	ISSUED PER ECR-50793

NO.	DATE	BY	REVISION	CHKD. BY	APPROVAL
1	4/20/15	JTS	REVISED PER ECR-50793C	MGR	RS
0	2/3/15	JMR	ISSUED PER ECR-50793	MGR	RS

SYSTEM DESIGN DATA NOTE 10

AREA	AIR FLOW CFM	AIR TEMP. °F	EMERGENCY AIR TEMP. °F
3	980/21,900	19/120	19/120

*EMERGENCY CONDITION EXISTS WHEN NORMAL POWER IS LOST AND DG IS PROVIDING POWER

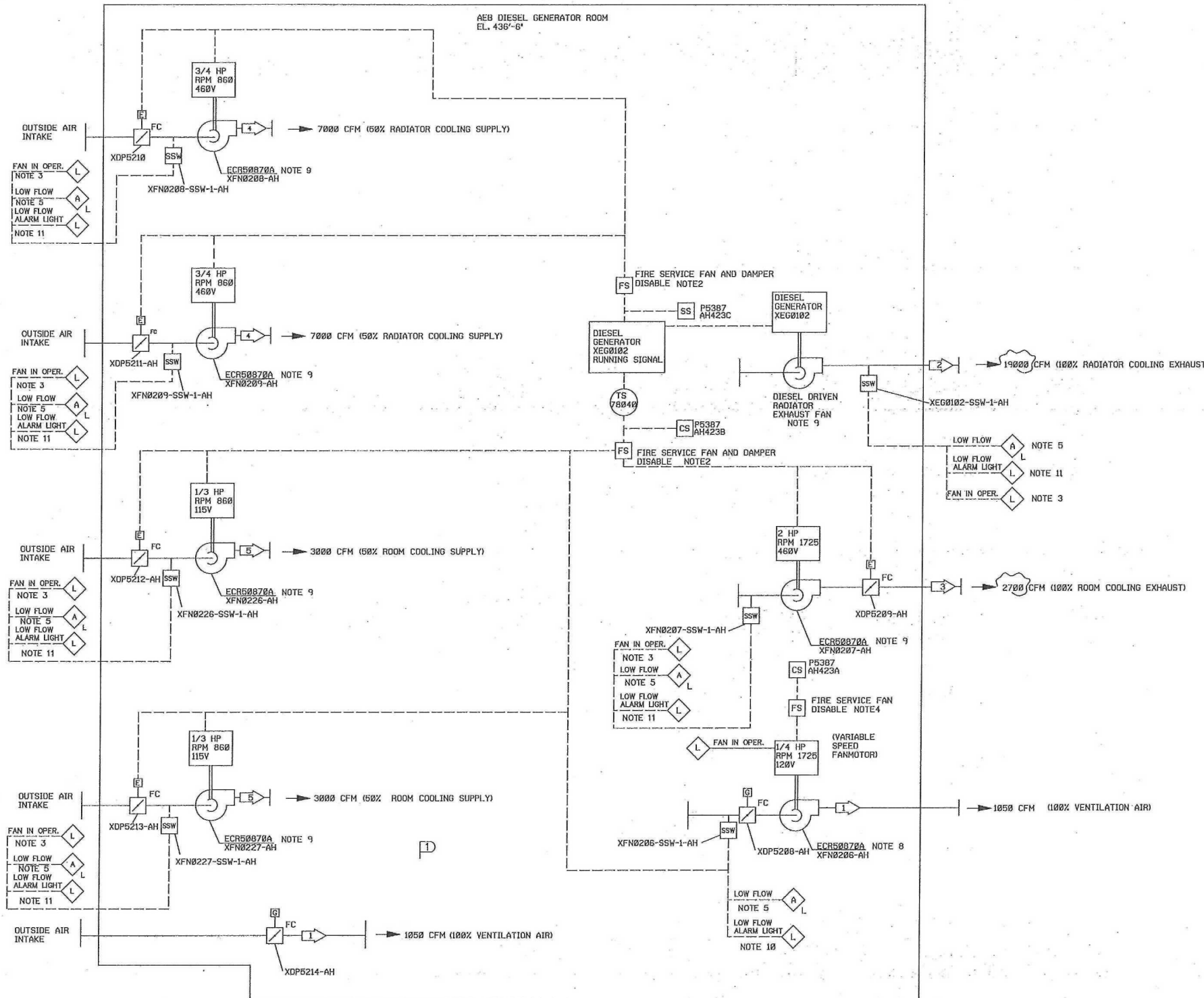


SYSTEM OPERATING DATA NOTE 7

ID	AREA	AIR FLOW CFM	AIR TEMP. F
1	1050	19/122	
2	1900	19/226	
3	2700	19/122	
4	7000	19/95	
5	3000	19/95	

FAN OPERATION NOTES:

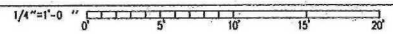
1. ALL FANS ARE BACKED BY EB/AEB DIESEL GENERATORS.
2. IF A FIRE IS DETECTED IN AEB DG ROOM ALL FANS ARE STOPPED AND AEB DG IS STOPPED.
3. FAN RUNNING STATE IS SHOWN ON XPN5387, FAN CONTROL RELAYS ARE LOCATED IN XPN5387.
4. FAN CONTACTORS ARE LOCATED IN XPN5607.
5. FAN LOW FLOW ALARMS ARE INDICATED ON XPN5387, GENERAL 'EB HVAC TROUBLE ALARM' IS INDICATED ON TEMP MONITORING SYSTEM AND ANNUNCIATED IN MAIN CONTROL ROOM, SEE 200-004 SH, AH422 PAGE C.
6. REFERENCE 200-004 SHEETS AH422 THROUGH AH423 FOR FAN CONTROL LOGIC AS WELL AS ALARMS.
7. REFERENCE DC07690-010 ISFSI ELECTRICAL BUILDING HVAC CALCULATION FOR ADDITIONAL INFORMATION.
8. VENTILATION FAN XFN0206 OPERATES AT ALL TIMES, IF A LOSS OF FLOW IS DETECTED AN ALARM IS GENERATED AND ADDITIONAL FANS ARE STARTED AUTOMATICALLY.
9. XFN0208 AND XFN0209 START AUTOMATICALLY WHEN XEG0130 IS STARTED, XFN0207, XFN0226 AND XFN0227 WILL START AUTOMATICALLY IF DG ROOM TEMPERATURE INCREASES ABOVE 80 DEG F AND DG IS RUNNING.
10. LOW AEB DG ROOM VENTILATION AIR FLOW ALARM LIGHT INDICATED ON XPN5387.
11. COMMON LOW AEB DG COOLING FLOW ALARM LIGHT ON XPN5387
12. LOW AIRFLOW ALARMS HAVE A 20 SEC. ON DELAY TO PREVENT FALSE ALARMS WHEN THE FANS ARE STARTED.



SYSTEM DESIGN DATA NOTE 7

ID	AREA	AIR FLOW CFM	AREA AIR TEMP. F	AREA EMERGENCY AIR TEMP. F
1	1050/21,050	19/122	19/122	

*EMERGENCY CONDITION EXISTS WHEN NORMAL POWER IS LOST AND DG IS PROVIDING POWER NOTE 1



ESSENTIAL

DRAWING CLASS LEGIBILITY I

FSAR Figure 9.4-36			
SOUTH CAROLINA ELECTRIC & GAS COMPANY			
VEROL C. SUMNER NUCLEAR STATION			
BUILDING SERVICE SYSTEM FLOW DIAGRAM			
AEB DG2 ROOM HVAC			
DESIGN ENGINEERING			
DATE	BY	CHECKED	APPROVAL
1 4/28/15	JMS	REVISOR	MGR
0 2/3/15	JMR	ISSUED PER ECR-50870A	MGR
NO. DATE BY REVISION		CKD. BY APPROVAL	
D-912-193		1	