SYS. OPER. DATA		
	AIR FLOW (SCFM)	AIR TEMP. °F
1	21270	≅ 56.3
2	4700	≅ 56.3
3	4860	≅ 56.3
4	10760	≅ 56.3
5	950	≅ 56.3
6	12860	≅ 85
7	1150	≅ 56.3
8	8900	≅ 85°
9	19420	≅ 75°
10 ✳	1000	19°-95°
11	850	——
12	2700	≅55°

✳SEE NOTE 6

SAFETY CLASS VERIFICATION

NOTES:
1. EXCEPT WHERE NOTED OTHERWISE ALL ALARMS & INDICATING LIGHTS ARE LOCATED ON THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL RM.
2. (f) INDICATES INSTR. IS FURNISHED WITH EQUIPMENT
3. HEATING COILS INCLUDE OVERTEMP. & LOW FLOW PROTECTIVE DEVICES
4. FOR SAFETY CLASSIFICATION OF INSTRUMENTS, SEE INSTRUMENT LIST.

'NOTES CONT. AT D-14'

(C) ESF LOADING SEQ. OR HIGH RADIATION SIGNAL STARTS FANS FOR RECIRCULATION MODE OF VENTILATION.

(A) 'A' CHANNEL SI SIGNAL OR HIGH RADIATION (RM-A1), DE-ENERGIZES SOLENOID VALVES

(B) 'B' CHANNEL SI SIGNAL OR HIGH RADIATION (RM-A1) DE-ENERGIZES SOLENOID VALVES

	AIR FLOW (SCFM)	AIR TEMP. °F	AIR FLOW (SCFM)	AIR TEMP. °F	AIR FLOW (SCFM)
8	2700	≅55°	——	——	——
7	1000	19° - 95°	1000	19° - 95°	1000
6	19420	≅ 75°	20270	≅ 75°	0
5	0	——	0	——	20420
4	19420	≅ 75°	20270	≅ 75°	20420
3	0	——	21270	≅ 75°	0
2	21270	≅ 75°	0	——	21270
1	——	——	——	——	20270
P	NORMAL		EMERGENCY		PURGE

SYSTEM DESIGN DATA

SEE NOTE 6

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

1/4"= 1'-0" (0' 5' 10' 15' 20')

SYSTEM IS NNS

ALL SYSTEM COMPONENTS ARE SAFETY CLASS 2b, EXCEPT HEATING COILS & HUMIDIFIERS (NNS) AND COMPONENTS NOTED OTHERWISE

ESSENTIAL

DRAWING LEGIBILITY CLASS 1 — SCE&G CAD ENHANCED

RN 02-012
May 2002

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
29	3/26/02	TGB	REVISED PER ECR-70125	MGR	FSM
28	8/1/96	DDJ	REVISED PER MRF-22288	MGR	DDK
27	11/2/94	RHM	REVISED PER MRF-22009	MGR	JMG
26	8/27/92	DDJ	REVISED PER CGSS-28826-DE	SRM	DJC

FSAR FIGURE 9.4-1

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM
CONTROL ROOM
NORMAL AND EMERGENCY AIR HANDLING SYST

SCE&G A SCANA COMPANY — DESIGN ENGINEERING
V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
1. DDJ	2. SRM	3. DJC

SCALE: NO SCALE — D-912-140 — 29
DRAWING NUMBER — SHT. NUMBER — REV

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	10/4/94
REVIEWED BY	10/4/94

RELAY ROOM COOLING SYSTEM - CONTROL BUILDING

COMPUTER ROOM COOLING SYSTEM - CONTROL BUILDING

SYSTEM DESIGN DATA

	AIR FLOW CFM	
1	9500	
2	3400	
3		
4		

- 'A' CHANNEL SIGNAL (S1) OR HI-RAD SIGNAL DE-ENERGIZES SOLENOID VALVES.
- 'B' CHANNEL SIGNAL (S1) OR HI-RAD SIGNAL DE-ENERGIZES SOLENOID VALVE.
- ESFLS SIGNAL STARTS FAN.
- ESF SIGNAL BLOCKS FAN OPERATION.

RELAY ROOM COMPONENTS ARE SAFETY CLASS 2b.

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

NOTE:

1. HEATING COIL INCLUDES OVERTEMP AND LOW FLOW PROTECTIVE DEVICES.
2. (f) INDICATES DEVICE IS FURNISHED WITH EQUIPMENT.
3. FOR SAFETY CLASSIFICATION OF INSTRUMENTS, SEE INSTRU. LIST.
4. COIL FACE DAMPERS FAIL OPEN AND COIL BYPASS DAMPERS FAIL CLOSED.
5. EXCEPT WHERE NOTED OTHERWISE ALL ALARMS AND INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM.
6. ALL DUCTWORK IDENTIFIED AS QR TO BE PER QRP 4.
7. 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.

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

ESSENTIAL

Amendment 02-01
May 2002

DRAWING CLASS LEGIBILITY 1

FSAR Figure 9.4-2

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM

RELAY AND COMPUTER ROOM

COOLING SYSTEM

DESIGN ENGINEERING

A SCANA COMPANY — V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
1. ACI	2. RHM	3. DJC

SCALE NO SCALE — D-912-136 — 22 (DRAWING NUMBER / SHT. NUMBER / REV)

NO.	DATE	BY	REVISION	CKD. BY	LE 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

912136_0001.m RM15043 Tuesday September 25 2001 02:16:43 PM EDT

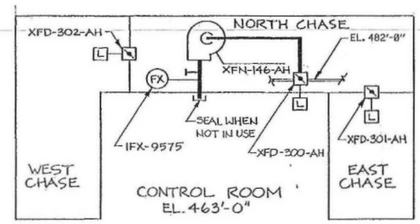
SYS. OPER. DATA		
	AIR FLOW CFM	AIR TEMP °F
1	10700	45/95
2	2815	55/85
3	2420	55/85
4	3405	55/85
5	2300	55/85
6	5015	19/115
7	700	75
8	700	50.2
9	150 SUMMER 180 WINTER	55/85 WATER TEMP
10	150 SUMMER 0 WINTER	55/85 WATER TEMP
11	4568	55/95
12	9545	19/95
13	11158	60/90

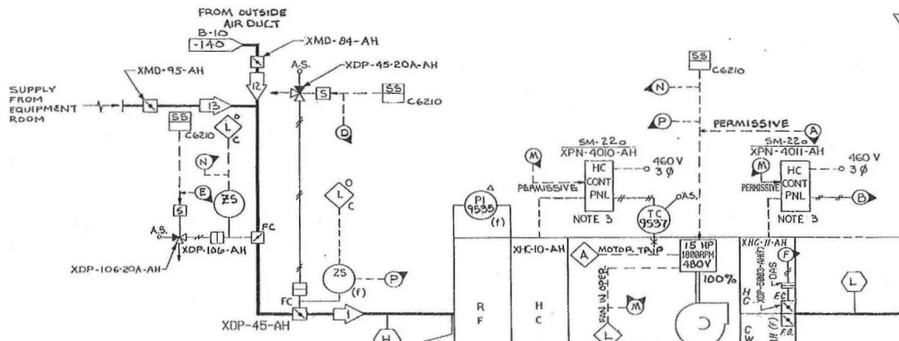
SAFETY CLASS VERIFICATION

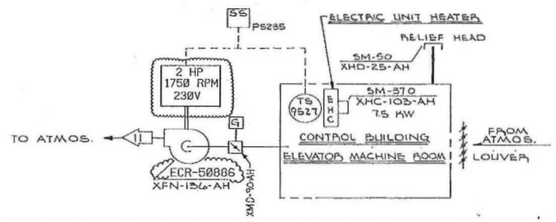
ORIGINATED BY	DD L. Nl 12/10/06
REVIEWED BY	W.O. Stiefel 12/19/06

1	10700	
D	AIR FLOW CFM	

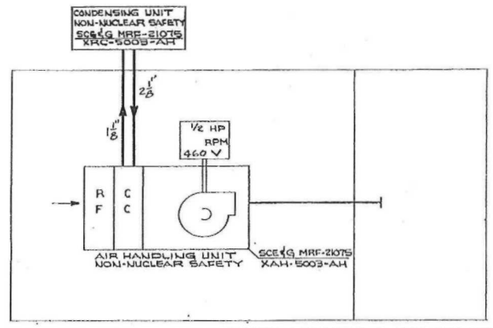
SYS. DESIGN DATA



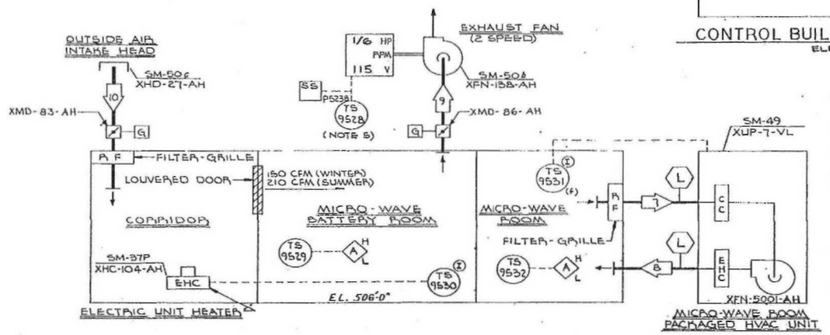




CONTROL BUILDING ELEVATOR MACHINE ROOM EXHAUST
N.N.S.



CONTROL BUILDING AIR HANDLING UNIT & CONDENSER
ELEV. 425'-0"



MISCELLANEOUS ROOMS - VENTILATING, COOLING, & HEATING SYSTEMS
N.N.S.

(A) XFN-28A-AH OR XFN-28B-AH MUST BE RUNNING.

(C) LAB HOOD EXHAUST FAN XFN-87A-AH OR XFN-87B-AH MUST BE RUNNING.

(D) 'A' CHANNEL SI SIGNAL CLOSES DAMPER

(E) 'B' CHANNEL SI SIGNAL CLOSES DAMPER

NOTE:
1. EXCEPT WHERE NOTED OTHERWISE ALL ALARMS & INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-8210-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 SCE&G QRP FOR HVAC DUCTS AND SUPPORTS"

ESSENTIAL
RN 15018

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

ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY EXCEPT AS NOTED

PENDING/HOLD CHG
Use with reference to
ECR: 50481
DATE: 8-29-07
INITIALS: CVT

DRAWING CLASS LEGIBILITY I

NO.	DATE	BY	REVISION	CKD. BY	APPROVAL
21	10/19/2016	JTS	REVISED PER ECR-50886	RHM	KD
20	7/28/04	RHM	REVISED PER ECR-50437	MGR	TOC
19	3/12/03	DDJ	REVISED PER ECR-50437	MGR	TOC
18	10/03/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
17	10/29/92	ACI	REVISED PER MRF-34054	RHM	DJC

FSAR Figure 9.4-3

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM

CONTROLLED ACCESS

SUPPLY COOLING SYSTEM

DESIGN ENGINEERING

A SCANA COMPANY — V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
ACI	RHM	DJC

SCALE: NO SCALE

D-912-144

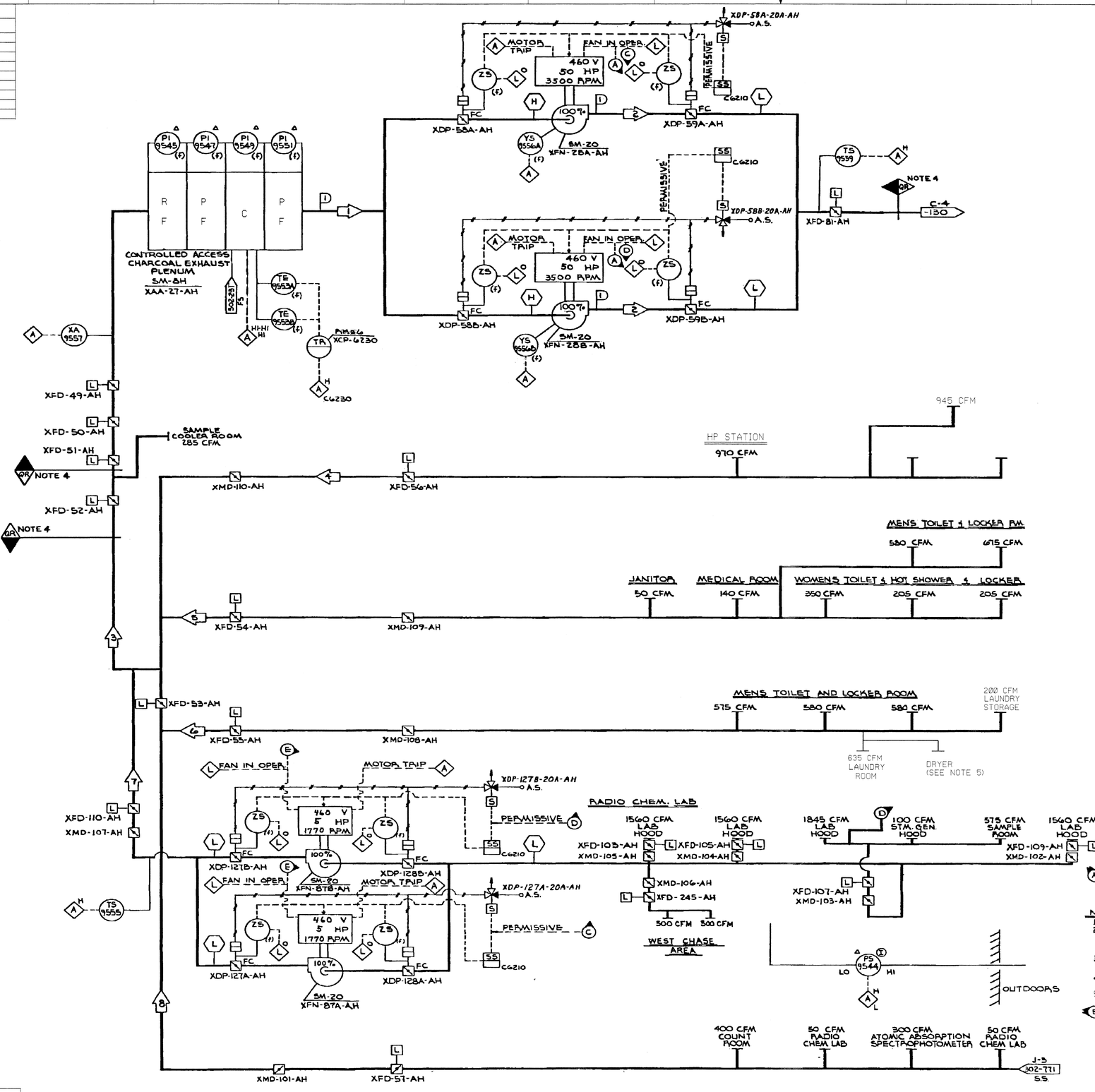
DRAWING NUMBER

21

SHT. NUMBER | REV

1/4"=1'-0" (0' 5' 10' 15' 20')

SYS. OPER. DATA			
NO.	AIR FLOW CFM		
1	16,000		
2	16,000		
3	15,715		
4	1915		
5	2205		
6	2570		
7	8225		
8	820		
9	25		



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

(E) PERMISSIVE FOR LAB HOOD SUPPLY FAN XFN-55-AH

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

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

ALL SYSTEM COMPONENTS ARE NON NUCLEAR SAFETY

SYS. DESIGN DATA		
NO.	AIR FLOW CFM	
1	16,000	
D		

1/4"=1'-0" (0' 5' 10' 15' 20')

RN 02-042
June 2003

DRAWING LEGIBILITY: CLASS 1
SCE&G CAD ENHANCED

HOLD
Use with reference to
ECR NO: 50137
DATE: 9/20/02
INITIALS: JDW

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
17	9/17/02	DDJ	REVISED PER ECR-70249	MGR	DKW
16	10/31/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
15	05/27/96	JTS	REVISED PER MRF-21546C	LEK	MGR

ESSENTIAL

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

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION
BUILDING SERVICE SYSTEM FLOW DIAGRAM
CONTROL BUILDING
CONTROL ACCESS EXHAUST
DESIGN ENGINEERING
A SCANA COMPANY
V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
1. JTS	2. LEK	3. MGR

SCALE: NO SCALE
D-912-147
DRAWING NUMBER
SHT. NUMBER: 17
REV:

SYS. OPER. DATA		
	AIR FLOW CFM	
1	1900	
2	380	
3	1520	
4	3425	
5	1550	
6	1875	

SAFETY CLASS VERIFICATION
ORIGINATED BY [illegible] 10/14/126
REVIEWED BY W. O. Sewell 10/14/126

FROM CONTROL BLDG. O.A. DUCT INLET
B-3
-140
J-13
-136
K-13
-136
XDP-129-20A-AH
XDP-129-AH
XDP-96-20A-AH
XDP-96-AH
XDP-131-AH
HC 9568
IY 9568
ZS
FT 9560
FI 9560
RELIEF TO CONTROL BLDG. EQUIPMENT ROOM
XDP-98-AH
FAN IN OPER.
FAN ON INTERLOCK
SS C6210
MOTOR TRIP
5 HP
3450 RPM
460V
TC 9562
XDP-104-AH
SM-8n
XFL-51-AH
XMD-122-AH
SEE NOTE 1
SM-7o
XHC-18-AH
XFN-84-AH
COMPUTER ROOMS & SAS ROOM COOLING UNIT
EL. 482'-0"
SM-22P
XAH-18-AH
PI 9561
E-9 302-845 VU
E-9 302-845 VU
SM-7o
XPN-4018-AH
H C CONT. PANEL
460V 3 ϕ
TS 9565
XFD-60-AH
XFD-59-AH
XFD-58-AH
XFD-270-AH
550 CFM
1900 CFM
1050 CFM
XFD-293-AH
XFD-296-AH
XFD-294-AH
1325 CFM
TS 9996
COMPUTER ROOM B
TC 9567
TS 9569
XFD-297-AH
550 CFM
COMPUTER ROOM A
1875 CFM
XFD-295-AH
1300 CFM EXFILTRATION TO OTHER SPACES
1300 CFM INFILTRATION FROM OTHER SPACES
EL. 482'-0"
XFD-67-AH
EL. 463'-0"
XFD-66-AH
EL. 448'-0"
XFD-65-AH
XFD-61-AH
XMD-242-AH
XFD-291-AH
250 CFM
550 CFM
1900 CFM
SAS ROOM
2 HP
1750 RPM
460 V
1550 CFM
SM-100
XFL-101-AH
SM-100
XFN-159-AH
XMD-241-AH
SM-100
XAH-51-AH
SIGHT GLASS FILTER DRYER
CONDENSING UNIT XRC-24-AH
SUCTION
LIQUID

COMPUTER ROOMS & SAS ROOM COOLING UNIT

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

NOTES:
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 QR TO BE PER TRP-31

1	1900	55.5
ⓟ I	AIR FLOW CFM	AIR TEMP °F
SYS DESIGN DATA		

1/4"=1'-0" (0' 5' 10' 15' 20')

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

ESSENTIAL

DRAWING LEGIBILITY CLASS 1 SCE&G CAD ENHANCED

Amendment 02-01
May 2002

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
15	10/04/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
14	11/17/93	AVN	REVISED PER MRF-34054	MGR	DJC
13	04/27/93	JMH	REVISED PER CGSS-93-0328	DVW	CAA

FSAR Figure 9.4-5

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION
BUILDING SERVICE SYSTEM FLOW DIAGRAM
COMPUTER ROOMS & SAS ROOM COOLING UNIT

A SCANA COMPANY — DESIGN ENGINEERING — V. C. SUMMER NUCLEAR STATION JENKINSVILLE S. C.

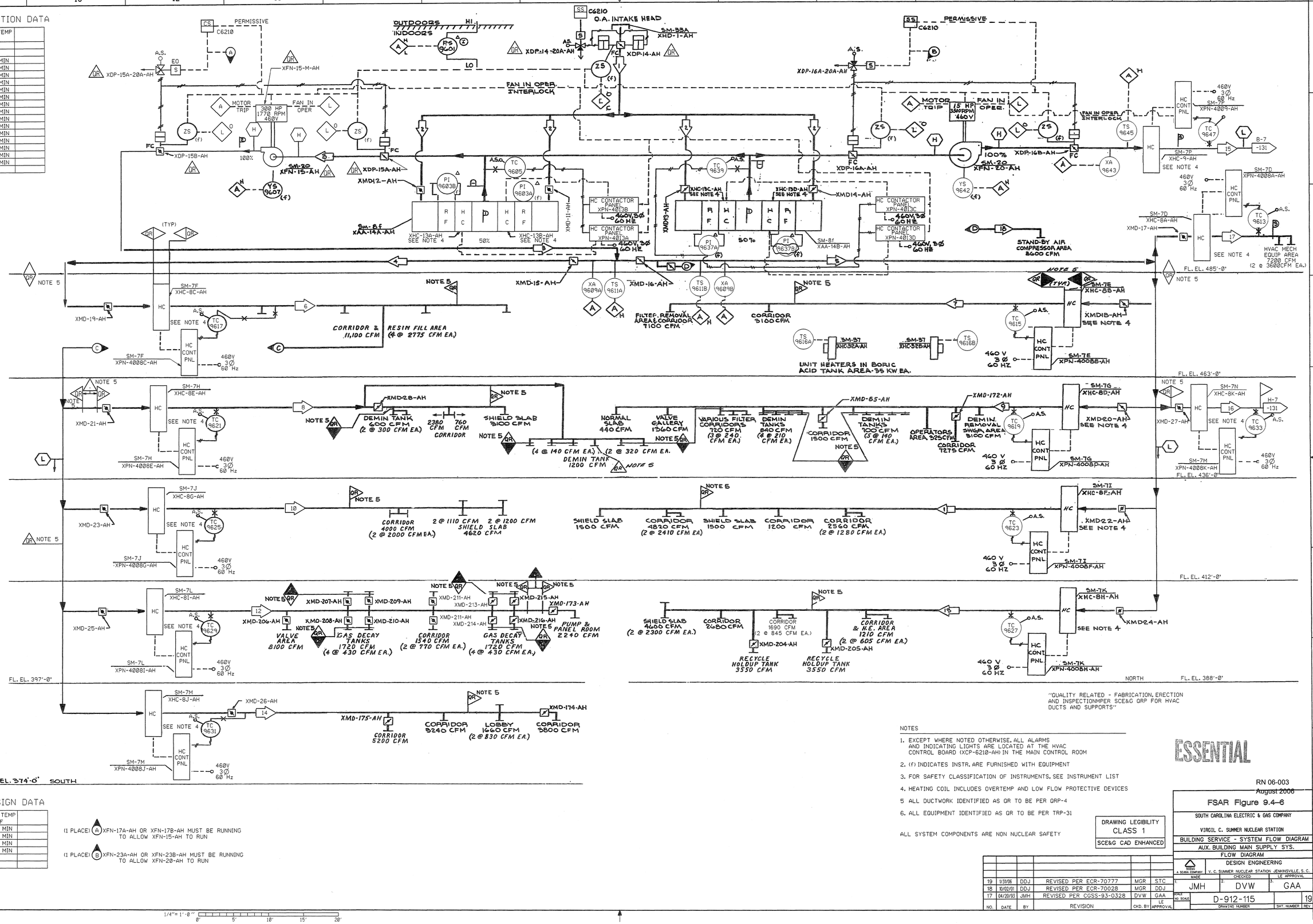
MADE	CHECKED	LE APPROVAL
1. ACI	2. RHM	3. DJC

SCALE: NO SCALE | DRAWING NUMBER: D-912-154 | SHT. NUMBER | REV: 15

\\ndeck\dcn8\912154_0001.dgn Oct. 04, 2001 08:35:55

SYSTEM OPERATION DATA

	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	13,980	65° MIN	
15	6,000	65° MIN	
16	17,500	65° MIN	
17	7,200	65° MIN	
18	3,600	-	



SYSTEM DESIGN DATA

	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

1/4"= 1'-0" 0' 5' 10' 15' 20'

"QUALITY RELATED - FABRICATION, ERECTION AND INSPECTIONMPER SCE&G QRP FOR HVAC DUCTS AND SUPPORTS"

NOTES

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

ALL SYSTEM COMPONENTS ARE NON NUCLEAR SAFETY

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

ESSENTIAL

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
19	1/31/06	DDJ	REVISED PER ECR-70777	MGR	STC
18	10/02/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
17	04/20/93	JMH	REVISED PER CCSS-93-0328	DVW	GAA

RN 06-003
August 2006

FSAR Figure 9.4-6

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION
BUILDING SERVICE - SYSTEM FLOW DIAGRAM
AUX. BUILDING MAIN SUPPLY SYS.
FLOW DIAGRAM

DESIGN ENGINEERING
SCE&G A SCANA COMPANY — V. C. SUMMER NUCLEAR STATION, JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
1. JMH	2. DVW	3. GAA

SCALE NO SCALE — D-912-115 — 19
DRAWING NUMBER — SHT. NUMBER — REV

SYSTEM OPER. DATA

	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	-	

F-12 130 — G-12 130

XDP-6A-20A-AH (QR) — O.A.S. — SS CG210

XDP-6A-AH (QR) — SM-20 XFN-24A-AH — 100% — XDP-7A-AH (QR) PERMISSIVE

TS 9656A — YS 9654A (F) — 50HP 1770 RPM 460V — MOTOR TRIP — FAN IN OPER

XDP-6B-20A-AH (QR) — ASO — YS 9654B (F) — PERMISSIVE — SS CG210

XDP-6B-AH (QR) — TS 9656B — SM-22 XFN-24B-AH — XDP-7B-AH (QR) FAN IN OPER.

SPLITTER DAMPER — XA 9655

PI 9649A (F) — PI 9651A (F) — PI 9651B (F) — PI 9649B (F)

HEPA OFF — HEPA ON

SM-8e XAA-41-AH 100%

HVAC MECH EQUIP. AREA 3750 CFM EACH

STAND-BY AIR COMPRESSOR AREA 1800 CFM EACH

(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 OW XFN-17A-AH OR XFN-17B-AH TO RUN

FL. EL. 485'-0"

B.T.R. CHILLER PUMPS 1350 CFM

XMD-30-AH — NOTE 4 — SAMPLE (8) — B-11 RMA11 806-003 RM

XFD-265-AH — XFD-266-AH — SPECIAL HIGH PRESSURE DUCT CONSTRUCTION WEST PENETRATION ACCESS AREA. — XMD-29-AH

CORRIDOR AREA 680 CFM — BLANKED OFF — INDUSTRIAL COOLER PUMPS AREA 3340 CFM — INDUSTRIAL COOLER PUMPS AREA 1750 CFM

BORIC ACID TANKS AREA 2690 CFM

FILTER REMOVAL HATCHES 1265 CFM EACH

WASTE MONITOR TANK AREA 250 CFM — WASTE MONITOR PUMP AREA 460 CFM — WASTE MONITOR TANK AREA 250 CFM

SAMPLE (11) — B-10 RMA11 806-003 RM

XMD-34-AH — NOTE 4

FL. EL. 463'-0"

XMD-31-AH — NOTE 4 — SAMPLE (9) — B-11 RMA11 806-003 RM

CATION DEMIN. REMOVAL AREA 340 CFM — BLOWDOWN MONITOR TK ROOM 460 CFM — 480V SWGR./ DEMIN. REMOVAL AREA 3100 CFM

FL. EL. 436'-0"

NOTE 4

S.F. FIT PURIFICATION PUMP 3060 CFM — WASTE EVAP. CONC. HOLD-UP TANK 430 CFM — WASTE EVAP. CONC. HOLD-UP TANK TRANS. PUMP 230 CFM — SPENT RESIN SLUICE PUMP 100 CFM — SPENT RESIN STORAGE TANKS 345 CFM EACH — NUCLEAR BLDG. SPENT RESIN SLUICING PPUMP 100 CFM

SAMPLE (12) — B-10 RMA11 806-003 RM

XMD-35-AH

FL. EL. 412'-0"

XMD-32-AH — NOTE 4 — EQUIPMENT HATCH AREA 380 CFM — CHASE 550 CFM — CHASE 550 CFM

FL. EL. 397'-0"

XMD-33-AH — SAMPLE (10) — B-11 RMA11 806-003 RM

REACTOR MAKE-UP WATER PUMPS 635 CFM — CHASE 605 CFM — FL. DRAIN TANK ROOM 710 CFM — FL. DRAIN PUMP ROOM 125 CFM — WASTE EVAP. FEED PUMP 130 CFM — CHEM DRAIN TANK AND PUMP 1390 CFM — COMP. COOLING DR TANK AND LAUNDRY AND HOT SHOWER TANK PUMP ROOM AREA 1390 CFM

FL. EL. 374'-0" SOUTH — NORTH — FL. EL. 388'-0"

SYSTEM DESIGN DATA

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

1/4"= 1'-0" 0' 5' 10' 15' 20'

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

NOTES:

1. EXCEPT WHERE NOTED OTHERWISE ALL ALARMS AND INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-6210) IN THE MAIN CONTROL ROOM.
2. (F) INDICATES INSTRU. IS FURNISHED WITH EQUIPMENT
3. FOR SAFETY CLASSIFICATION OF INSTRUMENTS, SEE INSTRUMENT LIST
4. ALL DUCTWORK IDENTIFIED AS QR TO BE PER QRP-4
5. ALL EQUIPMENT IDENTIFIED AS QR TO BE PER TRP-31

'QUALITY RELATED-FABRICATION AND INSPECTION PER SCE&G QRP FOR HVAC DUCTS AND SUPPORTS'

ESSENTIAL

DRAWING LEGIBILITY CLASS 1 — SCE&G CAD ENHANCED

RN 02-042 June 2003

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
21	9/17/02	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-33-0328	DVW	GAA

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

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

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM

AUX BLDG HEPA EXH SYS

FLOW DIAGRAM

SCE&G A SCANA COMPANY — DESIGN ENGINEERING — V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
1. JMH	2. DVW	3. GAA

SCALE NO SCALE — D-912-120 — 21

DRAWING NUMBER — SHT. NUMBER — REV

SYSTEM OPERATING DATA

(flow point no.)	AIR QUAN. CFM	AIR TEMP °F	
1	42,695	—	
2	45,680	—	
3	42,695	—	
4	34,695	—	
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

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

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

(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

NOTES:

1. EXCEPT WHERE NOTED OTHERWISE ALL ALARMS & 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. SPECIAL HIGH PRESSURE DUCT CONSTRUCTION WEST PENETRATION ACCESS AREA.
5. ALL DUCTWORK IDENTIFIED AS QR TO BE PER QRP-4.
6. ALL EQUIPMENT IDENTIFIED AS QR TO BE PER TRP-31

ESSENTIAL

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

RN 02-042
June 2003

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

4	45,680	65°-95°	
3	45,000	65°-95°	
2	45,680	65°-95°	
1	42,350	65°-95°	
(flow point no.)	AIR FLOW CFM	AIR TEMP °F	

SYSTEM DESIGN DATA

1/4" = 1'-0" 0' 5' 10' 15' 20'

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
30	9/17/02	DDJ	REVISED PER ECR-70249	MGR	DKW
29	10/03/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
28	08/08/96	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

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

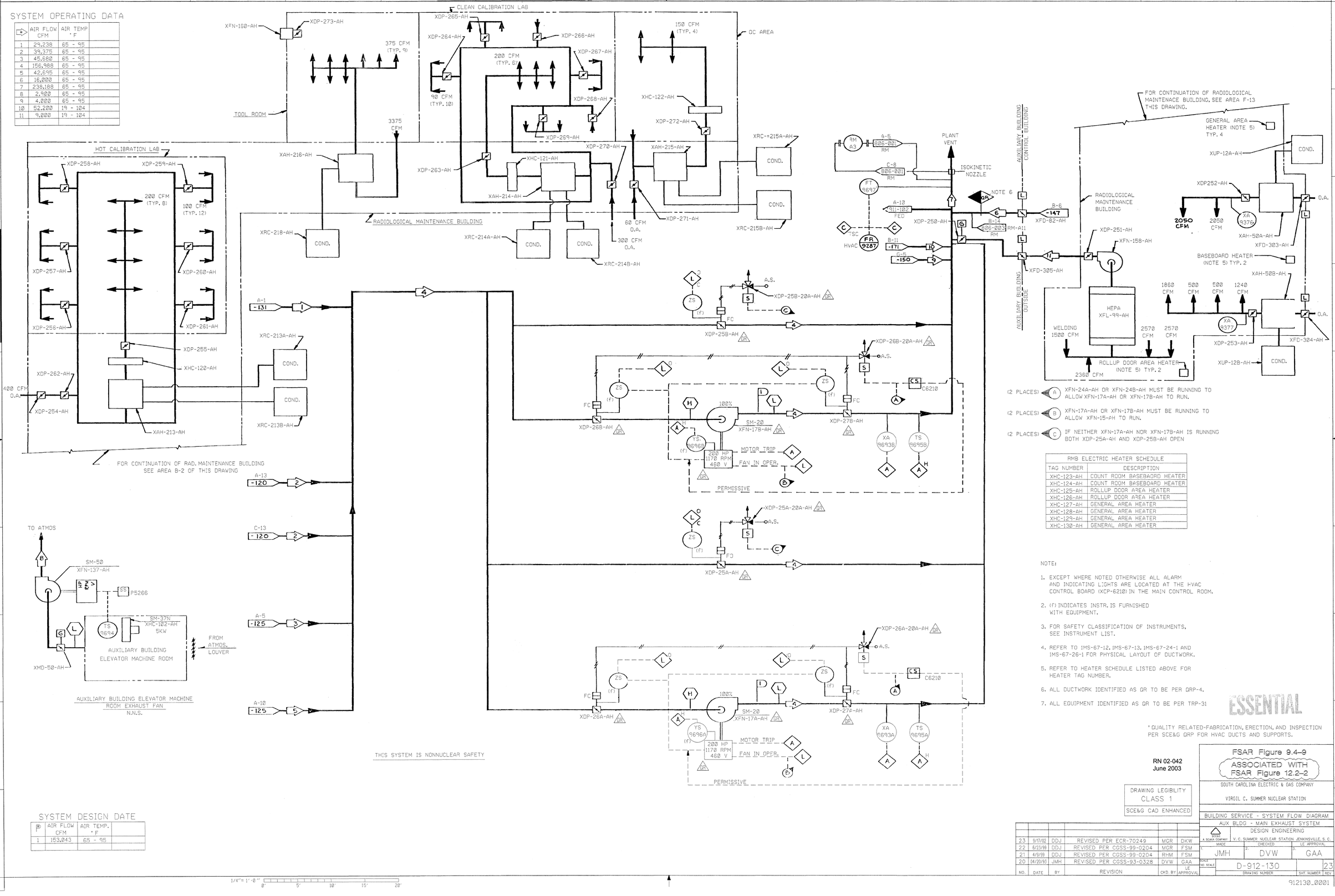
SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION
BUILDING SERVICE SYSTEM FLOW DIAGRAM
AUXILIARY BUILDING CHARCOAL EXHAUST
SYSTEM FLOW DIAGRAM
SCE&G A SCANA COMPANY
DESIGN ENGINEERING
V. C. SUMMER NUCLEAR STATION JENKINSVILLE S. C.

MADE	CHECKED	LE APPROVAL
1. SRM	2. RHM	3. DJL

SCALE: NO SCALE — DRAWING NUMBER: D-912-125 — SHT. NUMBER: — REV: 30

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	42,895	65 - 95	
6	16,800	65 - 95	
7	238,188	65 - 95	
8	2,900	65 - 95	
9	4,200	65 - 95	
10	52,200	19 - 104	
11	9,800	19 - 104	



RMB ELECTRIC HEATER SCHEDULE

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 QR TO BE PER QRP-4.
7. ALL EQUIPMENT IDENTIFIED AS QR TO BE PER TRP-31

ESSENTIAL

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

SYSTEM DESIGN DATE

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

1/4"=1'-0" (0' 5' 10' 15' 20')

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. SUMMER NUCLEAR STATION

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

DESIGN ENGINEERING
A SCANA COMPANY
V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

NO.	DATE	BY	REVISION	CKD. BY	LE 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	4/9/99	DDJ	REVISED PER CGSS-99-0204	RHM	FSM
20	04/20/93	JMH	REVISED PER CGSS-93-0328	DVW	GAA

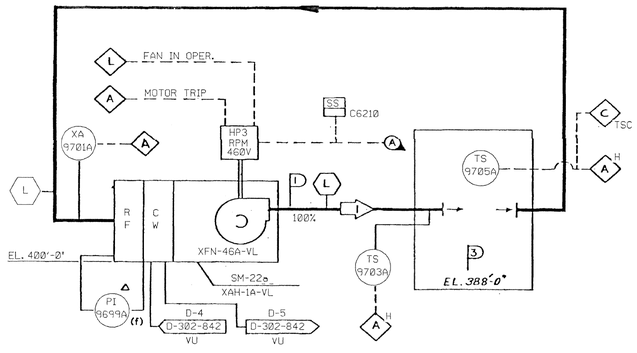
MADE	CHECKED	LE APPROVAL
1. JMH	2. DVW	3. GAA

SCALE NO SCALE
D-912-130
DRAWING NUMBER
SHT. NUMBER 23
REV

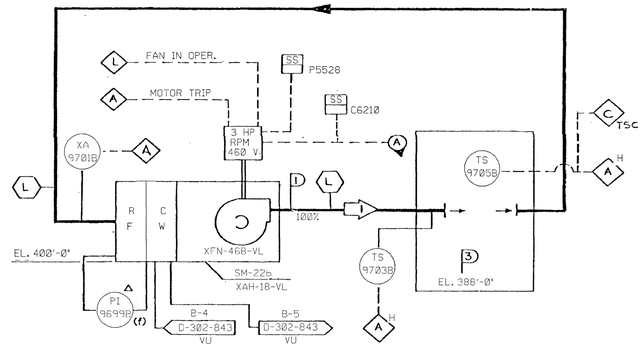
912130_0001

SYSTEM OPERATING DATA

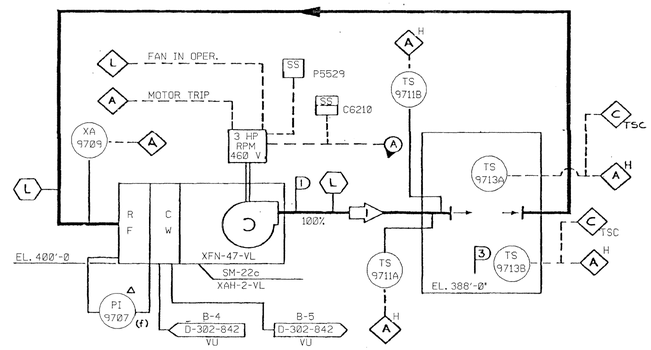
	AIR FLOW CFM	AIR TEMP. °F	
1	3,400	55	
2	3,400	55	
3	2,300	55	
4	4,800	55	
5	5,500	55	
6	6,000	60	
7	3000	56	



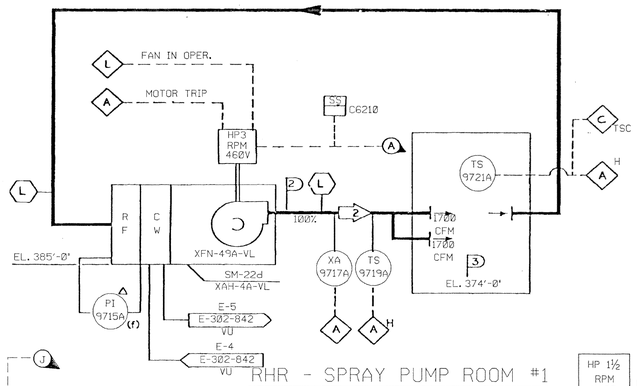
CHARGING - S.I. PUMP ROOM #1
COOLING SYSTEM



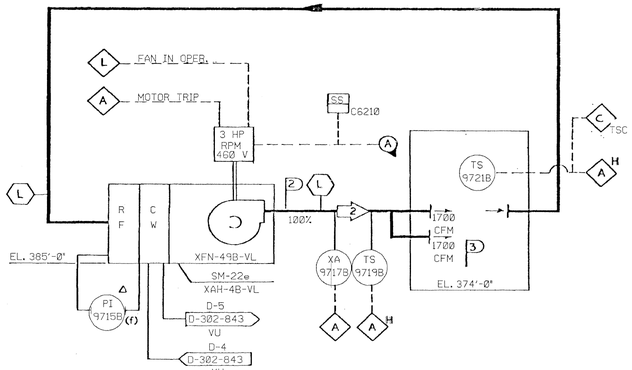
CHARGING - S.I. PUMP ROOM #3
COOLING SYSTEM



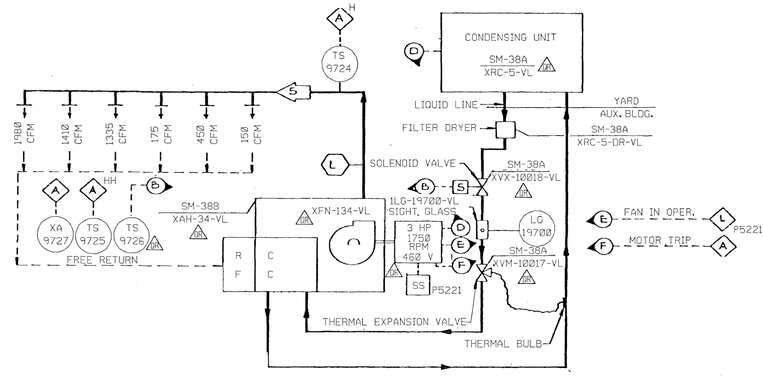
CHARGING - S.I. PUMP ROOM #2 (SWING)
COOLING SYSTEM



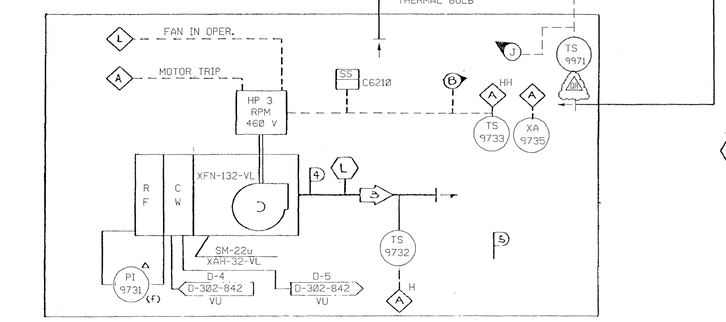
RHR - SPRAY PUMP ROOM #1
COOLING SYSTEM



RHR - SPRAY PUMP ROOM #2 COOLING SYSTEM



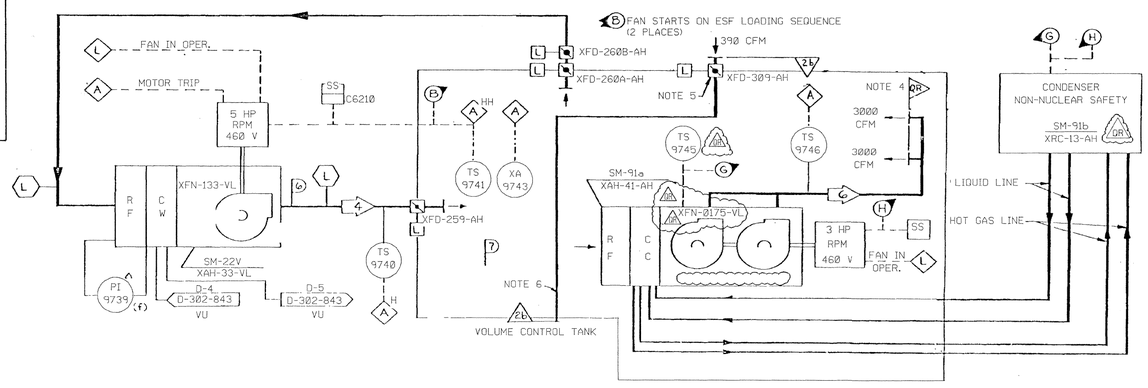
AUXILIARY BUILDING MCC SWITCHGEAR AIR HANDLING UNIT
ELEVATION 436'-0"
NON-NUCLEAR SAFETY



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

SYSTEM DESIGN DATA

	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	56	



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

NOTES:

1. EXCEPT WHERE OTHERWISE NOTED ALL ALARMS AND INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM.
2. (f) INDICATES INSTRU. IS FUIRNISHED WITH EQUIPMENT
3. FOR SAFETY CLASSIFICATION OF INSTRUMENTS, SEE INSTRUMENT LIST.
4. ALL DUCTWORK IDENTIFIED AS QR TO BE PER QRP-4.
5. DAMPER IS NON-NUCLEAR SAFETY. ONLY DUCT IS CLASS 2b.
6. PRESSURE TIGHT DUCT CONSTRUCTION IN AB63-0-1.
7. ALL EQUIPMENT IDENTIFIED AS [A] TO BE PER TRP-31.

ALL SYSTEMS AND COMPONENTS ARE SAFETY CLASS 2b, EXCEPT AS NOTED.

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

ESSENTIAL

THIS IS A NUCLEAR SAFETY RELATED DRAWING AND SHALL NOT BE REVISED WITHOUT PRIOR DOCUMENTATION AND WRITTEN APPROVAL

DRAWING LEGIBILITY
CLASS 1
SCE&G CAD ENHANCED

Amendment 02-01
May 2002

FSAR Figure 9.4-10

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION
BUILDING SERVICE SYSTEM FLOW DIAGRAM
AUXILIARY BUILDING
PUMP ROOM COOLING SYSTEM
DESIGN ENGINEERING
V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

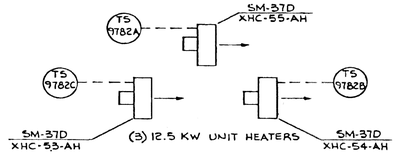
NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
21	12/5/00	JMR	REVISED PER ECR-50295	MGR	FM
20	9/23/94	RHM	REVISED PER MRF-21511 & MRF-22009	MGR	JMG
19	04/20/93	JMH	REVISED PER CGSS-93-0328	DVW	GAA

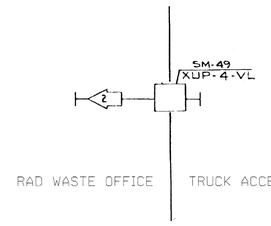
MADE	CHECKED	LE APPROVAL
1. JMH	2. DVW	3. GAA

SCALE: NO SCALE
D-912-132 21
DRAWING NUMBER SHT. NUMBER REV.

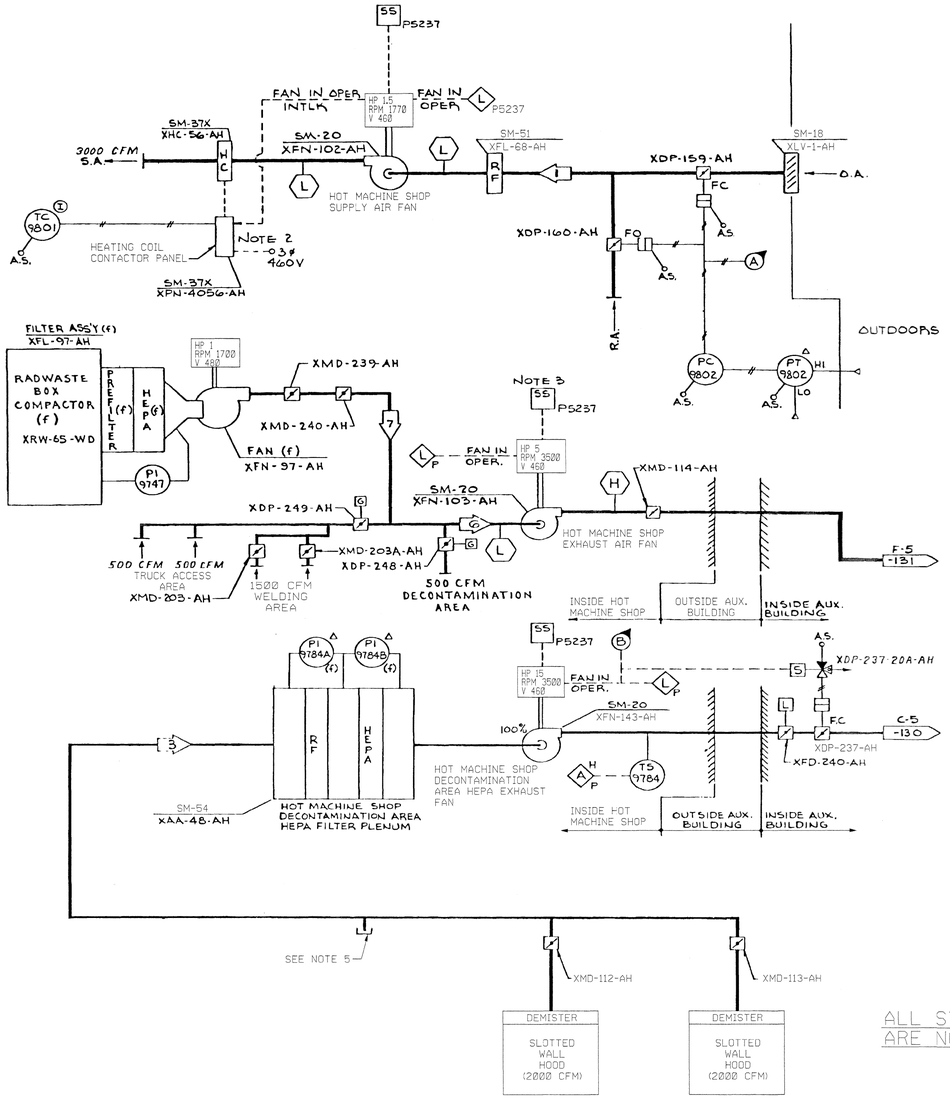
1/4"=1'-0" 0' 5' 10' 15' 20'

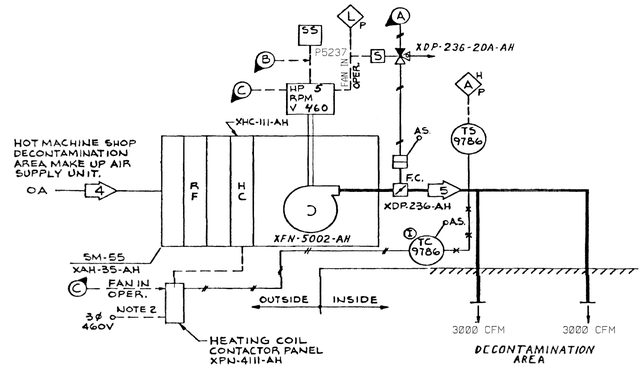
⑦	OPERATING DATA	
	AIR QTY. ACFM	AIR TEMP °F
1	3000	19°-95°
2	350	
3	4000	65° MIN.
4	6000	19°-95°
5	6000	65°-95°
6	3000	





RAD WASTE OFFICE
VENTILATION SYSTEM





ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY

NOTES:

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

ESSENTIAL

RN 02-042
June 2003

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

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION
BUILDING SERVICE — HVAC
HOT MACHINE SHOP
VENTILATION SYSTEM
DESIGN ENGINEERING
BECHTEL A SCANA COMPANY — V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
1. ACI	2. RHM	3. JWT

SCALE NO SCALE — D-912-150 — 16
DRAWING NUMBER — SHT. NUMBER — REV.

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
16	9/17/02	DDJ	REVISED PER ECR-70249	MGR	DKW
15	10/03/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
14	03/23/99	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 STUH
DESIGN DATA	

1/4"=1'-0" (0' 5' 10' 15' 20')

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	45° MIN.	
8	17,500	45° MIN.	
9	27,000	65° -9	

J-11 -845
K-11 -845

PI 59252

XAH-5010
FUEL HANDLING BLDG
SUPPLEMENTAL COOLER

RF | CW

CASK LOADING AREA
NE CORNER FHB

FL. EL. 463'-0"

XMD-64-AH

XFD-134-AH

B-1 -115

NOTE 7 QR

6,000 CFM SUPPLY
(8 @ 750 CFM EACH)

NEW FUEL STORAGE

2,220 CFM SUPPLY
(4 @ 1860 CFM EACH)

CASK LOADING PIT

SPENT FUEL PIT

FUEL HDLG. BLDG.

AUX. BLDG.

15,320 CFM EXHAUST
(8 @ 1915 CFM EACH)

XFD-8A-AH

XFD-8B-AH

150 KINETIC NOZZLE.

RM A6

A1 8300-2 RM

A2 8300-2 RM

XA 9685

XMD-58-AH

XMD-59-AH

XMD-60-AH

GEN. FL. AREA
1848 CFM
(2 @ 920 CFM EACH)

PERSONNEL CLEAN-UP AREA 242 CFM

GEN. FL. AREA
897 CFM

FL. EL. 463'-0"

XMD-61-AH

CASK TRANSPORT VEHICLE RAILROAD AREA
2750 CFM

GEN. FL. AREA
2945 CFM

CASK TRANSPORT VEHICLE RAILROAD AREA
3020 CFM
(2 @ 1510 CFM EACH)

DECONTAMI-NATION AREA
1120 CFM

BORON INJ. RECIRC. PUMP AREA
1750 CFM

NOTE 7 QR

E-1 -115

XFD-7-AH

FL. EL. 436'-0"

XMD-63-AH

XMD-62-AH

BORON INJ. TANK AREA
1470 CFM

BORON INJ. TANK AREA
1470 CFM

NOTE 7 QR

NOTE 7 QR

FL. EL. 412'-0"

NO 2 DEMINERALIZER AREA 82 CFM

GENERAL FL. AREA 1786 CFM

NO 1 DEMINERALIZER AREA 82 CFM

VALVE GALLERY 75 CFM

EXCESS WASTE HOLD-UP TANK 950 CFM

DECON. PIT COLLECTION TANK 686 CFM

FLUSHABLE FILTER AREA 75 CFM

FL. EL. 424'-0"

GEN. FLOOR AREA
288 CFM

EXCESS WASTE HOLD-UP TANK PUMP AREA 108 CFM

DECON. PIT COLLECTION TANK PUMP AREA 108 CFM

SPENT RESIN PUMP AREA 72 CFM

FL. EL. 412'-9"

A L
PS 9688
H L
OUTDOORS
⅜" O.D. - 2505X

SYS. DESIGN DATA		
	AIR FLOW ACFM	AIR TEMP. °F
2	30,000	65° - 95°
1	13,000	65° - 95°
20	AIR FLOW ACFM	AIR TEMP. °F

1/4"=1'-0"

NOTE 7 QR

D-12 -130

XDP-12B-20A-AH

XDP-12A-20A-AH

PERMISSIVE

CS C4210

TS 9687A

OAS.

XDP-13B-AH (SEE NOTE 5)

XDP-13A-AH (SEE NOTE 5)

ZS (F)

100%

SM-20 XFN-23B-AH

SM-20 XFN-23A-AH

HP 60 RPM 1776 V 460

MOTOR TRIP FAN IN OPER.

YS 9684B (F)

YS 9684A (F)

XDP-12B-AH

XDP-12A-AH

XDP-235B-AH

XDP-235A-AH

XMD-57-AH

AUX. BLDG. OUTSIDE

F-5 -150

3000 CFM FROM HOT MACH. SHOP.

XFD-226-AH

XMD-51-AH XMD-54-AH

XMD-52-AH XMD-55-AH

XMD-53-AH XMD-56-AH

FL. EL. 475'-0"

PI 9678A (F)
PI 9679A (F)
PI 9677A (F)
PI 9673A (F)
PI 9678B (F)
PI 9679B (F)
PI 9677B (F)
PI 9673B (F)
PI 9673C (F)
PI 9679C (F)
PI 9677C (F)
PI 9679C (F)

RF | HEPA | C | HEPA

SM-BC XAA-21A-AH 50%

SM-BC XAA-21B-AH 50%

SM-BC XAA-21C-AH 50%

TE 9681A (F)
TE 9681B (F)
TE 9681C (F)
TE 9681D (F)
TE 9681E (F)
TE 9681F (F)

TR 9209

RTD 6 XCP-6250

H 66230

D-302-231 FS

HI-HI HI

(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.

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

NOTES CONT'D.

5. ADJUST FAN DISCHARGE DAMPERS TO OPEN TO 85% BLADE SETTING POSITION.

7. ALL DUCTWORK IDENTIFIED AS QR TO BE PER QRP-4.

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 3 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

RN 15-004

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

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

BUILDING SERVICES SYSTEM FLOW DIAGRAM
FUEL HANDLING BUILDING CHARCOAL
EXHAUST SYSTEM & AIR SUPPLY DISTRIBUTION
DESIGN ENGINEERING
V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

NO.	DATE	BY	REVISION	CKD. BY	APPROVAL
24	9/17/12	DDJ	REVISED PER ECR-70249	MGR	DKW
23	8/15/18	RHM	REVISED PER ECR-50411	MGR	FSM
22	3/18/18	RHM	REVISED PER ECR-50010	MGR	TJH
26	6/27/16	GGS	REVISED PER ECR-50790 & SCE&G REVIEW COMMENTS	MAB	CR
25	3/1/15	GGS	REVISED PER ECR-50790	JLC	AJB LE

MADE 1. RHM | CHECKED 2. LEK | LE APPROVAL 3. JEG

SCALE NO SCALE | D-912-131 | 26
DRAWING NUMBER | SHT. NUMBER | REV

ESSENTIAL

SYS. OPER. DATA	
⟨1⟩	AIR FLOW CFM
1	199958
2	340187

TURBINE BLDG. ROOF VENTILATORS

TURBINE BUILDING

CLOSE LOUVERS ON SIGNAL FROM TRANSFORMER AREA FIRE PROTECTION SYSTEM.

XLV-9A-20A-AN THRU XLV-9F-20A-AN

TURBINE BLDG. SOUTH WALL LOUVERS (TYP OF 6 LOUVER SECTIONS) CB-43 XLV-9A-AH THRU CB-48 XLV-9F-AH

DEAERATOR BAY WALL LOUVERS - CRANK TYPE XLV-3001-AH THRU XLV-3012-AH

TURBINE BLDG. ROOF VENTILATORS

DEAERATOR BAY ROOF VENTILATORS

NOTES:-
1. EXCEPT WHERE NOTED OTHERWISE ALL SWITCHES AND INDICATING LIGHTS ARE LOCATED AT LOCAL PANEL (XPN-5185-AH)
2. (F) INDICATES INSTRUMENT IS FURNISHED WITH EQUIPMENT.
3. HVAC CONTROL BOARD (XCP-6210-AH) ALARM.
4. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.

ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY

ESSENTIAL

RN 14-017

2	.125	
1	.125	
P	EXT. STAT PRESS. IN. WATER COL.	
SYS. DESIGN DATA		

1/4"=1'-0"

NO.	DATE	BY	REVISION	DES. BY	LE APPROVAL
8	4/25/84	TGB	REVISED PER ECR-71946	MGR	KH
7	10/84/82	DDJ	REVISED PER ECR-78828	MGR	DDJ

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

FSAR Figure 9.4-12

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM
TURBINE BUILDING VENTILATION SYSTEM

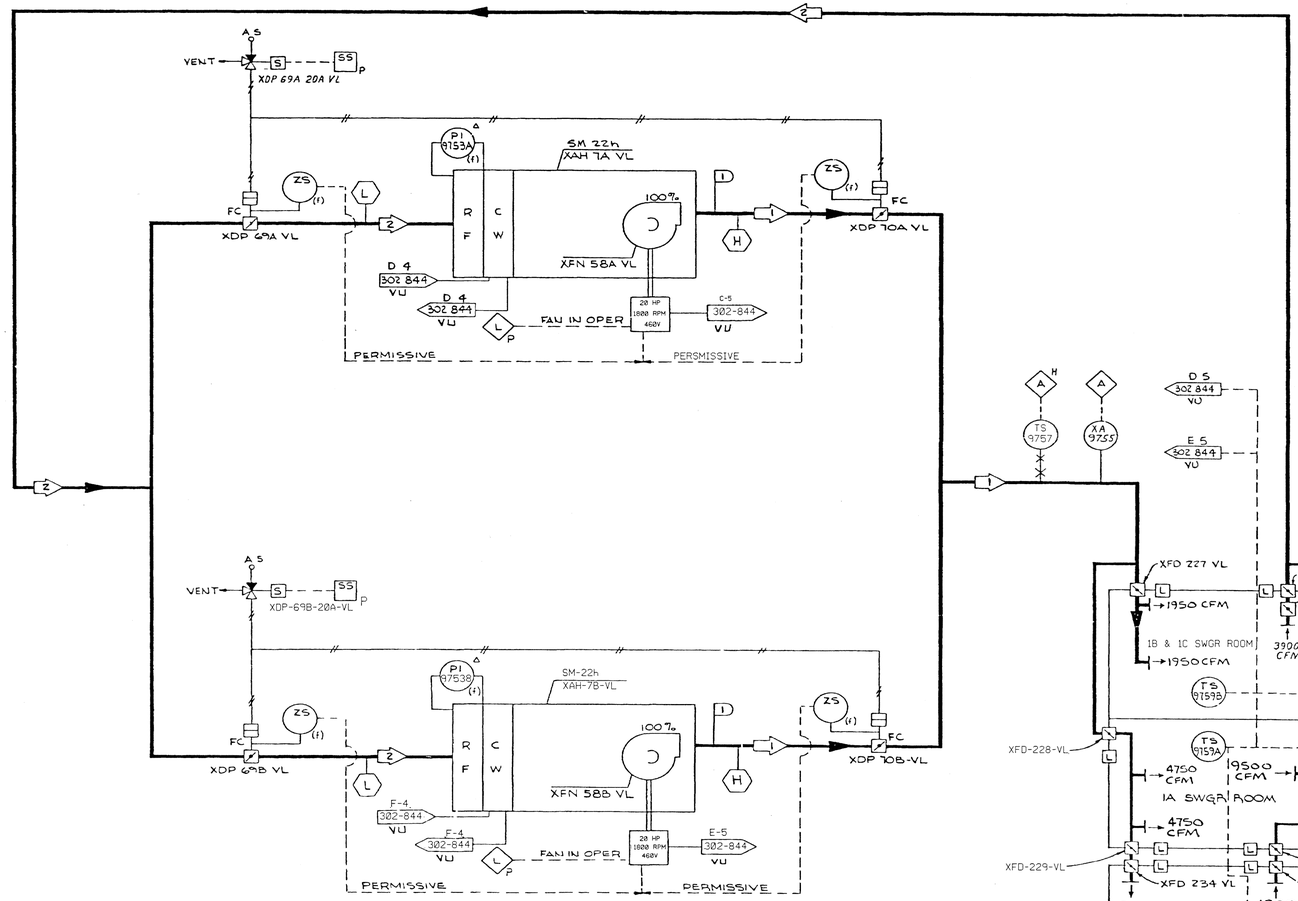
DESIGN ENGINEERING
V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

SIZE	DESIGNED	LE APPROVAL
D	DDJ	MGR DDJ

CODE NO. 80182 | D-912-160 | 8

SHEET NUMBER | REV

SYS. OPER DATA			
NO.	AIR FLOW ΔCFM	AIR TEMP °F	
1	14 600	61°	
2	14 600	86°	



TURBINE BUILDING SWITCHGEAR
ROOM COOLING UNITS
NON NUCLEAR SAFETY

SM 37L
XHC 9G AH
3-KW
FL. EL. 463'-0"
1DX SWGR RM

SM 37
XHC 22A AH
2-KW
FL. EL. 412'-0"
1B & 1C SWGR RM

SM 37
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 0210-AH) IN THE MAIN CONTROL ROOM
2 CONTROL SWITCHES & MOTOR STATUS LIGHTS ARE LOCATED ON LOCAL PANEL XPN 5135 AH
3 (f) INDICATES INSTR. IS FURNISHED WITH EQUIPMENT
4 FOR SAFETY CLASSIFICATION OF INSTRUMENTATION SEE THE INSTRUMENT LIST

ESSENTIAL

SYS DESIGN DATA	
(8)	

1/4"= 1'-0"
0' 5' 10' 15' 20'

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
8	9/15/99	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

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. SUMMER NUCLEAR STATION
BUILDING SERVICE SYSTEM FLOW DIAGRAM
TURBINE BLDG. SWITCHGEAR ROOMS
COOLING SYSTEM
DESIGN ENGINEERING
SOGIC A SCANA COMPANY | V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
1. SRM	2. RHM	3. WEW

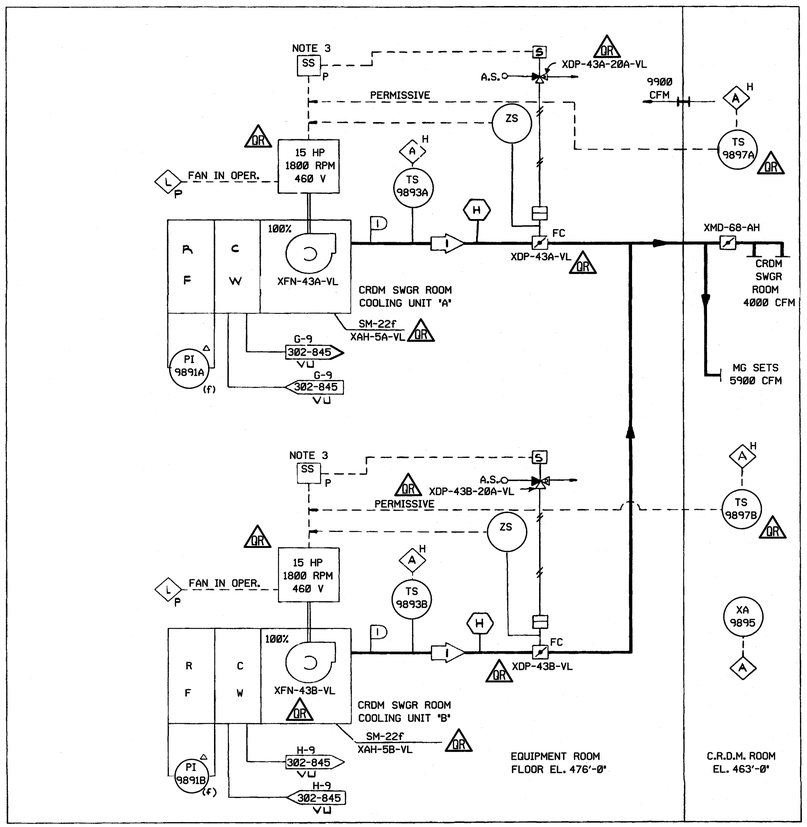
SCALE: NO SCALE
D-912-159 (DRAWING NUMBER) | 8 (SHT. NUMBER REV)

R912159_0001.tm(5406.rm15043) RM15043@rm15043, Wed Sep 15 12:21:56 CDT 1999

SYSTEM OPERATING DATA

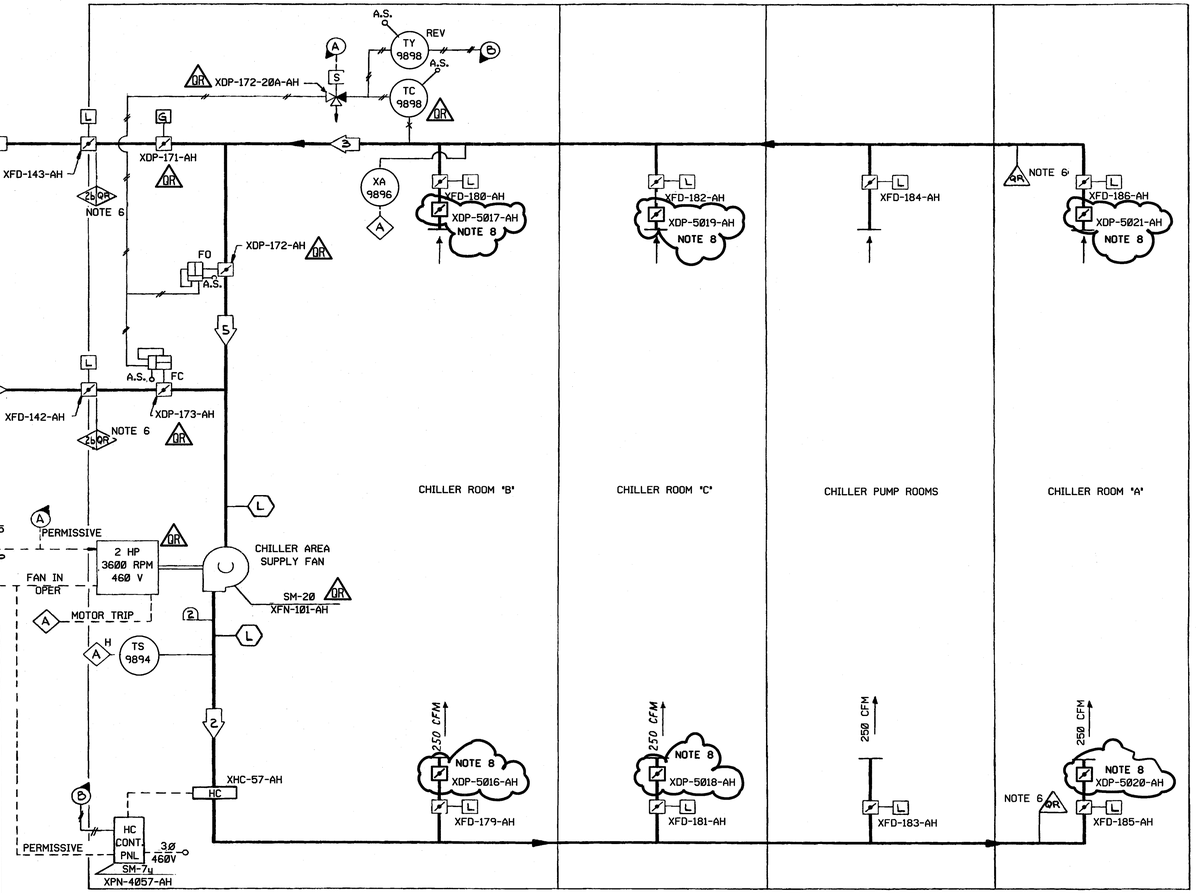
	AIR FLOW CFM	AIR TEMP. °F	
1	9900	54.5	
2	1000	65/95	
3	1000	65/104	
4	1000 TO 0	19/95	
5	0 TO 1000	65/85	
6	1000 TO 0	65/104	

SAFETY CLASS VERIFICATION
ORIGINATED BY D.D. Jones, Jr. 11/24/76
REVIEWED BY W.A. Steiger 11/24/76



CRDM SWITCHGEAR ROOM COOLING SYSTEM

INTERMEDIATE BUILDING



WATER CHILLER AREA VENTILATION SYSTEM

INTERMEDIATE BUILDING EL. 412'-0"

NOTES:

1. EXCEPT WHERE NOTED OTHERWISE ALL ALARMS AND INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARAD (XCP-6210-AH) IN THE MAIN CONTROL ROOM.
2. (f) INDICATES INSTRUMENT IS FURNISHED WITH EQPT.
3. CRDM SWGR ROOM AIR HANDLING UNIT CONTROL SWITCHES AND MOTOR STATUS LIGHTS ARE LOCATED ON LOCAL PANEL XPN-5134-VL.
4. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.
5. WATER CHILLER AREA VENTILATING FAN CONTROL SWITCH AND MOTOR STATUS LIGHTS ARE LOCATED ON LOCAL PANEL XPN-5193-AH.
6. ALL DUCTWORK IDENTIFIED AS QR TO BE PER TRP-4 & TRP-12.
7. ALL EQUIPMENT IDENTIFIED AS QR TO BE PER TRP-31, EXCEPT THE FOLLOWING:
   - HELB DAMPERS XDP-5016-AH THRU XDP-5021-AH ARE QR PER TRP-12.
   - FAN AND BALANCING (AIR OPERATED) DAMPERS IN THE CHILLER ROOMS ARE QR PER TRP-12 & TRP-31.
8. BEFORE PROPPING THE CHILLER ROOM DOOR OPEN FOR EXTENDED PERIODS OF TIME ENSURE HELB DAMPERS IN THAT ROOM ARE CLOSED.

'QUALITY RELATED - FABRICATION, ERECTION, AND INSPECTION 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

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

ESSENTIAL

DRAWING CLASS LEGIBILITY 1

SYSTEM DESIGN DATA

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

1/4"= 1'-0" (0' 5' 10' 15' 20')

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
12	2/13/13	RHM	REVISED PER ECR-50585	MGR	RS
11	10/03/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
10	08/03/93	AVN	REVISED PER MRF-34054	JHR	DJC
9	04/22/93	JMH	REISED PER CGSS-93-0328	RHM	GAA

FSAR Figure 9.4-14

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM

CRDM SWITCHGEAR ROOM COOLING SYSTEM AND WATER CHILLER AREA VENTILATION SYSTEM

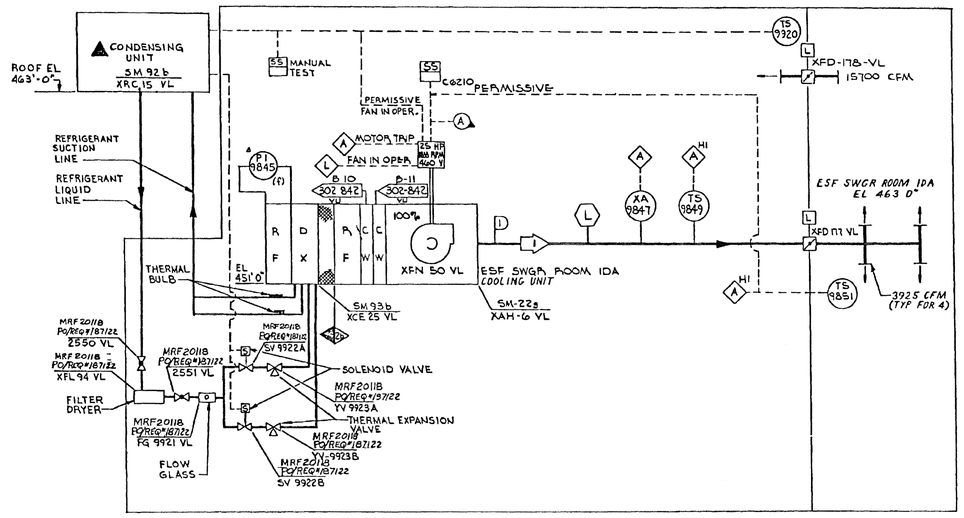
DESIGN ENGINEERING

A SCANA COMPANY — V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

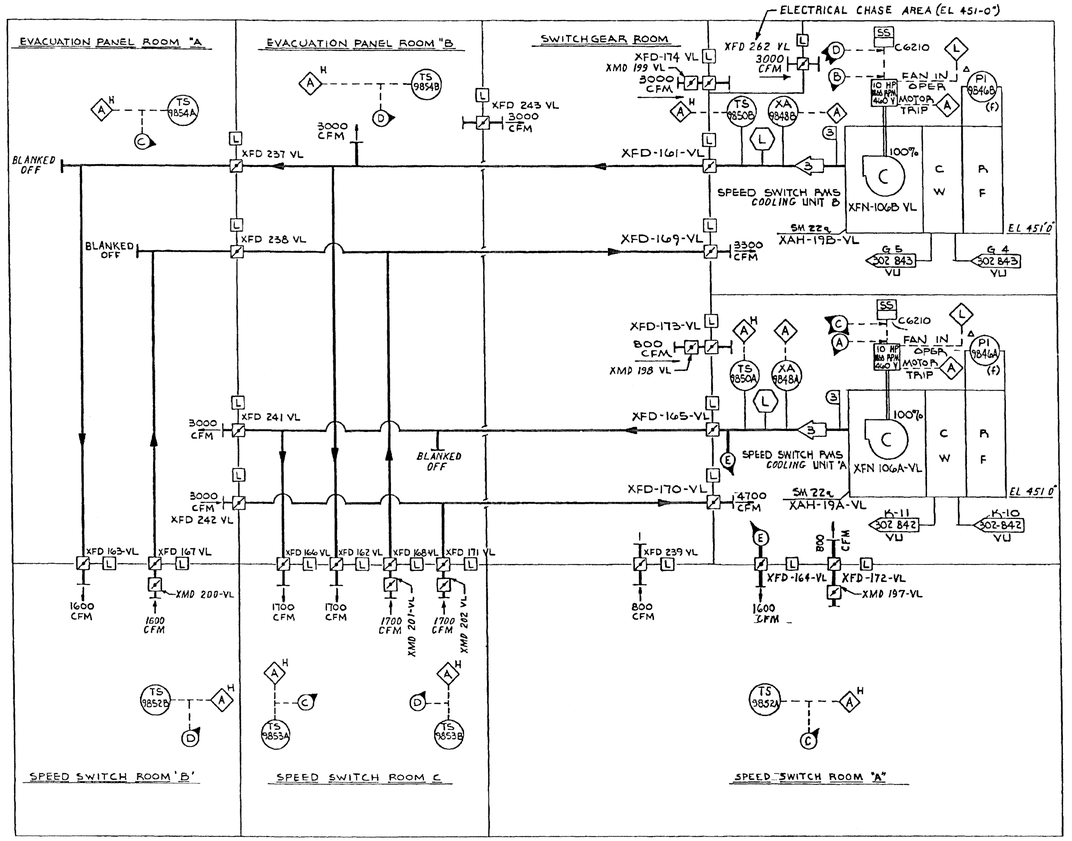
MADE	CHECKED	LE APPROVAL
1. ACI	2. RHM	3. DJC

SCALE NO SCALE — D-912-139 — 12 (DRAWING NUMBER / SHT. NUMBER REV)

SYSTEM OPER. DATA			
	AIR FLOW ACFM	AIR TEMP °F	
1	15700	54 6	
2	8350	54 6	
3	6300	55 6	

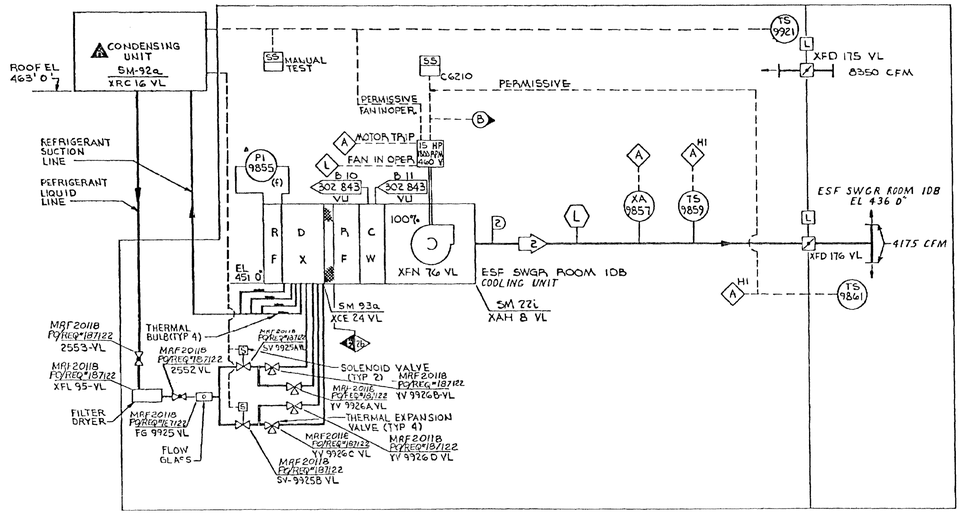


ESF SWGR ROOM IDA COOLING SYSTEM



SPEED SWITCH ROOM COOLING SYSTEM

SAFETY CLASS VERIFICATION		
ORIGINATED BY	[illegible]	11/14/96
REVIEWED BY	W A Stevens	11/14/96



ESF SWGR ROOM IDB COOLING SYSTEM

SYSTEM DESIGN DATA			
	AIR FLOW ACFM	AIR TEMP °F	
3	6300	55 6	
2	8350	54 6	
1	15700	54 6	

(A) ESF LOADING SEQUENCE SIGNAL CHANNEL "A" START SIGNAL

(B) 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 (XCP 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

Amendment 02-01
May 2002

FSAR Figure 9.4-15

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM

INTERMEDIATE BUILDING ESF SWGR

ROOMS AND SPEED SWITCH ROOMS COOLING SYSTEMS

DRAWING LEGIBILITY CLASS 1 SCE&G CAD ENHANCED

ESSENTIAL

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
12	10/04/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
11	5/20/87	PS	REV.PER MRF-2011B, MCN-U	PJS	PJS

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

MADE	CHECKED	LE APPROVAL
1. PS	2. PJS	3. PJS

SCALE: NO SCALE

D-912-157 12

DRAWING NUMBER SHT. NUMBER REV

1/4"=1'-0" 0' 5' 10' 15' 20'

...\andeck\ocn6\912157_0001.dgn Oct. 04, 2001 09:32:25

SYSTEM OPER. DATA		
NO.	AIR FLOW ACFM	AIR TEMP. °F
1	6800	56
2	2100	65/80
3	2300	56.8
4	3100-2100	19/95
5	1000-0	19/95
6	3100-2100	65/80
7	2100	19/95
8	1000-0	65/104

SAFETY CLASS VERIFICATION	
ORIGINATED BY	D.O.S. 11-24-76
REVIEWED BY	W.A.S. 11-24-76

SYSTEM DESIGN DATA		
NO.	AIR FLOW ACFM	AIR TEMP. °F
3	2300	56.8
2	2100	65/80
1	6800	56

O.A. INTAKE HEAD EL. 463'-0" XHD-21-AH
EXHAUST AIR RELIEF HEAD XHD-28-AH
INTERMEDIATE BLDG. WALL FAN ROOM 'A' XFD-141-AH
INTERMEDIATE BLDG. ELECTRICAL CHASE XFD-139-AH
XFD-140-AH
INTERMEDIATE BLDG. ELECTRICAL CHASE
XFD-136-AH
ELECTRICAL CHASE INTERMEDIATE BLDG.
XFD-85A-AH
XDP-89A-AH
XDP-233A-AH
XDP-233-20A-AH
BATTERY ROOM SUPPLY AIR HANDLING UNIT
SM-22- XAH-24A-AH
SM-22- XHC-14A-AH
XFN-38A-AH
PERMISSIVE FOR HEATING COILS
EL. 423'-0"
FAN IN OPER.
MOTOR TRIP
10 HP 1800 RPM 460 V
J-10 302-842 VU
J-11 302-842 VU
XDP-88A-20A-AH
HC CONTACTOR PANEL 3Ø 460V
SM-7S XPN-4047-AH
C6210
SM-20 XFN-39A-AH
BATTERY ROOM EXHAUST FAN
XDP-88A-AH
XFD-138-AH
XFD-100A-AH
5 HP 3600 RPM 460 V
FAN ROOM A
BATTERY ROOM B
INTERMEDIATE BLDG.
XDP-151-AH (NNS)
XDP-152-AH
XFD-90A AH
XFD-86A AH
FREE RTN. TO XAH-24A-AH
XFD-145 AH
XFD-88A AH
XFD-144 AH
XDP-153-AH
XHC-48-AH
HC CONTACTOR PNL. 3Ø 460V
SM-7T XPN-4048-AH
XFD-89A-AH
XMD-79-AH
XHC-46-AH
XHC-47-AH
XMD-77-AH
XMD-78-AH
XFD-91A-AH
XFD-87A-AH
XFD-92A-AH
XFD-96A AH
XFD-93A-AH
XMD-71-AH
XMD-72-AH
XFD-97A-AH
XFD-94A AH
XMD-73-AH
XFD-95A-AH
XMD-82-AH
XFD-89B-AH
XHC-51-AH
XDP-156-AH
XFD-88B-AH
SM-7W XPN-4051-AH
HC CONTACTOR PANEL 3Ø 460V
SM-7R XPN-4046-AH
HC CONTACTOR PANEL
LOCATED IN BATTERY RM. 'A'
SM-22- XPN-4014A-AH
HC CONT. PNL.
FAN ON INTERLOCK
SM-22- XPN-4014B-AH
XDP-233B-AH
XDP-233-20B-AH
BATTERY ROOM SUPPLY AIR HANDLING UNIT
SM-22- XAH-24B-AH
SM-22- XHC-14B-AH
XFN-38B-AH
FAN ROOM A FAN ROOM B
XFD-85B-AH
XDP-89B-AH
XDP-154-AH (NNS)
XHC-49-AH
XHC-50-AH
XDP-155-AH
XFD-90B-AH
XFD-86B-AH
SM-7U XPN-4049-AH
HC CONTACTOR PANEL 3Ø 460V
SM-7V XPN-4050-AH
HC CONTACTOR PANEL 3Ø 460V
FREE RTN. TO XAH-24B-AH 4700 CFM
XDP-138B-AH
XFD-137-AH
XDP-88B-AH
XFD-100B-AH
BATTERY ROOM EXHAUST FAN
SM-20 XFN-39B-AH
5 HP 3600 RPM 460 V
FAN ROOM B
BATTERY ROOM A
INTERMEDIATE BLDG.
PERMISSIVE
SS C6210
XDP-88B-20A-AH
BOP CHARGER AREA AIR HANDLING UNIT
SM-22- XAH-26-VL
XFN-125-VL
5 HP 1800 RPM 460 V
FAN IN OPER.
EL. 423'-9"
BOP CHARGER AREA SYSTEM
SAFETY CLASS NNS
BATTERY ROOMS AND CHARGING ROOMS EL. 412'-0" INTERMEDIATE BLDG.
ALL SYSTEM COMPONENTS ARE SAFETY CLASS 2b, EXCEPT HEATING COILS AND AS NOTED (NNS)

P CLOSE 'A-SIDE' 'B' TRAIN DAMPER ON S.I. SIGNAL.
K CLOSE 'B-SIDE' 'A' TRAIN DAMPER ON S.I. SIGNAL.
D FANS START ON ESF LOADING SEQUENCE SIGNAL.
D CLOSE ASSOCIATED DAMPER ON LOW BATTERY ROOM TEMPERATURES.

NOTES:
1. EXCEPT WHERE OTHERWISE NOTED ALL ALARMS AND INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-6218-AH) IN THE MAIN CONTROL ROOM.
2. (f) INDICATES INSTRUMENT FURNISHED WITH EQUIPMENT.
3. HEATING COILS ARE PROVIDED WITH OVERTEMP. AND LOW FLOW PROTECTIVE DEVICES.
4. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.
5. SWITCH AND INDICATING LIGHTS FOR BOP CHARGER AREA UNIT ARE LOCATED AT LOCAL PANEL XFN-5192-VL.
6. BATTERY ROOM 'A' SUPPLY AND RETURN CFM IS 600 EACH, 'B' CFM IS 678 EACH, 'C' CFM IS 830 EACH, CHARGING ROOM 'A' SUPPLY AND RETURN CFM IS 1750 EACH, 'B' CFM IS 1750 EACH, AND 'A/B' CFM IS 1200 EACH.

1/4"=1'-0" 0' 5' 10' 15' 20'

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

ESSENTIAL

Amendment 02-01
May 2002

FSAR Figure 9.4-16

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION
BUILDING SERVICE SYSTEM FLOW DIAGRAM
BATTERY RM. & CHARGING RM., BOP CHARGER AREA
VENTILATION SYSTEM
DESIGN ENGINEERING
V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

NO.	DATE	BY	REVISION	CKD. BY	APPROVAL
15	10/02/01	DDJ	REVISED PER ECR-72028	MGR	DDJ

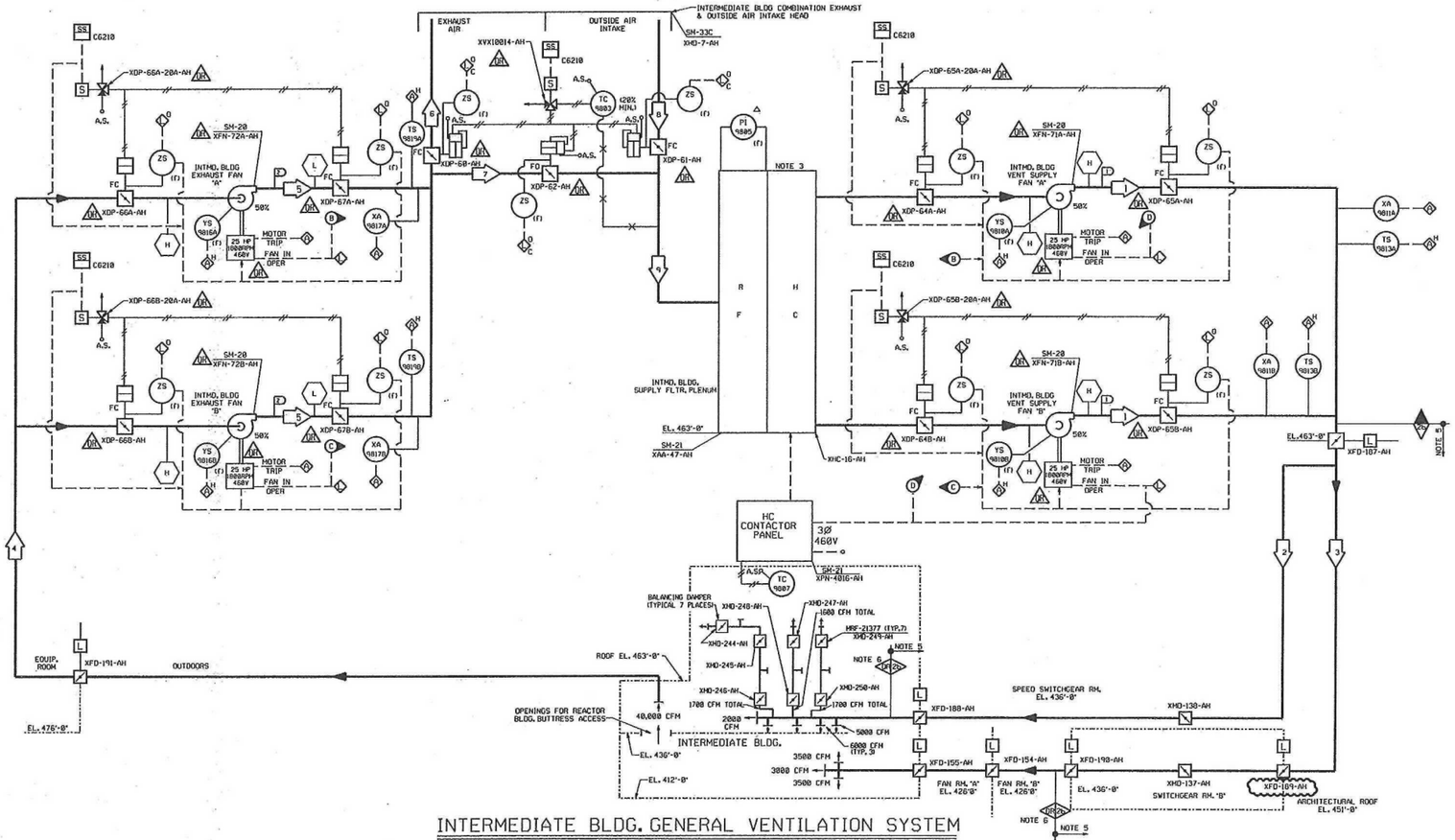
DRAWN	CHECKED	LE APPROVAL
DDJ	MGR	DDJ

SCALE: NO SCALE
D-912-138
DRAWING NUMBER
SHT. NUMBER 15 REV.

...\ondeck\2598\912138_0001.dgn Oct. 03, 2001 09:48:24

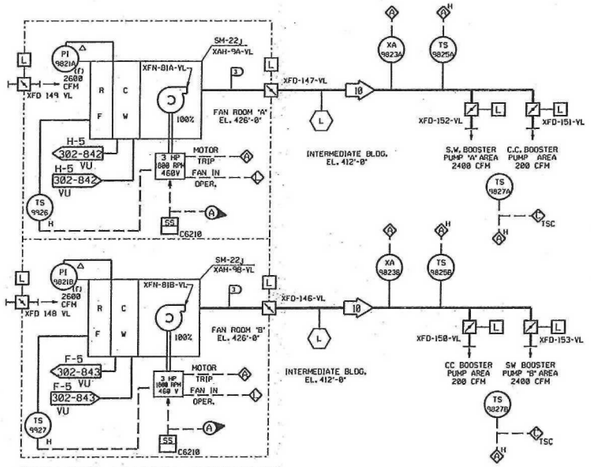
SYS. OPER. DATA

#	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 0	65-104
8	8,000 TO 40,000	19-95
9	40,000	55-95
10	2600	56
11	3600	56



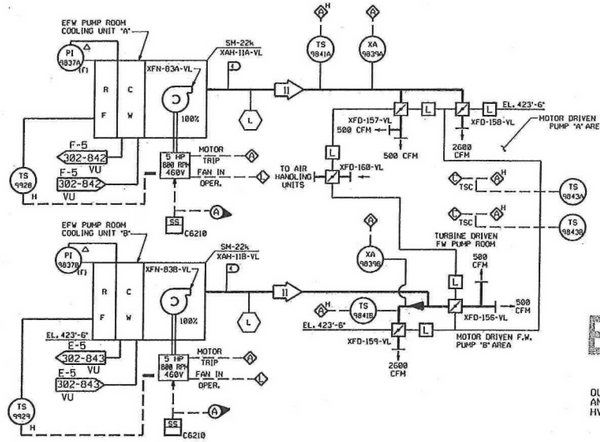
INTERMEDIATE BLDG. GENERAL VENTILATION SYSTEM

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:

1. EXCEPT WHERE OTHERWISE NOTED, ALL ALARMS & INDICATING LIGHTS ARE LOCATED AT THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM.
2. (f) INDICATES INSTRUMENT IS FURNISHED WITH EQUIPMENT.
3. HEATING COIL INCLUDES OVER-TEMP. & LOW FLOW PROTECTIVE DEVICES.
4. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.
5. 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)
6. ALL DUCTWORK IDENTIFIED AS QR TO BE PER QRP-4.
7. ALL EQUIPMENT IDENTIFIED AS QR TO BE PER TRP-31.

(A) UNIT STARTS WHEN ASSOCIATED PUMP STARTS. (4 PLCS)

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

ESSENTIAL

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

DRAWING CLASS LEGIBILITY 1

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.	DATE	BY	REVISION	CKD. BY	APPROVAL
17	07/29/16	KO	REVISED PER ECR 72198	RM	JR
16	10/04/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
15	04/22/93	JMH	REVISED PER CGSS-930328	DVW	GAA
14	01-03-97	CRR	REVISED PER MRF-21377	SRM	DJL
13	01-29-92	SRM	REVISED PER MRF-22010.	CRR	R.S

FSAR Figure 9.4-17

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

INTERMEDIATE BUILDING GENERAL VENTILATION AND PUMP AREA COOLING SYSTEMS

DESIGN ENGINEERING

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

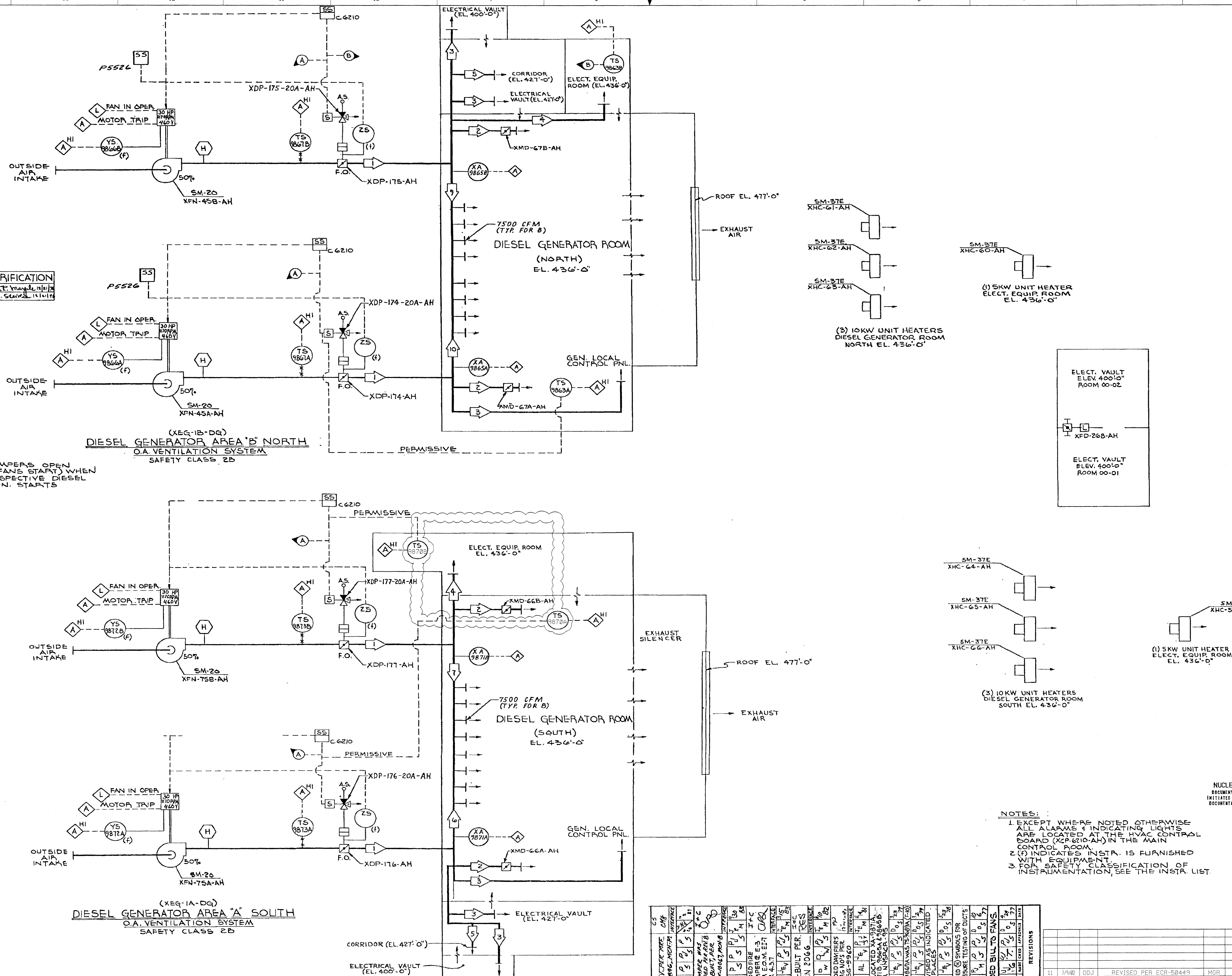
DRAWN	CHECKED	LE APPROVAL
SRM	CRR	R.S.

SCALE NO SCALE | LE D-912-158 | SHT. NUMBER 17 | REV

DRAWING NUMBER

#	OPERATING DATA	
	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
9	26,800	19-95
10	33,200	19-95

SAFETY CLASS VERIFICATION	
ORIGINATED BY	[signature]
REVIEWED BY	W. G. Stewart



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

ESSENTIAL

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. (f) INDICATES INSTR. IS FURNISHED WITH EQUIPMENT.
3. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTR. LIST.

RN 01-108
March 2003

FSAR Figure 9.4-18

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM
DIESEL GENERATOR AREAS
VENT SYSTEM

DESIGN ENGINEERING
SCE&G A SCANA COMPANY
V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
1. TGB	2. MGR	3. CCO

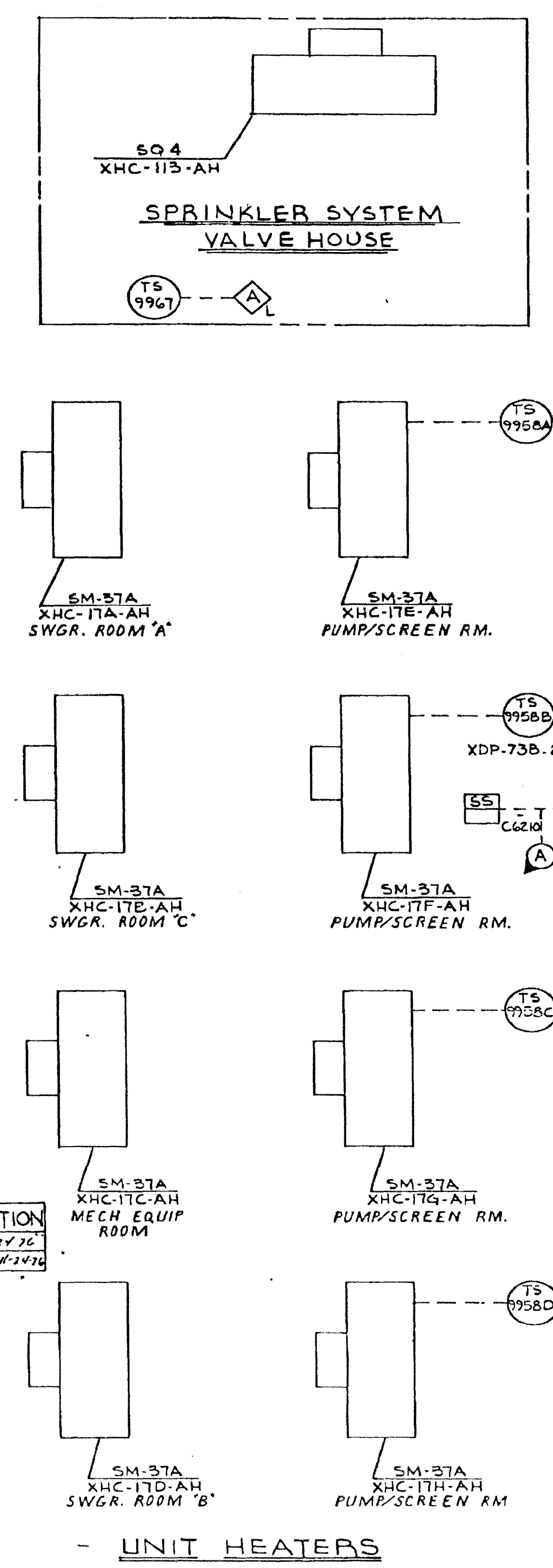
NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
11	7/9/02	DDJ	REVISED PER ECR-50449	MGR	CO

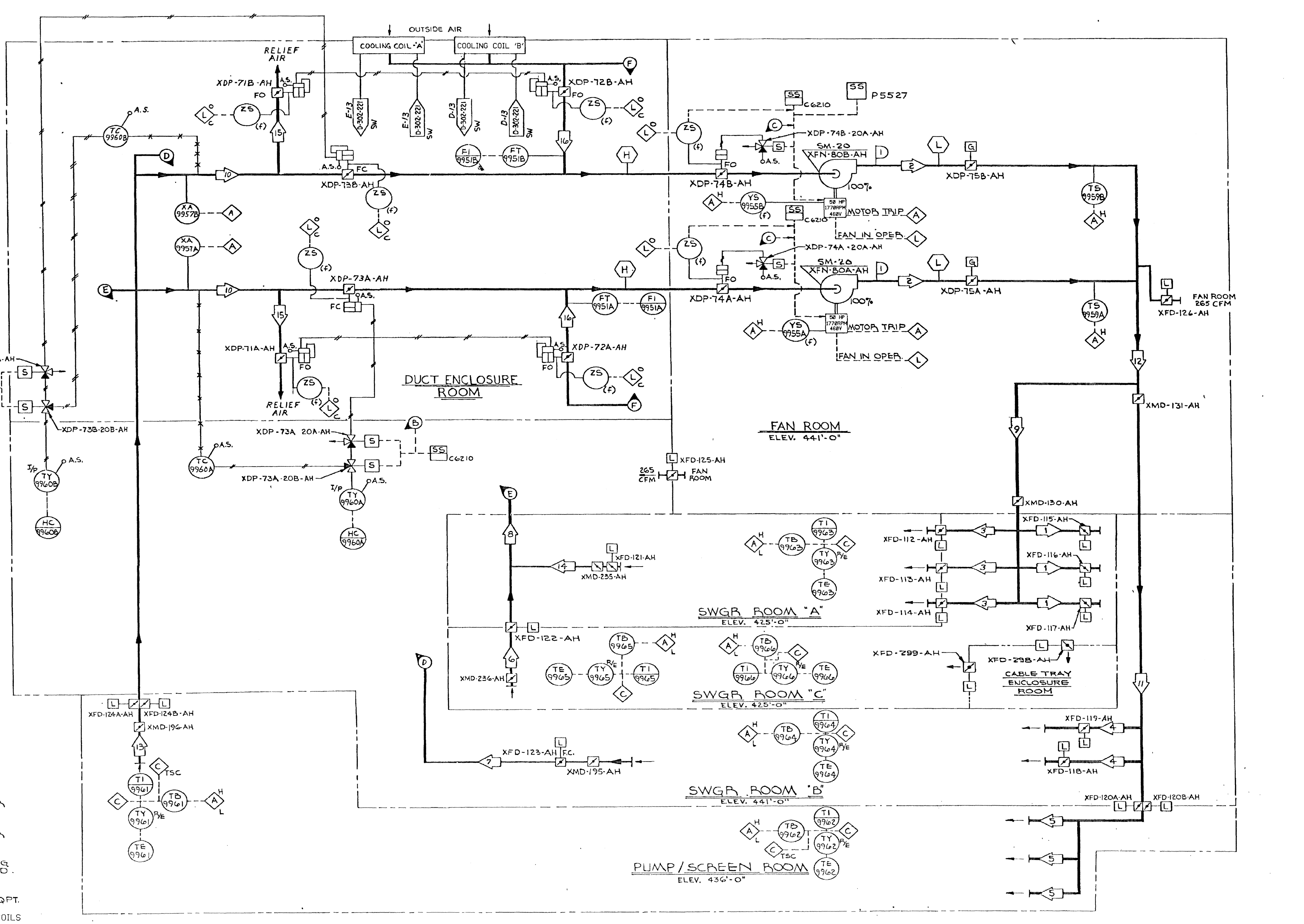
SCALE: NO SCALE — DRAWING NUMBER: D-912-134 — REV: 11

DIESEL GENERATOR AREAS - VENT SYSTEM

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	10865	"	
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	0-45000	113 MAX	
16	45000-0	19-95	





SAFETY CLASS VERIFICATION

ORIGINATED BY	[illegible signature]
REVIEWED BY	[illegible signature]

(A) CHANNEL "A" SI SIGNAL VENTS AIR FROM POSITIONER

(B) CHANNEL "B" SI SIGNAL VENTS AIR FROM POSITIONER

(2 PLCS.) (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 OCCCUR 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

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

SYS. DESIGN DATA

Amendment 02-01
~~May 2002~~

DRAWING LEGIBILITY CLASS 1

SCE&G CAD ENHANCED

ESSENTIAL

FSAR Figure 9.4–19

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM
SERVICE WATER INTAKE SCREEN AND PUMP HOUSE BLDG VENTILATION SYSTEM

DESIGN ENGINEERING
SCE&G A SCANA COMPANY
V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
17	10/04/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
16	03/16/94	RHM	REVISED PER CGSS-94-0404	MGR	DJL

MADE	CHECKED	LE APPROVAL
1. RHM	2. MGR	3. DJL

SCALE: NO SCALE
DRAWING NUMBER: D-912-155
SHT. NUMBER:
REV: 17

1/4" = 1'-0" 0' 5' 10' 15' 20'

OPERATING DATA		
	AIR FLOW CFM	AIR TEMP °F
1	640	
2	1015	
3	2300	
4	4025	
5	2225	
6	6275	
7	10005	
8	2275	
9	4700	
10	7930	
11	940-1880	
12	2620-3760	

XPN5350

9PLCS. B — A 14PLCS.

SUCTION — THERMAL EXPANSION VLV'S — THERMAL BULBS

LIQUID — SIGHT GLASS — FILTER DRYER

SM-44ED XFL-5001B-AH — SM-44ED XFL-5001A-AH — SM-44ED 10005A-AH — SM-44ED 10005B-AH — SM-44ED 10004A-AH — SM-44ED 10004B-AH

CONDENSING UNIT — XDP-181-AH — XDP-182-AH — XDP-182-20A-AH — XDP181-20A-AH — XFN-91-AH — SM-44AD XAH-23-AH — SM-44ED XRC-4-AH — 10034-AH

FAN IN OPER INTLK — HP RPM 460V — 3 ø 460V — SM-7Q XPN-4026-AH — 1033-AH — REV. — D.A.S. — SM-48A XHD-15-AH — XMD-123-AH

CEILING PLENUM — MEETING ROOM — (NOTE 1) — 587CFM 587CFM 588CFM 588CFM — 587CFM 587CFM 588CFM 588CFM — SM-7Q XHC-26-AH

O.A. LOUVER BY OTHERS — XDP226-0-AH — XOP-226-AH — FAN IN OPER INTLK — HP RPM V — XFN-89-AH — H.C. NOTE 1 — C.C. — XHC-30-AH — ECR50763A XPN-4030-AH — XAH-20-DP1-AH — XAH-20-DP2-AH — XAH-20-DP3-AH

XMD-115-AH — XMD-116-AH — XMD-117-AH — XMD-118-AH — XMD-119-AH

ZONE 1 — ZONE 2 — ZONE 3 — ZONE 4 — ZONE 5

XFD-218-AH — XFD-204-AH — XFD-205-AH — XFD-206-AH — XFD-207-AH — XFD-208-AH — XFD-209-AH — XFD-210-AH — XFD-211-AH — XFD-212-AH — XFD-213-AH — XFD-214-AH — XFD-215-AH — XFD-216-AH — XFD-217-AH — XFD-194-AH

SM-89C XHC-114-AH — TC 9789

TELEPHONE EQUIPMENT ROOM — TC 9780B — CORRIDOR (160 CFM) — SB 106 580 CFM — BLANKED OFF

CORRIDOR 185 CFM — SB 104 460 CFM — SB 104 180 CFM — TC 9780A — CEILING PLENUM — ETL FIRE DAMPERS — D-11 302-232 F.S.

CEILING RETURN PLENUM LINE

BLANKED OFF — BLANKED OFF — BLANKED OFF — SB 122 — CORRIDOR 440 CFM — OFFICE — OFFICE — TC 9780C — CORRIDOR 400 CFM — SB 128 520 CFM — SB 129 540 CFM

CONFERENCE 70 CFM — CONFERENCE 110 CFM — SB 129 40 CFM — CORRIDOR 400 CFM — SB 111 110 CFM — SB 111 125 CFM — TC 9780D — SB 111 165 CFM — SB 111 125 CFM — SB 111 125 CFM — SB 111 105 CFM — SB 111 190 CFM — SB 111 490 CFM — CORRIDOR 460 CFM — SB 110 1010 CFM

OFFICE 115 CFM — OFFICE 90 CFM — OFFICE 65 CFM — OFFICE 80 CFM — OFFICE 75 CFM — TC 9780E — CORRIDOR 100 CFM — LOBBY 820 CFM — CORRIDOR 20 CFM — ETL FIRE DAMPER — CEILING PLENUM — SECURITY OFFICE 1860 CFM — XA 9785 — TS 9785

XFD-195-AH — XFD-196-AH — XFD-197-AH — XFD-198-AH — XFD-199-AH

XVMI0006C-AH — XVMI0006D-AH — XVMI0006A-AH — XVMI0006B-AH — ECR50763A XAH-20-DP4-AH — XAH-20-DP5-AH

XA 9788 — FIRE & SECURITY SYSTEM — XA 9804

XVX10007A-AH — XVX10007B-AH — D ILG72699 — XFL5008

CONDENSING UNIT ECR50763A XPC-2-AH

CONDENSING UNIT SCE&G XRC-23-AH

SCE&G XAH-49-AH — CC — SCE&G XFD-289-AH — D-6 302-232 F.S. — TS 9795 — 24"x8" — 8"ø 8"ø 8"ø 8"ø

TELEPHONE EQUIPMENT ROOM COOLING UNIT

TO ATMOS. — SERVICE BLDG. TOILET EXHAUST FAN — SM-40F XFN-93-AH — FAN IN OPER. — HP RPM V — ROOF — XFD-201-AH — XMD-121-AH — XFN-93-DP1-AH — XMD-120-AH — XFD-200-AH — CLOSE

WOMENS TOILET & LOCKER ROOM 650 CFM — WOMENS TOILET & LOCKER ROOM 650 CFM — MENS TOILET & LOCKER ROOM 900 CFM — MENS TOILET & LOCKER ROOM 850 CFM — MENS TOILET & LOCKER ROOM 850 CFM — JANITORS CLOSET 100 CFM

FL. EL. 448'-0" (2ND FLOOR) — G-13 -152

Q.C. DARKROOM — D-10 -152

MENS TOILET ROOM 425 CFM — MENS TOILET ROOM 145 CFM — MENS TOILET ROOM 425 CFM — MENS TOILET ROOM 425 CFM — MENS TOILET ROOM 425 CFM — JANITORS CLOSET 100CFM — SHOWER ROOM 230CFM — DISPENSARY TOILET ROOM 100 CFM

LOCKER ROOM 2075 CFM

FL. EL. 436'-0" (1ST FLOOR)

TOILET EXHAUST SYSTEM

SM-37H XHC-84-AH — MECHANICAL EQUIPMENT ROOM

SM-37H XHC-90-AH — MECHANICAL EQUIPMENT ROOM

SM-37K XHC-91-AH — LOCKER ROOM

UNIT HEATERS

ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY

TS 9796A (1) — SM-42 XHC-92-AH — LOBBY

TS 9796B (1) — SM-42 XHC-93-AH — LOBBY

TS 9796C (1) — SM-42 XHC-94-AH — STAIRS

CABINET HEATERS

SM-45 XDP-5-VL — SAFETY RELATED RECORDS RM.

SM-45 XDP-6-VL — SAFETY RELATED RECORDS RM.

DEHUMIDIFIERS

NOTES:
1. HEATING COIL INCLUDES LOW FLOW & OVER TEMPERATURE PROTECTION DEVICES.
2. CABINET HEATERS HAVE WALL MOUNTED THERMOSTAT.
3. EXCEPT WHERE NOTED OTHERWISE, ALL SWITCHES & INDICATING LIGHTS ARE LOCATED LOCALLY.
4. (1) INDICATES DEVICE IS FURNISHED WITH THE EQUIPMENT.
5. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENTATION LIST.
6. FOR XPN5350, (A) INDICATES INPUTS AND (B) INDICATES OUTPUTS

TE 72700 HOT DECK — TE 72701 COLD DECK — TE 72702 MIX AIR — TE 72703 OUTDOOR AIR

TE 72704 ZONE 1 — TE 72705 ZONE 2 — TE 72706 ZONE 3 — TE 72707 ZONE 4 — TE 72708 ZONE 5

XAH0020 TEMPERATURE ELEMENTS

ESSENTIAL

RN 11-016

SYSTEM DESIGN DATA			
	AIR FLOW CFM	AIR TEMP °F	FAN T.C. IN W.C.
5	6819		
4	3301		
3	1500		
2	1135		
1	387		

1/4"=1'-0" — 0' 5' 10' 15' 20'

DRAWING LEGIBILITY CLASS 1

SCE&G CAD ENHANCED

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
19	4/18/2012	TGB	REVISED PER ECR-50763A	MGR	KW
18	10/03/11	DDJ	REVISED PER ECR-70028	MGR	DDJ

FSAR Figure 9.4-20

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM

SERVICE BUILDING

FIRST FLOOR AND SECOND FLOOR

DESIGN ENGINEERING

A SCANA COMPANY — V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
1. DDJ	2. MGR	3. DDJ

SCALE NO SCALE — D-912-151 — 19

DRAWING NUMBER — SHT. NUMBER — REV.

OPERATING DATA			
	AIR FLOW-CFM	AIR TEMP °F	
1	5570		
2	950		
3	5395		
4	450		
5	1295		
6	950		
7	4000		
8	14610		
9	10610		
10	4000		

XPN5351

10 PLACES

16 PLACES

HC
CONT
PNL
3 ϕ 460V
ECR50763 XPN-4051-AH
SS P53
ECR50763 XAH-21-DP1-AH
XHC-31-AH
FIRE & SECURITY SYSTEM
XA 9794
CS P52
O.A. LOUVER BY OTHERS
XDP-228-AH
XDP228-0-AH
PI 9809
75 HP 1800 RPM 460 V
ECR50763 XAH-21-DP2-AH
H C NOTE
ECR50763 XAH-21-DP3-AH
FAN IN OPER.
P53
R. F.
XFN-90-AH
ECR50763 XAH-21-DP4-AH
C. C.
ECR50763 XAH-21-DP5-AH
ECR50763 XAH-21-DP6-AH
XDP-229-AH
XFD-225-AH
ECR50763 XAH-21-AH
THERMAL EXPANSION VALVE XVH-10009A-AH
THERMAL EXPANSION VALVE XVH-10009B-AH
THERMAL EXPANSION VALVE XVH-10009C-AH
THERMAL EXPANSION VALVE XVH-10009D-AH
XFD-212-AH
XMD129-AH
SIGHT GLASS ILG72697
SIGHT GLASS ILG72698
SOLENOID VALVE XVX10010A
SOLENOID VALVE XVX10010B
FILTER DRYER XFL5009A
FILTER DRYER XFL5009B
CONDENSING UNIT ECR50763 XPC-3-AH
2ND FLOOR PLENUM
H-7 -151
XMD125-AH
XFD-211-AH
XFD-207-AH
XMD-124-AH
XFD-208-AH
XMD-175-AH
XFD-209-AH
XMD-126-AH
XMD-127-AH
XFD-210-AH
J-13 -151

ZONE 6

CLERK 600 CFM
TC 9792A
CORRIDOR 100 CFM
NUCLEAR OPERATIONS MANAGER 1000 CFM
PLANNING & SCHEDULING MANAGER 1200 CFM
CORRIDOR 75 CFM
HEALTH PHYSICS & SAFETY MANAGER 770 CFM
CLERK 450 CFM
CORRIDOR 70 CFM
CHEMISTRY SERVICES 650 CFM
CHEMISTRY MANAGER 600 CFM
CORRIDOR 55 CFM

ZONE 7

MAINTENANCE MANAGER 850 CFM
TC 9792B
PLANT MANAGER 100 CFM

CEILING RETURN PLENUM LINE

ZONE 8

PLANT MANAGER 625 CFM
CORRIDOR 125 CFM
OUTAGE MANAGER 750 CFM
GENERAL OFFICE 1 535 CFM
CORRIDOR 200 CFM
TC 9792C
QUALITY SYSTEMS MANAGER 600 CFM
CLERK 0 CFM
GENERAL OFFICE 2 160 CFM
CORRIDOR 50 CFM
OPEN OFFICE AREA 100 CFM
CORRIDOR 150 CFM
QUALITY CONTROL SUPERVISOR 1100 CFM
QUALITY CONTROL MANAGER 900 CFM
OPEN OFFICE AREA 100 CFM

ZONE 9

TC 9792D
OPEN OFFICE AREA 100 CFM
OPEN OFFICE AREA 200 CFM
OPEN OFFICE AREA 150 CFM

CEILING RETURN PLENUM LINE

ZONE 10

CORRIDOR 55 CFM
OPEN OFFICE AREA 130 CFM
OPEN OFFICE AREA 130 CFM
OPEN OFFICE AREA 130 CFM
CORRIDOR 100 CFM
OPEN OFFICE AREA 60 CFM
CORRIDOR 60 CFM
CORRIDOR 75 CFM
CHEMISTRY & MAINTENANCE SUPERVISORS 155 CFM
CORRIDOR 100 CFM
CHEMISTRY & MAINTENANCE SUPERVISORS 300 CFM
TC 9792E

ZONE 11

OPEN OFFICE AREA 50 CFM
OPEN OFFICE AREA 50 CFM
TC 9792F
CONFERENCE 850 CFM

CEILING RETURN PLENUM LINE

XAH0021 TEMPERATURE ELEMENTS

TE 72680	HOT DECK
TE 72681	COLD DECK
TE 72682	MIX AIR
TE 72683	OUTDOOR AIR
TE 72684	ZONE 6
TE 72685	ZONE 7
TE 72686	ZONE 8
TE 72687	ZONE 9
TE 72688	ZONE 10
TE 72689	ZONE 11

SYSTEM DESIGN DATA			
	AIR FLOW-CFM	AIR TEMP °F	FAN T.C. IN WC
10			
1			

NOTES:
1. HEATING COIL INCLUDES LOW FLOW & OVER-TEMPERATURE PROTECTION DEVICES.
2. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.
3. FOR XPN5351, (A) INDICATES INPUTS AND (B) INDICATES OUTPUTS.

ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

RN 10-028
ESSENTIAL

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
11	4/9/2013	TGB	REVISED PER ECR-50763	MGR	KW
10	10/4/11	DDJ	REVISED PER ECR-70028	MGR	DDJ

FSAR Figure 9-4-21

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION
BUILDING SERVICE SYSTEM FLOW DIAGRAM
SERVICE BUILDING
SECOND FLOOR
DESIGN ENGINEERING
A SCANA COMPANY — V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
1. DDJ	2. MGR	3. DDJ

SCALE: NO SCALE
D-912-152 (DRAWING NUMBER) — SHT. NUMBER — REV. 11

1/4"=1'-0" 0' 5' 10' 15' 20'

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

NOTES:
1. ALL EQUIPMENT TO BE SAFETY CLASS 2b UNLESS NOTED OTHERWISE
2. ALL SAFETY CLASS PIPING TO BE IN ACCORDANCE WITH LINE SPEC 152N
3. ALL NON-SAFETY CLASS PIPING TO BE IN ACCORDANCE WITH LINE SPEC 151X
4. EXCEPT WHERE NOTED OTHERWISE ALL ALARMS & INDICATING LIGHTS ARE LOCATED ON THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM
5. CHEM. FEED TANK SWITCHES & INDICATING LIGHTS ARE LOCATED AT LOCAL PANEL XPN-44-VU
6. OPERATOR INITIATED INPUT TO THE TSC COMPUTER
7. 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.

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

ESSENTIAL

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

DRAWING LEGIBILITY CLASS 1

#	PSIG	°F	PSIG	°F	DURATION	HYDRO	BY	CHK'D	REMARKS
	P	NORMAL	UPSET						
5	123	54				136	DJL		NOTE 7
4	123	45				136	DJL		NOTE 7
3	123	45				136	DJL		NOTE 7
2	123	54				136	DJL		NOTE 7
1	42	54				136	DJL		NOTE 7

DESIGN DATA

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
36	10/5/17	JMR	REVISED PER ECR-50585B		EW
35	9/18/17	KO	REVISED PER ECR-50585B	AME	EAW
34	7/14/17	JMR	REVISED PER ECR-50585U	RHM	RS
33	4/4/13	RHM	REVISED PER ECR-50585J	RHM	RS
32	3/6/13	RHM	REVISED PER ECR-50585J	MGR	RS
31	1/11/12	DDJ	REVISED PER ECR50585J	MGR	RS

DESIGN ENGINEERING		
A SCANA COMPANY	V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.	
MADE	CHECKED	LE APPROVAL
SRM	MGR	CHR

SCALE AS NOTED | D-302-841 | 36
DRAWING NUMBER | SHT NUMBER | REV

FSAR Figure 9.4-22

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

PIPING SYSTEM FLOW DIAGRAM

CHILLED WATER PUMP & CHILLER AREA

SYSTEM DATA							
ID	NORMAL GPM	NORMAL PSIG	UPSET GPM	UPSET PSIG	°F	BY	REMARKS
1	52	98	—	—	45	JAH	
2	53	93	—	—	45	JAH	
3	78	95	—	—	45	JAH	
4	58	184	—	—	45	JAH	
5	58	188	—	—	45	JAH	
6			—	—	45	JAH	
7	65	83	—	—	45	JAH	
8	128	77	—	—	45	JAH	
9	53	76	—	—	45	JAH	
10	29	89	—	—	45	JAH	
11			—	—	45	JAH	
12			—	—	45	JAH	
13	14	181	—	—	45	JAH	

DESIGN DATA									
ID	NORMAL PSIG	NORMAL °F	UPSET PSIG	UPSET °F	UPSET DURATION	HYDRO	BY	CKD	REMARKS
6	ATM	187	—	—	—	5			
5	123	84	—	—	—	136	DJL		COIL IN (TYP)
4	123	45	—	—	—	136	DJL		COIL OUT (TYP)

ESSENTIAL

NOTES:
1. ALL EQUIPMENT SAFETY CLASS 2b, UNLESS NOTED OTHERWISE
2. ALL SAFETY CLASS PIPING TO BE IN ACCORDANCE WITH LINE SPEC 152N
3. ALL NON SAFETY CLASS PIPING TO BE IN ACCORDANCE WITH LINE SPEC 151X
4. ALL ALARMS AND INDICATING LIGHTS ARE LOCATED ON THE HVAC CONTROL BOARD OCP-6218-41 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 ASME 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 IMS-22-1619 FOR DETAILS.
8. ALL PIPING AND COMPONENTS DOWNSTREAM OF IPX ROOT VALVES ARE NON SAFETY RELATED. SEE TYPICAL DEFECTION AT IPX *U8A.

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. NO DEVIATION SHALL BE INITIATED OR PERFORMED WITHOUT PRIOR DOCUMENTATION AND WRITTEN APPROVAL.

RN 08-019
October 2008

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
17	7/14/87	RHM	REVISED PER CGSS-97-0386	MGR	GJM
16	12-05-95	SRM	REVISED PER MRF-22114	MGR	DJL
15	03-3-95	SRM	REVISED PER MRF-22594 & MRF-22114	MGR	CHR
19	8/1/08	RHM	REVISED PER ECR-71196	MGR	LF
18	09/24/05	JTS	CADD ENHANCED PER ECR-50239	MGR	DDJ

FSAR Figure 9.4-23

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

PIPING SYSTEM FLOW DIAGRAM
CHILLED WATER - TO COOLING COILS
"A"

DESIGN ENGINEERING

A. BOZIS STEPHAN — V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE: CRR | CHECKED: RHM | LE APPROVAL: DJC

DRAWING NUMBER: D-302-842 | SHT. NUMBER | REV: 19

SYSTEM DATA

ID	NORMAL GPM	NORMAL PSIG	UPSET GPM	UPSET PSIG	°F	BY	REMARKS
1	62	95	—	—	45	JAH	
2	55	95	—	—	45	JAH	
3	73	93	—	—	45	JAH	
4	98	183	—	—	45	JAH	
5	58	99	—	—	45	JAH	
6	37	88	—	—	45	JAH	
7	128	76	—	—	45	JAH	
8	59	72	—	—	45	JAH	
9	31	87	—	—	45	JAH	
10	24	77	—	—	45	JAH	

NOTES:

1. ALL EQUIPMENT TO BE SAFETY CLASS 2b UNLESS NOTED OTHERWISE
2. ALL SAFETY CLASS PIPING TO BE IN ACCORDANCE WITH LINE SPEC 152N
3. ALL NON SAFETY CLASS PIPING TO BE IN ACCORDANCE WITH LINE SPEC 151X
4. EXCEPT WHERE NOTED OTHERWISE, ALL ALARMS & INDICATING LIGHTS ARE LOCATED ON THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM
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 ASME 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 IMS-22-1619 FOR DETAILS.
8. ALL PIPING AND COMPONENTS DOWNSTREAM OF IPX ROOT VALVES ARE NON SAFETY RELATED. SEE TYPICAL DEPICTION AT IPX 91108.

ID	PSIG	°F	PSIG	°F	DURATION	HYDRO	BY	CKD	REMARKS
	NORMAL		UPSET						
6	ATM	187	—	—	—	5			
5	123	54	—	—	—	136	DJL		COIL IN (TYP)
4	123	45	—	—	—	136	DJL		COIL IN (TYP)

DESIGN DATA

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. NO DEVIATION SHALL BE INITIATED OR PERFORMED WITHOUT PRIOR DOCUMENTATION AND WRITTEN APPROVAL.

RN 08-019
October 2008

DRAWING LEGIBILITY
CLASS 1
SCE&G CAD ENHANCED

ESSENTIAL

NO.	DATE	BY	REVISION	CKD. BY	APPROVAL
15	12-05-15	SRM	REVISED PER MRF-22114	MGR	DJL
14	04-03-15	SRM	REVISED PER MRF-22594 &	MGR	CHR
		SRM	REVISED PER MRF-22114	MGR	DJL
18	8/27/08	RHM	REVISED PER ECR-71196	MGR	LF
17	05/14/04	JTS	CADD ENHANCED PER ECR-50239	MGR	DDJ
16	10/18/01	DDJ	REVISED PER ECR-70028	MGR	DDJ

FSAR Figure 9.4-24

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

PIPING SYSTEM FLOW DIAGRAM
CHILLED WATER - TO COOLING COILS
"B"

DESIGN ENGINEERING
A NUCLEAR COMPANY — V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
A.V.N.	D.V.W.	D.J.C.

APP'D ON SCE&G | D-302-843 | SHT. NUMBER 18 | REV

DRAWING NUMBER

SYSTEM DATA					
NO	GPM	PSIG	°F	Δ P	REMARKS
1	1375	—	85	—	—
2	2750	56	85	—	—
3	2275	—	85	—	—
4	443	—	85	—	—
5	32	—	85	—	—
6	3	—	85	—	—
7	13	—	85	—	—
8	2750	—	95	—	—

DESIGN DATA									
1	56	85	60	85	—	—	TM		
ID	PSIG	F	PSIG	F	DURATION	HY-DRO	BY	CKD	REMARKS
	NORMAL		UPSET						

XCI-1A-CI

XCI-1B-CI

REACTOR BUILDING

NOTES:
1. UNLESS NOTED OTHERWISE ALL ALARMS & INDICATING LIGHTS ARE LOCATED AT THE MAIN CONTROL BOARD (XCP-6103-AH) IN THE MAIN CONTROL ROOM.
2. ALL NON-SAFETY PIPING TO BE IN ACCORDANCE WITH LINE SPEC 151X.
3. (F) INDICATES VALVE OR INSTRUMENT IS FURNISHED WITH EQUIPMENT.
4. ALL SYSTEM COMPONENTS ARE NON-SAFETY.
5. PUMP SHAFT SEAL LEAK COLLECTION OPEN DRAIN, TYPICAL ALL PUMPS, 8 PLACES PER ECR-50423.

ESSENTIAL

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
34	3/8/06	JTS	REVISED PER ECR-70848	MGR	LHF
39	5/10/17	JMR	REVISED PER ECR-50874	RHM	KPW
38	11/9/15	JMR	REVISED PER ECR-50874	MGR	MR
37	9/8/2011	JTS	REVISED PER ECR-71591	MGR	WAW
36	1/6/09	JNC	REVISED PER ECR-71215	PAH	MGC
35	5/20/08	JMR	REVISED PER ECR-71167	MGR	LA

FSAR Figure 9.4-25 SH.1

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

PIPING SYSTEM FLOW DIAGRAM

INDUSTRIAL COOLING WATER

DESIGN ENGINEERING

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

1. MADE	2. CHECKED	3. LE APPROVAL
RHM	MGR	RW

SCALE: NO SCALE

D-302-851

DRAWING NUMBER

SHT. NUMBER 1 OF 39

REV

SYSTEM DATA					
ID	GPM	PSIG	°F	BY	REMARKS
1	2750	56	83*	MKR	
2	2750	56	72*	MKR	
3	1540*	78	73*	MKR	
4	1540*	—	47*	MKR	
5	1540*	—	73*	MKR	

* PARAMETERS BASED ON 3-CHILLER OPERATION

PI 78163 · PI 78164 · PI 78165 · PI 78166 · PI 78167 · PI 78168

100HP 1780RPM 480V

XPP0246A-CI · XPP0246B-CI

CHEM FEED TANK

EXPANSION RESERVOIR

XHE0030A-CI See Notes 5 & 7

XHE0030B-CI See Notes 5 & 7

XHX0010A-CI · XHX0010B-CI · XHX0010C-CI · XHX0010D-CI

400 Ton Air Cooled Chiller

XPN5629 INDUSTRIAL CHILLER CONTROL PANEL

4 places

NOTES:

1. UNLESS NOTED OTHERWISE ALL ALARMS & INDICATING LIGHTS ARE LOCATED AT THE MAIN CONTROL BOARD (XCP-6103-AH) IN THE MAIN CONTROL ROOM.
2. ALL NON-SAFETY PIPING TO BE IN ACCORDANCE WITH LINE SPEC 151X UNLESS OTHERWISE NOTED.
3. ALL INSTRUMENT AND TEST CONNECTION TUBING TO BE IN ACCORDANCE WITH LINE SPEC 2505X
4. ALL SYSTEM PIPING AND COMPONENTS ARE NON-SAFETY.
5. IF ONLY ONE HEAT EXCHANGER IS IN SERVICE, THE STANDBY HEAT EXCHANGER OUTLET ISOLATION VALVE SHOULD BE CLOSED.
6. TEMPORARY STRAINER FOR SYSTEM CLEAN SHOULD BE REMOVED AFTER FINAL FLUSH
7. EACH HX INLET PORT HAS A SST INTERNAL PORT STRAINER, REMOVABLE FROM REAR PRESSURE PLATE

PORT STRAINER SCHEDULE

EQUIP ID	NAME
XHE0030A-ST1	IND CLG HX A PORT STRAINER
XHE0030A-ST2	IND CLG HX A CHLR SIDE PORT STRAINER
XHE0030B-ST1	IND CLG HX B PORT STRAINER
XHE0030B-ST2	IND CLG HX B CHLR SIDE PORT STRAINER

DESIGN DATA									
3	ATM	73	–	–					
2	56	85	60	85					
1	78	54	91	95					
P	PSIG	°F	PSIG	°F	DURATION	HYDRO	BY	CHK'D	REMARKS
	NORMAL		UPSET						

PENDING/HOLD CHG

Use with reference to
ECR: 50874-AD
DATE: 5/8/2018
INITIALS CVT

DRAWING LEGIBILITY CLASS 1

NO.	DATE	BY	REVISION	CKD. BY	APPROVAL
4	5/11/17	JMR	REVISED PER ECR-50874	RHM	KPW
3	3/21/17	JMR	REVISED PER ECR-50874X	RHM	MKR
2	1%/16	RHM	REVISED PER ECR-50874	RHM	MKR
1	9/28/16	JMR	REVISED PER ECR-50874	RHM	MKR
0	11/9/15	JMR	ISSUED PER ECR-50874	MGR	MR

FSAR Figure 9.4-25 SH.2

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

PIPING SYSTEM FLOW DIAGRAM

INDUSTRIAL COOLING WATER

DESIGN ENGINEERING

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

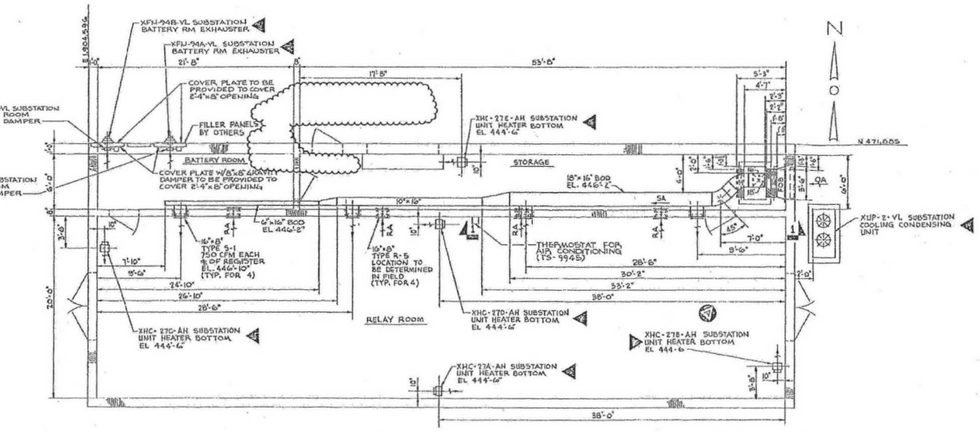
MADE	CHECKED	I.E. APPROVAL
JMR	RHM	MKR

SCALE NO SCALE

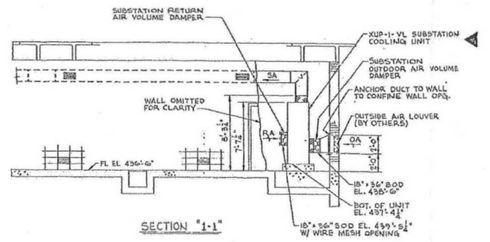
D-302-851 | 2 | 4

DRAWING NUMBER | SHT. NUMBER | REV.

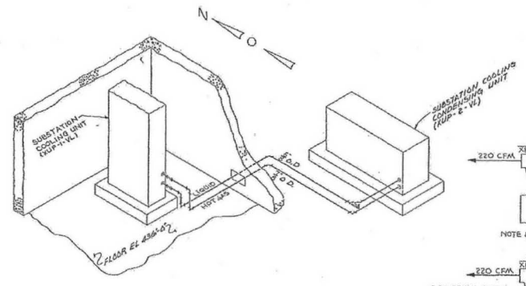
ESSENTIAL



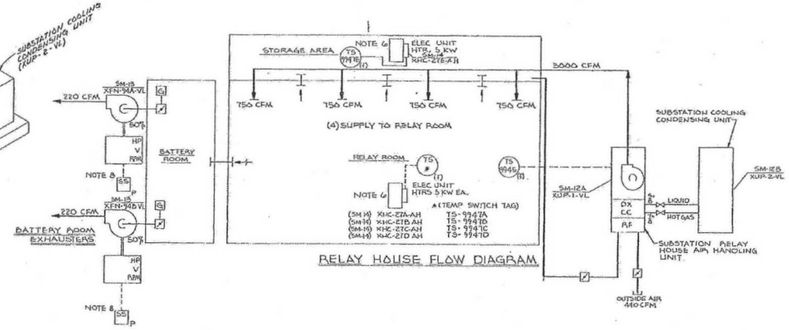
PLAN VIEW FL. EL. 436'-6"



SECTION "1-1"



ISOMETRIC VIEW "A"
CONDENSER PIPING
NO SCALE



RELAY HOUSE FLOW DIAGRAM

NOTES:
2. REFER TO SPECIFICATION SP-130-044401-001 FOR DUCTWORK MATERIALS AND CONSTRUCTION
3. REFRIGERATION TUBING SHALL BE TYPE L, HARD TEMPER COPPER TUBING WITH WROUGHT COPPER FITTINGS. JOINTS SHALL BE BRAZ WITH 95-5 SOLDER
4. DUCTWORK TO BE ANS SAFETY CLASSIFICATION NNS.
5. REFER TO SPECIFICATION SP-223-044401-001 FOR INSTALLATION OF EQUIPMENT.
6. EACH UNIT HEATER IS CONTROLLED BY AN INDIVIDUAL LOCAL THERMOSTAT
7. (1) INDICATES THAT ONE INSTRUMENT IS ASSOCIATED WITH ONE EQUIPMENT.
8. SWITCHES FOR BATTERY ROOM EXHAUSTERS ARE LOCATED AT A LOCAL CONTROL STATION
*). FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST

REFERENCES:
E-429-0026 230KV SUBSTATION RELAY HOUSE FOUNDATION PLAN AND SECTIONS

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

RN 11-003

FSAR Figure 9.4-26

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION
BUILDING SERVICE — HVAC
SUBSTATION RELAY HOUSE FLOOR EL. 436'-8"

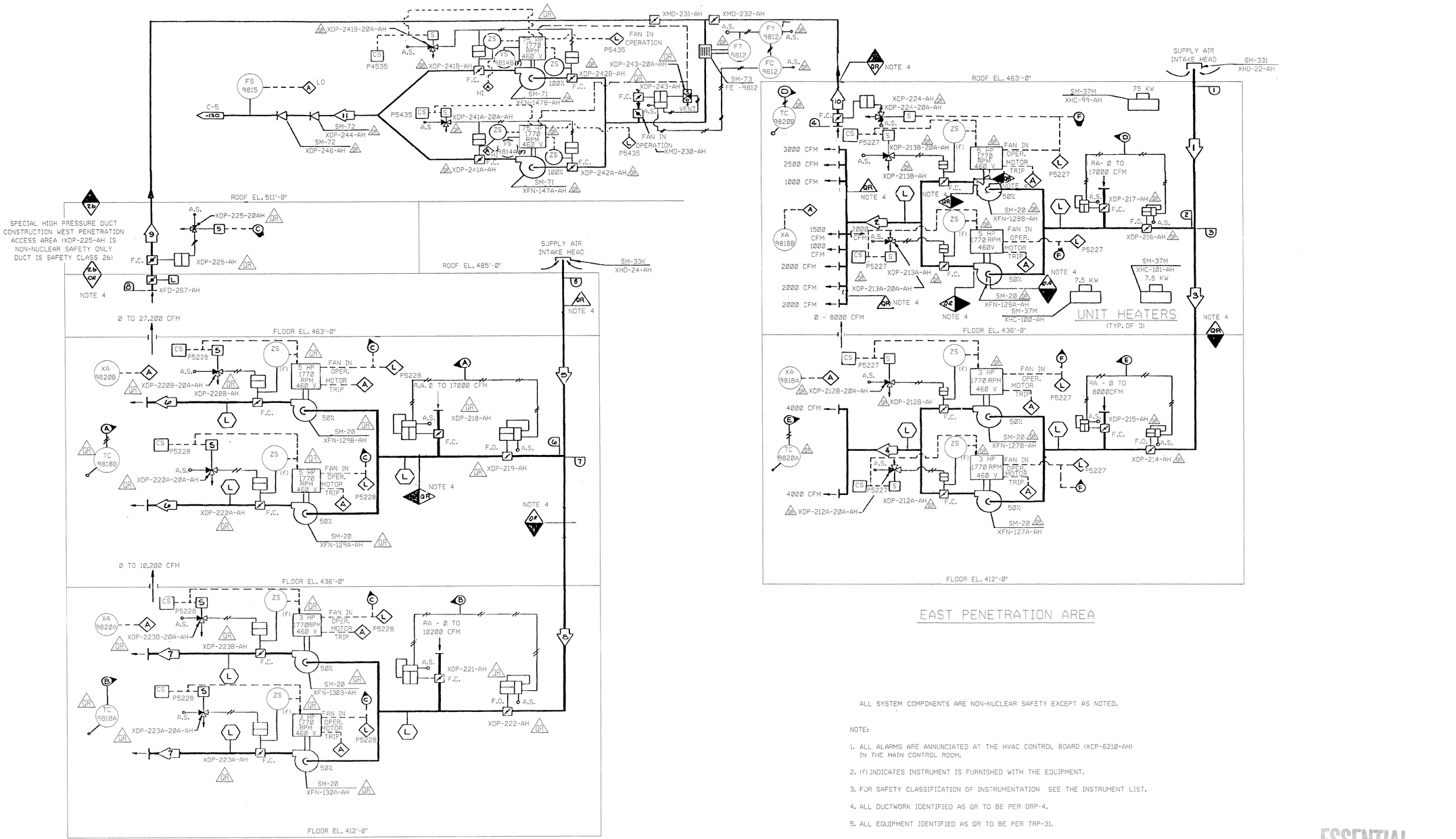
NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
6	3/25/2014	TGB	REVISED PER ECR-58748D	MGR	DH
5	8/25/11	DDJ	REVISED PER ECR-70028	MGR	DDJ

DESIGN ENGINEERING
A SCANA COMPANY — V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S.C.
MADE: DDJ — CHECKED: MGR — LE APPROVAL: DDJ
SCALE: NO SCALE — DRAWING NUMBER: E-922-541 — SHT. NUMBER / REV: 6

1/4"=1'-0"

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	



WEST PENETRATION AREA

EAST PENETRATION AREA

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

NOTE:

1. ALL ALARMS ARE ANNUNCIATED AT THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM.
2. (f) INDICATES INSTRUMENT IS FURNISHED WITH THE EQUIPMENT.
3. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION SEE THE INSTRUMENT LIST.
4. ALL DUCTWORK IDENTIFIED AS QR TO BE PER QRP-4.
5. 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.'

ESSENTIAL

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

1/4"= 1'-0" (0' 5' 10' 15' 20')

RN 02-042
June 2003

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

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

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM
EAST AND WEST PENETRATION AREA
COOLING SYSTEM

DESIGN ENGINEERING
SCE&G A SCANA COMPANY
V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

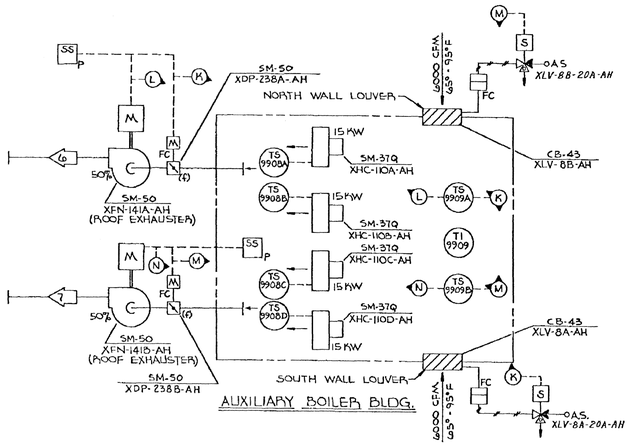
NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
15	9/17/02	DDJ	REVISED PER ECR-70249	MGR	DKW
14	10/04/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
13	04/20/93	JMH	REVISED PER CGSS-93-0328	DVW	GAA

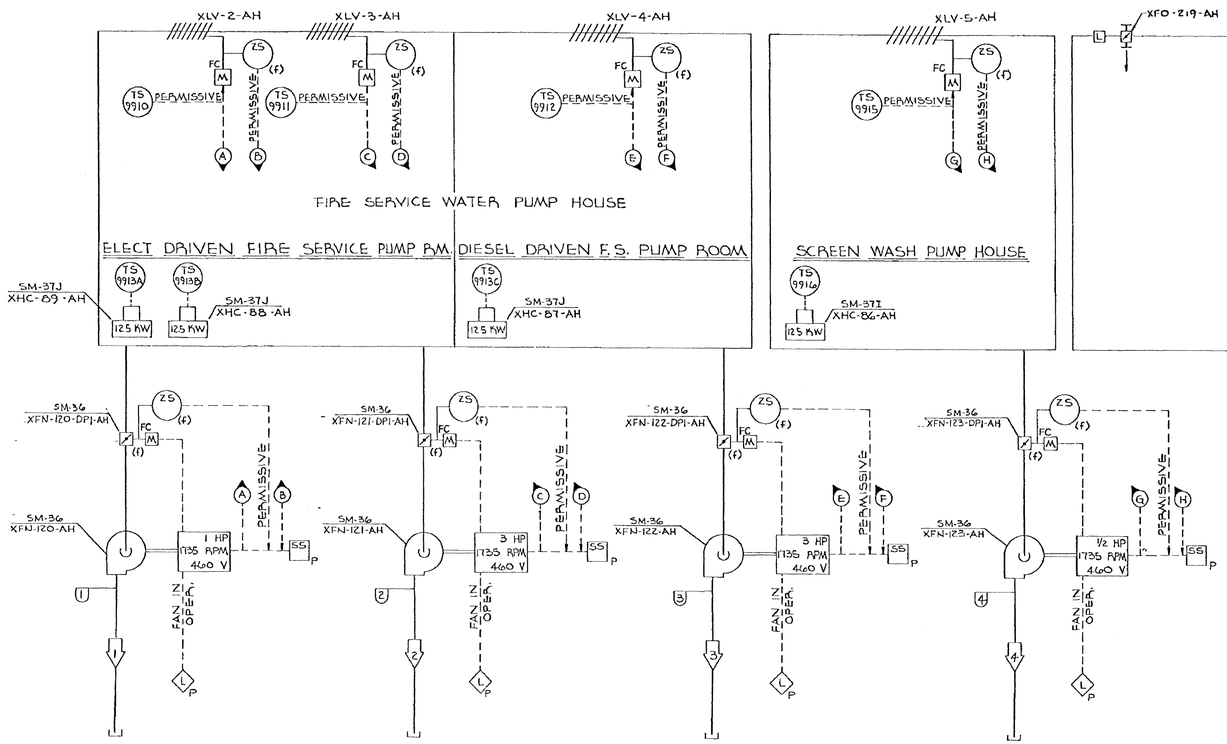
1. MADE	2. CHECKED	3. LE APPROVAL
JMH	DVW	GAA

SCALE: NO SCALE

D-912-171 | 1 | 15
DRAWING NUMBER | SHT. NUMBER | REV.

SYS. OPER. DATA			
#	AIR FLOW ACFM	AIR TEMP °F	
1	45550	40-104	
2	10353	40-104	
3	10353	40-115	
4	3393	40-104	
5	8872	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.- XPN-5197-AH
   DIESEL " " " - XPN-5198-AH
   SCREEN WASH " HOUSE - XPN-5199-AH
   LUBE OIL TREAT. ROOM - XPN-5200-AH
   AUX BOILER BLDG. XPN-5239-AH
2. MOTOR TRIP ALARMS ARE ANNUNCIATED AT THE HVAC CONTROL BOARD (XCP-6210-AH) IN THE MAIN CONTROL ROOM.
3. (f) INDICATES DEVICE IS FURNISHED WITH THE EQPT.
4. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.

SYS. DESIGN DATA			
#	AIR FLOW ACFM	AIR TEMP °F	
5	8800		
4	3393		
3	10353		
2	10353		
1	45550		
⑥	AIR FLOW ACFM	AIR TEMP °F	

1/4"=1'-0" (0' 5' 10' 15' 20')

ESSENTIAL

ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

Amendment 02-01
May 2002

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
9	10/04/01	DDJ	REVISED PER ECR-70028	MGR	DDJ

FSAR Figure 9.4-26b

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

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

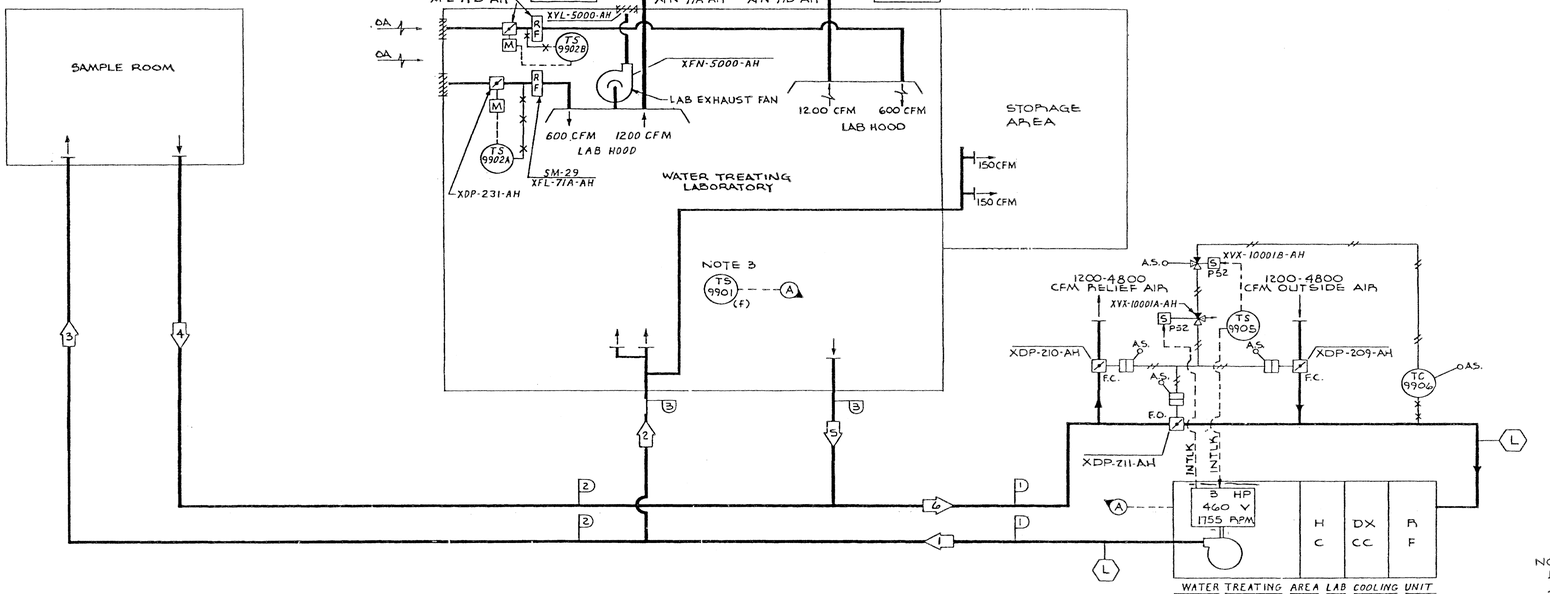
DESIGN ENGINEERING
A SCANA COMPANY | V.C. SUMMER NUCLEAR STATION JENKINSVILLE, S.C.

MADE	CHECKED	LE APPROVAL
1. DDJ	2. MGR	3. DDJ

SCALE NO SCALE | D-912-170 | 9
DRAWING NUMBER | SHT. NUMBER | REV

...\cndeck\dcn6\912170_0001.dgn Oct. 04, 2001 11:16:18

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 AREA LABORATORY HEATING & COOLING SYSTEM

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 & A/C 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 - CFM	AIR TEMP °F				
3	3360	50-75				
2	1440	50-75				
1	4800	50-75				
NORMAL						

1/4" = 1'-0" (0' 5' 10' 15' 20')

ESSENTIAL

Amendment 00-01
December 2000

NO.	DATE	BY	REVISION	CKD. BY	APPROVAL
7	7/24/98	JMR	REVISED PER CGSS-98-0341	MGR	DKW
6	12/15/94	AVN	REVISED AS PER MRF-21335	MGR	DJC

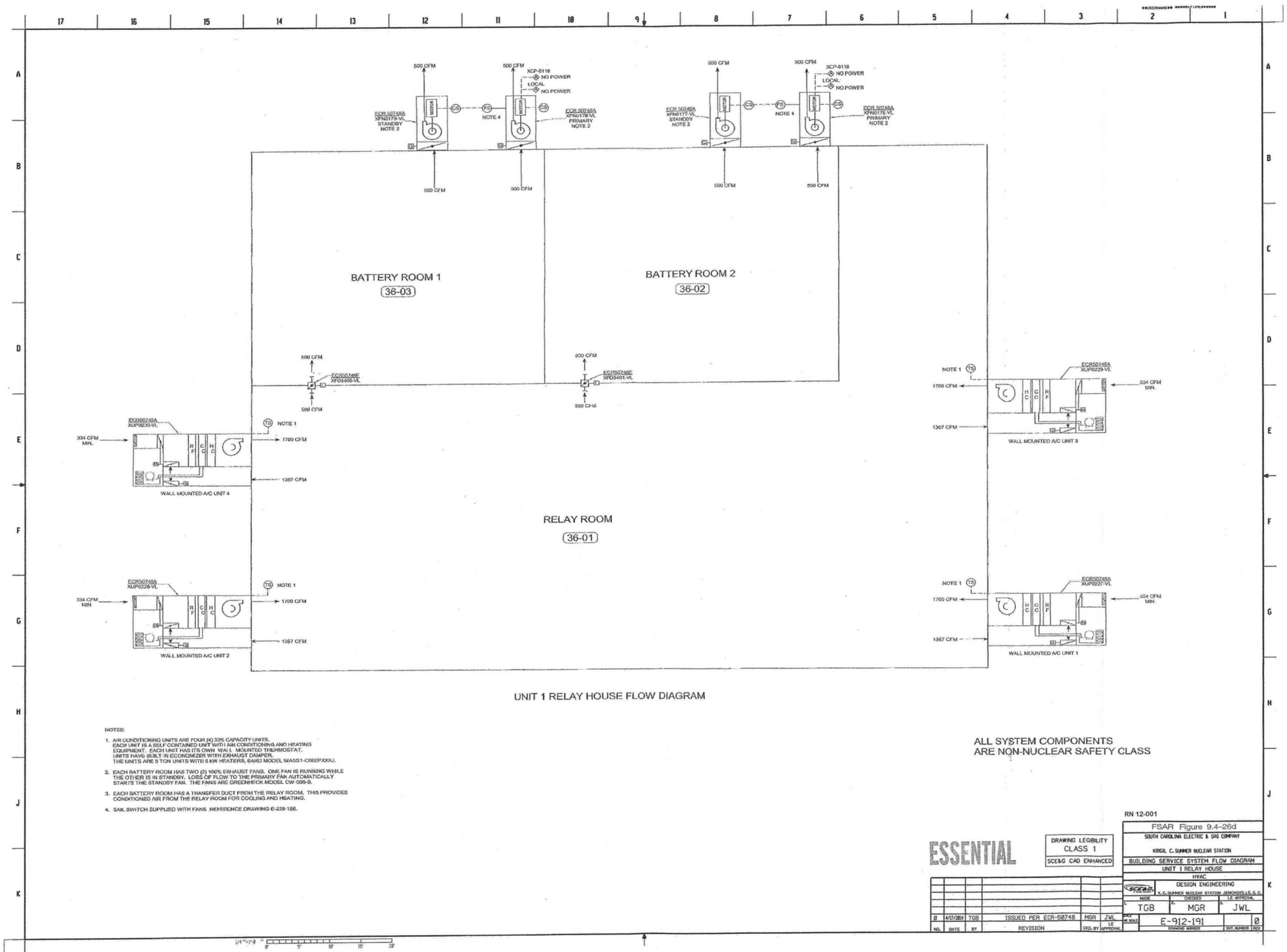
DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

FSAR FIG. 9.4-26C

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION
BUILDING SERVICE SYSTEM FLOW DIAGRAM
WATER TREATING BUILDING
HEATING AND COOLING SYSTEM
DESIGN ENGINEERING
BECHTEL a SCANA COMPANY | V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
1. JMH	2. MGR	3. DJC

SCALE: NO SCALE
D-912-153 | 7
DRAWING NUMBER | SHT. NUMBER | REV



UNIT 1 RELAY HOUSE FLOW DIAGRAM

NOTES:

1. AIR CONDITIONING UNITS ARE FOUR (4) 33% 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 8 KW HEATERS, BARD MODEL WA5S1-C06EP/XXXJ.
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-098-9.
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. SAIL SWITCH SUPPLIED WITH FANS. REFERENCE DRAWING E-229-186.

ALL SYSTEM COMPONENTS
ARE NON-NUCLEAR SAFETY CLASS

ESSENTIAL

DRAWING LEGIBILITY
CLASS 1
SCE&G CAD ENHANCED

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
0	4/07/2014	TGB	ISSUED PER ECR-58748	MGR	JWL

RN 12-001

FSAR Figure 9.4-26d

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM
UNIT 1 RELAY HOUSE
HVAC

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

DRAWN	CHECKED	LE APPROVAL
TGB	MGR	JWL

DRAWING NUMBER: E-912-191 | SHT. NUMBER | REV: 0

1/4"=1'-0"

SYSTEM OPERATING DATA

ⓟ	AIR FLOW ACFM	TEMP. °F	PRESSURE IN W.C.
1	20000	≥ 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.	ATMOS.

SAFETY CLASS VERIFICATION

ORIGINATED BY	[illegible] 11-14-96
REVIEWED BY	[illegible] 11-14-96

SYSTEM DESIGN DATA

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

PURGE SUPPLY SYSTEM

PURGE EXHAUST SYSTEM

ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY UNLESS OTHERWISE NOTED

(H) CLOSE VALVE ON HIGH AREA ACTIVITY (RM-G1A)
(I) CLOSE VALVE ON HIGH AREA ACTIVITY (RM-G1B)
(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-6210) 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-6104) 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 36" FOR LEAK TESTING CONTAINMENT ISOLATION VALVES SEE DWG D-302-861.
9. AIR SUPPLY VALVE TO VALVES XVB-1A-AH, XVB-1B-AH, XVB-2A-AH AND XVB-2B-AH IS LOCKED CLOSED TO PREVENT ACCIDENTAL OPENING OF THESE VALVES DURING NORMAL PLANT OPERATION.

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

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

ESSENTIAL

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

Amendment 02-01
May 2002

FSAR Figure 9.4-28

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION
BUILDING SERVICE SYSTEM FLOW DIAGRAM
R.B. PURGE SUPPLY & PURGE EXHAUST SYSTEMS
DESIGN ENGINEERING
V. C. SUMMER NUCLEAR STATION, JENKINSVILLE, S. C.

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
21	10/02/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
20	11/14/95	JTS	REVISED PER MRF-22640	MGR	JEW
19	6/20/90	PJM	REVISED PER CGSG-16015	DCW	PJS

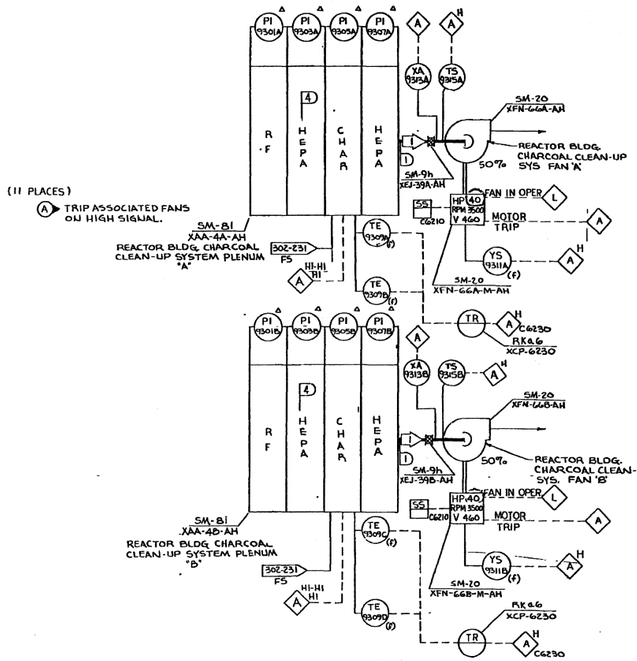
MADE: PJM | CHECKED: DCW | LE APPROVAL: PJS
SCALE: NO SCALE
DRAWING NUMBER: D-912-103
SHT. NUMBER: 21
REV: K

1/4"=1'-0"

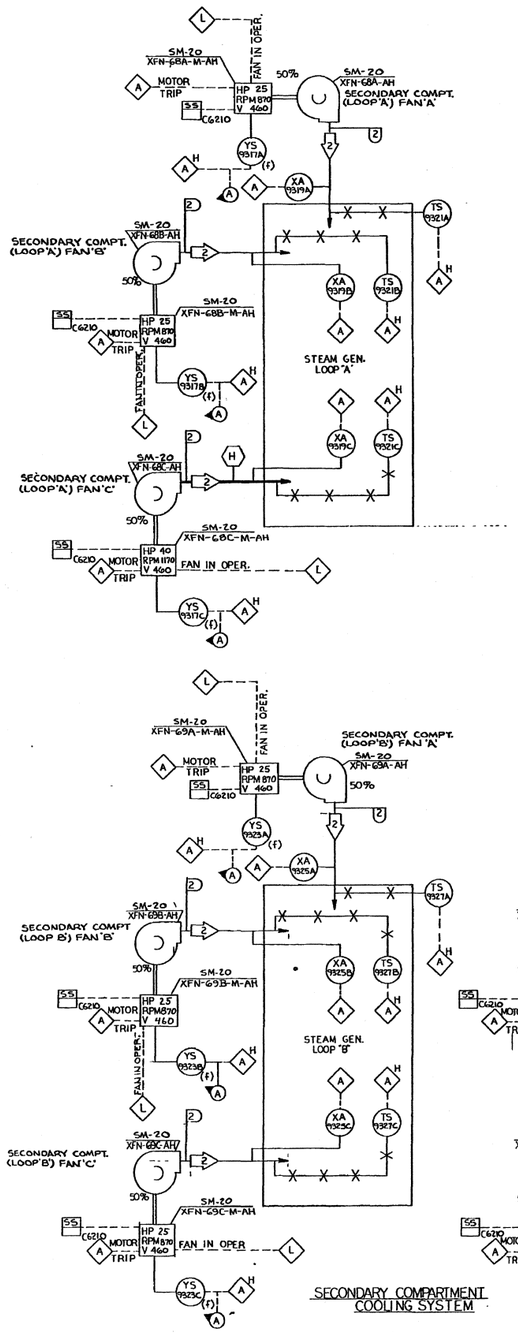
...\brdock\2508\312103_0001.dgn Oct. 03, 2001 09:42:02

\\Vas011p\oadd\Working\Interims\50683\912104_0001.dgn
rml5043 28-NOV-2009 22:50

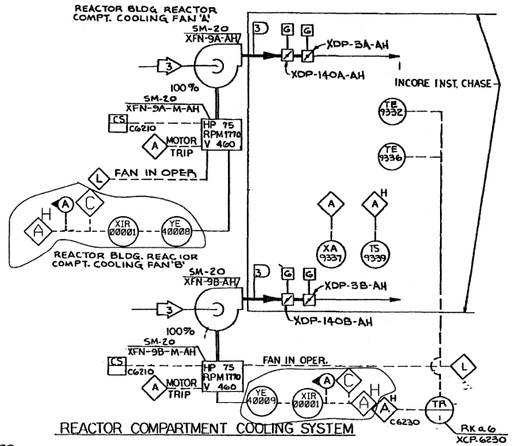
SYS. OPERATING DATA			
	AIR FLOW ACFM	AIR TEMP °F	
1	12,000	120°	
2	45,000	100°	
3	35,000	100°	



R.B. CHARCOAL CLEAN UP SYSTEM



SECONDARY COMPARTMENT COOLING SYSTEM



REACTOR COMPARTMENT COOLING SYSTEM

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

1/4"=1'-0" (0' 5' 10' 15' 20')

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

RN 09-023
June 2010

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
12	11/28/09	RHM	REVISED PER ECR-50683	RHM	MM
11	10/02/08	DDJ	REVISED PER ECR-70028	MGR	DDJ

FSAR Figure 9.4-29

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM
R.B. CHARCOAL CLEAN-UP, SECONDARY COMPT. COOLING & REACTOR COMPT. COOLING

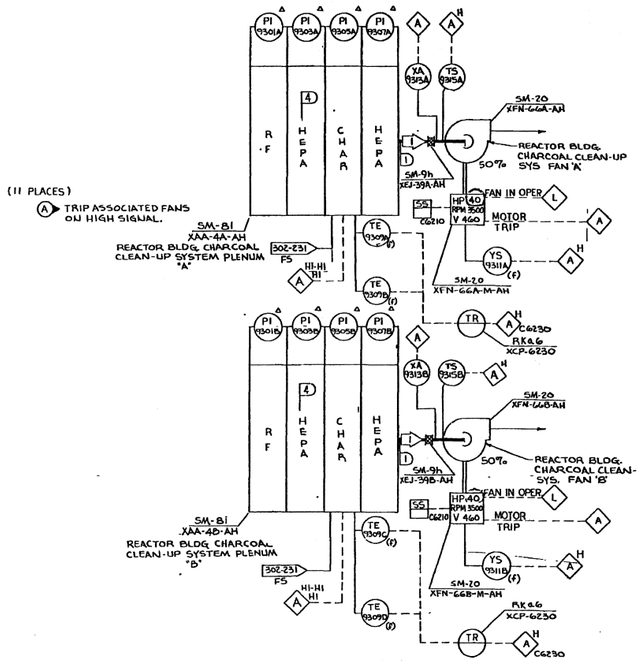
DESIGN ENGINEERING
V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
DDJ	MGR	DDJ

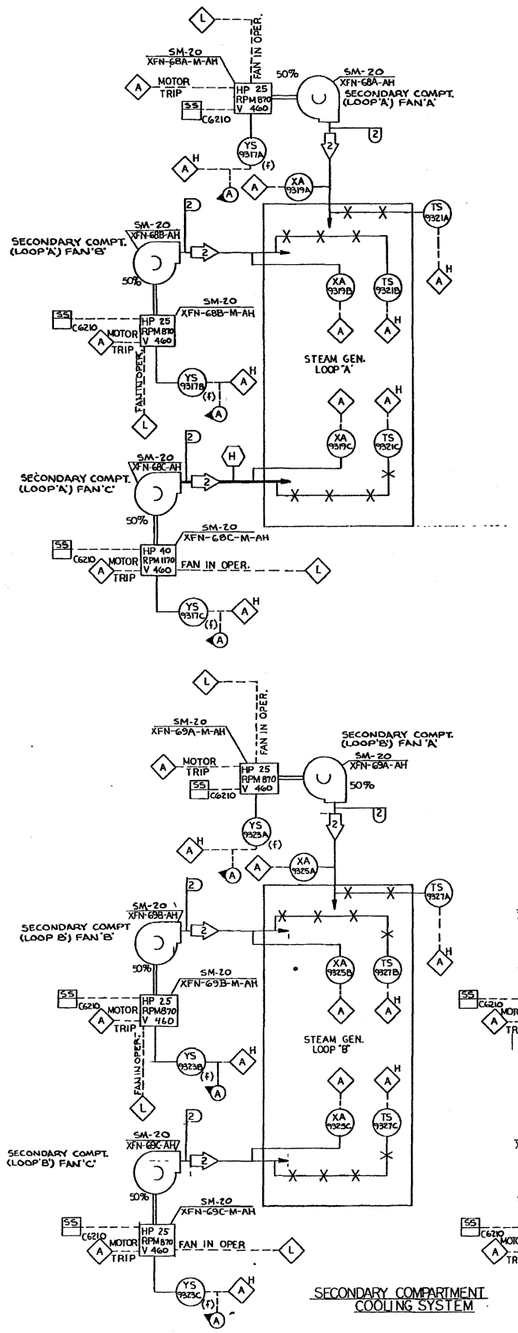
SCALE: NO SCALE
D-912-104 | 12
DRAWING NUMBER | SHT. NUMBER | REV

\\Vas011p\oadd\Working\Interims\50683\912104_0001.dgn
rml5043 28-NOV-2009 22:50

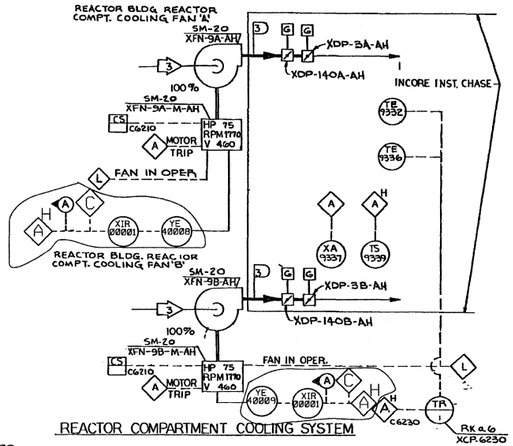
SYS. OPERATING DATA			
	AIR FLOW ACFM	AIR TEMP °F	
1	12,000	120°	
2	45,000	100°	
3	35,000	100°	



R.B. CHARCOAL CLEAN UP SYSTEM



SECONDARY COMPARTMENT COOLING SYSTEM



REACTOR COMPARTMENT COOLING SYSTEM

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

1/4"=1'-0" (0' 5' 10' 15' 20')

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

RN 09-023
June 2010

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
12	11/28/09	RHM	REVISED PER ECR-50683	RHM	MM
11	10/02/08	DDJ	REVISED PER ECR-70028	MGR	DDJ

FSAR Figure 9.4-29

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM
R.B. CHARCOAL CLEAN-UP, SECONDARY COMPT. COOLING & REACTOR COMPT. COOLING

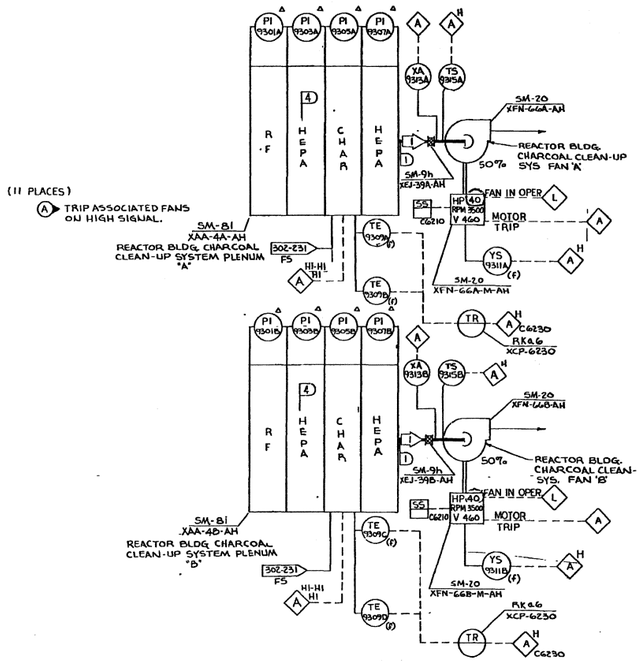
DESIGN ENGINEERING
V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
DDJ	MGR	DDJ

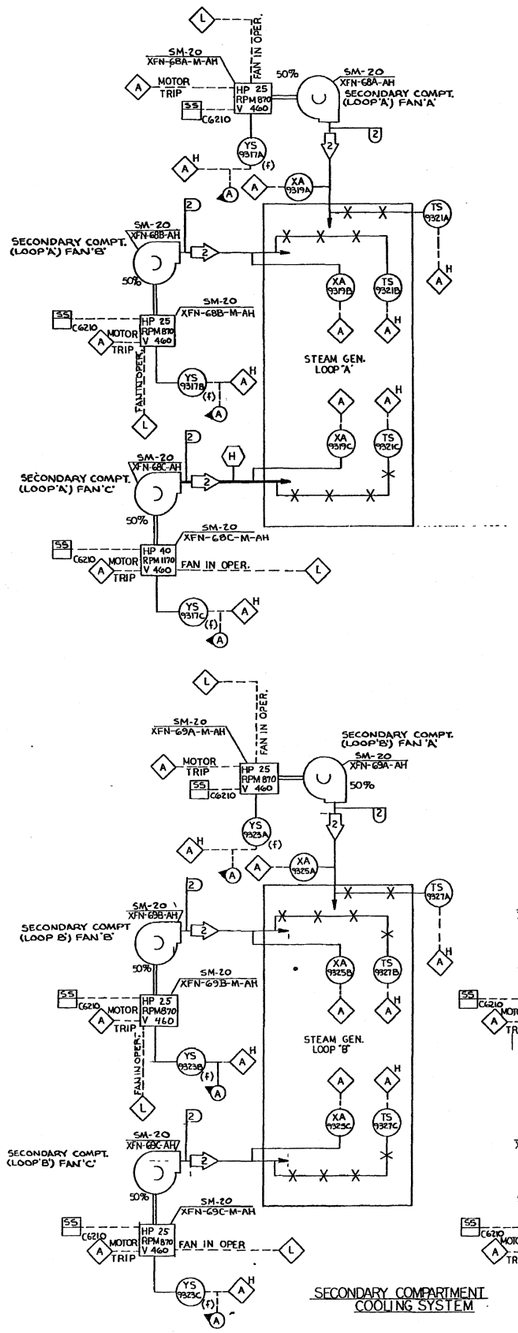
SCALE: NO SCALE
D-912-104 | 12
DRAWING NUMBER | SHT. NUMBER | REV

\\Vas011p\oadd\Working\Interims\50683\912104_0001.dgn
rml5043 28-NOV-2009 22:50

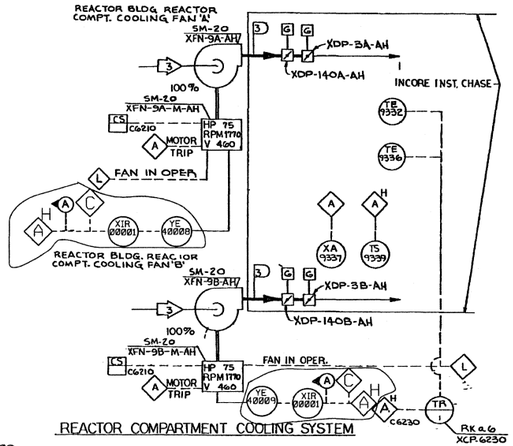
SYS. OPERATING DATA			
	AIR FLOW ACFM	AIR TEMP °F	
1	12,000	120°	
2	45,000	100°	
3	35,000	100°	



R.B. CHARCOAL CLEAN UP SYSTEM



SECONDARY COMPARTMENT COOLING SYSTEM



REACTOR COMPARTMENT COOLING SYSTEM

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

1/4"=1'-0" (0' 5' 10' 15' 20')

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

RN 09-023
June 2010

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
12	11/28/09	RHM	REVISED PER ECR-50683	RHM	MM
11	10/02/08	DDJ	REVISED PER ECR-70028	MGR	DDJ

FSAR Figure 9.4-29

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

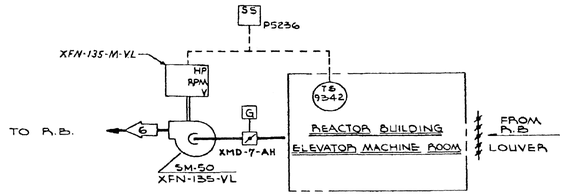
BUILDING SERVICE SYSTEM FLOW DIAGRAM
R.B. CHARCOAL CLEAN-UP, SECONDARY COMPT. COOLING & REACTOR COMPT. COOLING

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

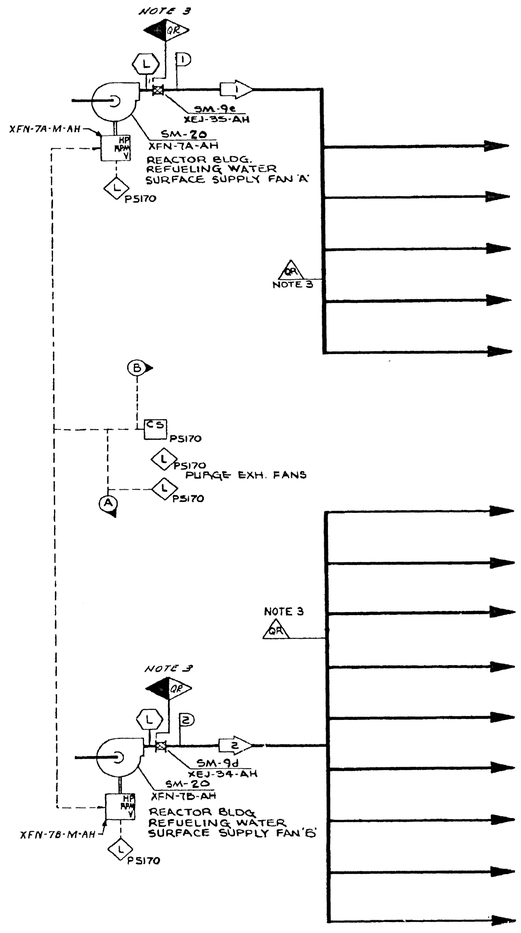
MADE	CHECKED	LE APPROVAL
DDJ	MGR	DDJ

SCALE: NO SCALE
D-912-104 | 12
DRAWING NUMBER | SHT. NUMBER | REV

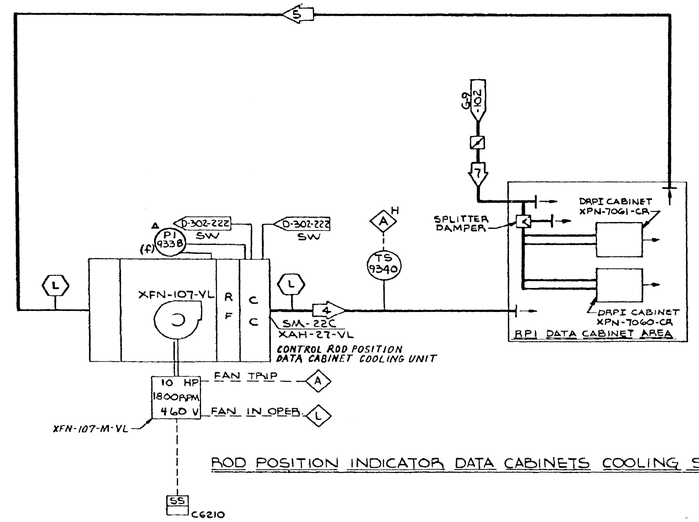
SYSTEM OPERATING DATA			
	AIR FLOW ACFM	AIR TEMP. °F	
1	1600	60-120	
2	2880	60-120	
3	13,500	60-120	
4	7,000	90	
5	7,000	98	
6	2670	60-120	
7	7,500	89-95	



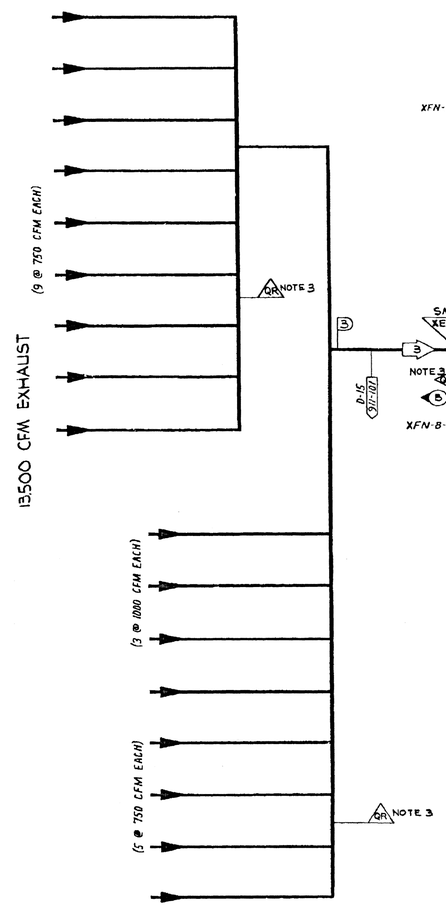
REACTOR BUILDING ELEVATOR MACHINE ROOM EXHAUST FAN
N.N.S.



REACTOR BUILDING REFUELING WATER SURFACE SYSTEM



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 QRP-4.

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

THE ENTIRE SYSTEM IS NON NUCLEAR SAFETY.

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

SYSTEM DESIGN DATA			
	AIR FLOW ACFM	AIR TEMP °F	
5	7000	95	
4	7,000	90	
3	13,500	60-120	
2	2880	60-120	
1	1600	60-120	

1/4"=1'-0" (0' 5' 10' 15' 20')

ESSENTIAL

DRAWING LEGIBILITY CLASS 1
SCE&G CAD ENHANCED

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

Amendment 02-01
May 2002

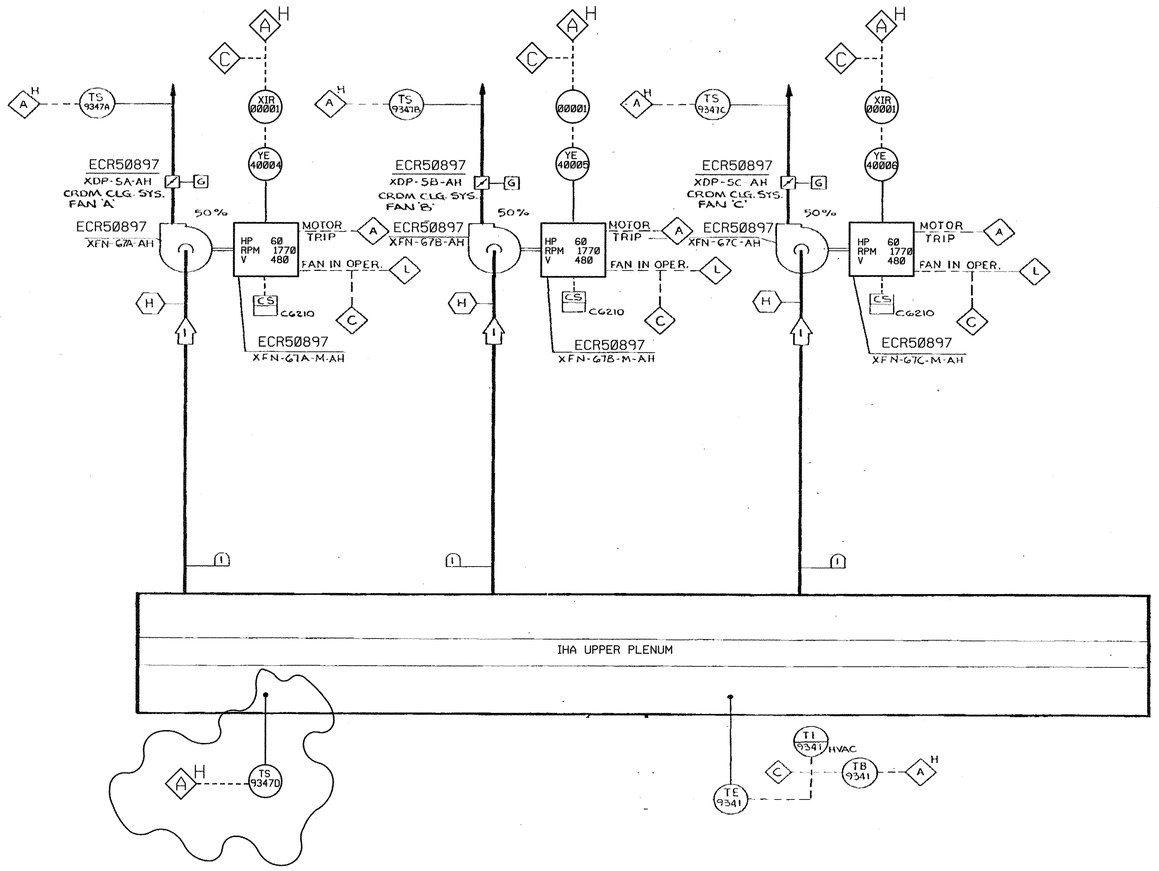
FSAR Figure 9.4-30

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION
BUILDING SERVICE SYSTEM FLOW DIAGRAM
R.B. REFUELING WATER
SURFACE SYSTEM
SCE&G A SCANA COMPANY
DESIGN ENGINEERING
V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
1. DDJ	2. MGR	3. DDJ

SCALE: NO SCALE | D-912-105 | SHT. NUMBER 10 | REV.
DRAWING NUMBER

SYS. OPER. DATA			
⟨5⟩	AIR FLOW SCFM	AIR TEMP. °F	
1	25866	160°F NOMINAL	
2			
3			



NOTES:

1. UNLESS NOTED OTHERWISE, ALL ALARMS & INDICATING LIGHTS ARE LOCATED ON THE HVAC CONTROL BOARD (XCP-6210) IN THE MAIN CONTROL ROOM.
2. (f) INDICATES INSTR. IS FURNISHED WITH EQUIPMENT.
3. FOR SAFETY CLASSIFICATION OF INSTRUMENTATION, SEE THE INSTRUMENT LIST.
4. THE CRDM COOLING SYSTEM IS NOW INCORPORATED IN THE INTEGRATED HEAD ASSEMBLY INSTALLED PER ECR50897.

THE ENTIRE SYSTEM IS NON NUCLEAR SAFETY.

ESSENTIAL

SYS. DESIGN DATA			
	3		
	2		
	1	26,000	170
P	AIR FLOW SCFM	AIR TEMP °F	

1/4"= 1'-0" (0' 5' 10' 15' 20')

DRAWING LEGIBILITY CLASS 1

SCE&G CAD ENHANCED

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
15	6/5/17	JTS	REVISED PER ECR-50897	AME	KPW
14	5/9/17	JMR	REVISED PER ECR-50897	RHM	DH
13	11/20/09	RHM	REVISED PER ECR-50683	RHM	MM
12	11/18/97	RHM	REVISED PER CGSS-97-0592	MGR	CHR
11	10/15/97	RHM	REVISED PER MRF-22742	RAT	CHR

FSAR Figure 9.4-31

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM

R. B. C.R.D.M. SHROUD VENT SYSTEM

SCE&G A SCANA COMPANY — DESIGN ENGINEERING — V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
1. RHM	2. RAT	3. CHR

SCALE NO SCALE | D-912-106 | 15

DRAWING NUMBER | SHT. NUMBER | REV

SYSTEM DATA						
	MAX GPM	PSIG	°F	Bh	REMARKS
1	800	42	95	2250	NORMAL

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 "A" SIGNAL CHANNEL B

HYDRO TEST TEMPERATURE 60°F

2	45	148	58	188	2240	75			
1	45	118	58	129	2240	75	STA		
R	PSIG	°F	PSIG	°F	QUAL	RE-QRD	BY	CHKD	REMARKS
	NORMAL		UPSET						
DESIGN DATA									

1/4"= 1'-0"

RN 15-014

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ESSENTIAL

DRAWING LEGIBILITY CLASS 1

SCE&G CAD ENHANCED

NO.	DATE	BY	REVISION	CHD. BY	APPROVAL
19	6/4/98	RHM	REVISED PER ECR-58682	MGR	RDM
18	9/28/97	JTS	REVISED PER ECR-78975	MGR	JMG/RDL
17	11/14/96	RHM	REVISED PER ECR-58584	RHM	AME
22	6/15/95	RHM	REVISED PER ECR-50682C-1	MGR	LK
21	5/15/91	RHM	REVISED PER ECR-58677	MGR	GR
20	2/5/91	JMR	REVISED PER ECR-58327	MGR	SB

FSAR Figure 9.4-32

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

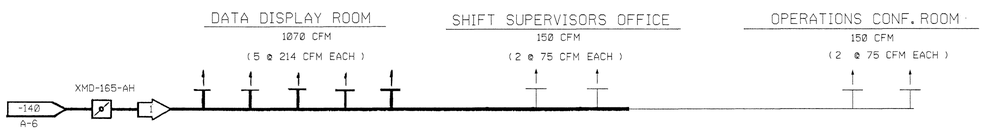
PIPING SYSTEM FLOW DIAGRAM

CRDM COOLING WATER

DESIGN ENGINEERING		
A NUMAC COMPANY	V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.	
DRAWN	CHECKED	LE APPROVAL
DCW	PS	PJS
DRAWING NUMBER		SHT. NUMBER / REV
D-302-852		22

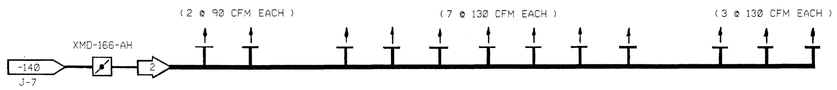
SYS. OPER. DATA			
	AIR FLOW (SCFM)	AIR TEMP °F	
1	1370	≅ 56.3	
2	1480	≅ 56.3	
3	2500	≅ 56.3	
4	150	≅ 56.3	
5	75	≅ 56.3	
6	800		
7	1600		

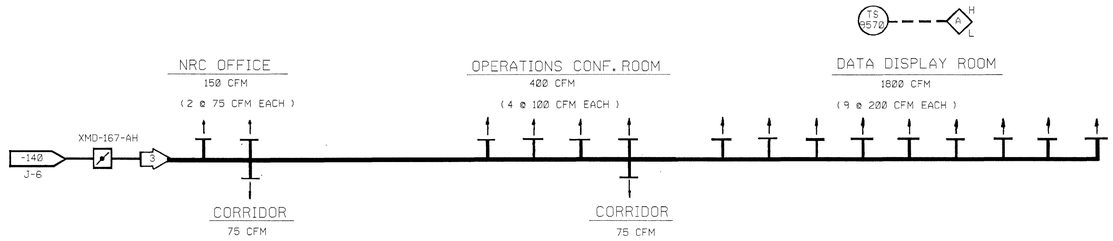
SAFETY CLASS VERIFICATION	
ORIGINATED BY	Y. C. Mahan-10-5
REVIEWED BY	[illegible]



SCE&G TECHNICAL AREA

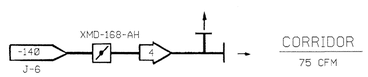
1480 CFM

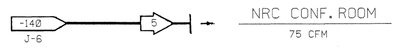


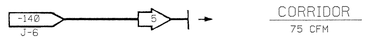


NRC CONF. ROOM

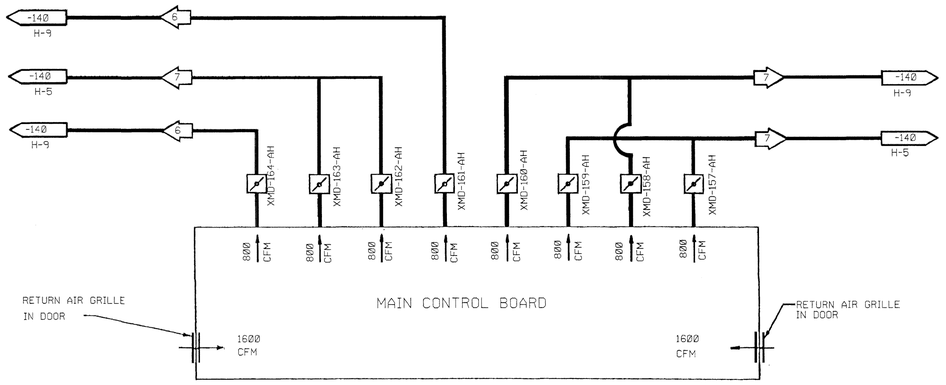
75 CFM







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

ESSENTIAL

DRAWING LEGIBILITY
CLASS 1
SCE&G CAD ENHANCED

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
6	3/26/02	TGB	REVISED PER ECR-70125	MGR	FSM
5	10/03/01	DDJ	REVISED PER ECR-70028	MGR	DDJ
4	10-05-93	SRM	REVISED PER MRF-21475	MGR	RLJ

FSAR Figure 9.4–33

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM

TECHNICAL SUPPORT CENTER AND MAIN CONTROL BOARD VENTILATION SYSTEM

DESIGN ENGINEERING

GILBERT A SCANA COMPANY | V. C. SUMMER NUCLEAR STATION JENKINSVILLE, S. C.

MADE	CHECKED	LE APPROVAL
1. SRM	2. MGR	3. RLJ

SCALE: NO SCALE

DRAWING NUMBER: D-912-141 | SHT. NUMBER | REV: 6

1/4"= 1'-0" 0' 5' 10' 15' 20'

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)
11	130	85	55	DBL	

DESIGN DATA

#	NORMAL PSIG	NORMAL °F	UPSET PSIG	UPSET °F	UPSET DURA.	HY-DRG	BY	CHKD	REMARKS
10	85	55	-	-	-	-	DBL		
9	82	55	-	-	-	-	DJC		DESIGN PRESSURE CORRECTED FOR COIL ELEVATION
8	105	55	-	-	-	-	DJC		DESIGN PRESSURE CORRECTED FOR COIL ELEVATION
7	60	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	

NOTES:

1. 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-5218, IN THE CONTROL ROOM.
2. 100% REDUNDANT COILS, VU TO BE ISOLATED ON NON-OPERATING COIL.
3. ALL EQUIPMENT TO BE NON-NUCLEAR SAFETY RELATED.
4. ALL NON-NUCLEAR SAFETY CLASS PIPING TO BE IN ACCORDANCE WITH LINE SPEC. 151X EXCEPT AS NOTED.
5. TEMPORARY STRAINER FOR INITIAL SYSTEM CLEANUP MAX. ALLOWABLE ΔP = 5 PSI REMOVE AFTER 100 HRS. OF OPERATION THROUGH STRAINER.
6. DELETED
7. TEMPORARY STRAINER FOR INITIAL SYSTEM CLEANUP.
8. XPP-190 CONTROLS TO BE LOCATED ON LOCAL PANEL XPN-5558.
9. LOW FLOW CHILLER INTERLOCK.
10. DELETED
11. ILS9191 AND ILS9192 PROVIDE TANK LEVEL INDICATION (LIGHTS) AT DW FILL STATION PANEL XPN0157.

RN 15-004

FSAR Figure 9.4-34

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

PIPING SYSTEM FLOW DIAGRAM

NON NUCLEAR SAFETY

CHILLED WATER SYSTEM

DESIGN ENGINEERING

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

DRAWING LEGIBILITY CLASS 1

ESSENTIAL

NON-SAFETY CHILLED WATER SYSTEM

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
4	9/1/6	GGS	REVISED PER ECR-50790	J.C	AJB
3	8/1/6	JMR	REVISED PER ECR-50587	MGR	DM
2	9/14/78	ODJ	REVISED PER CDSS-98-0428	MGR	JEO
1	6/21/76	GGS	REVISED PER ECR-50790 & SCE&G REVIEW COMMENTS	MAB	CR

MADE: A.V.N. | CHECKED: M.G.R. | LE APPROVAL: D.J.C.

SCALE: NO SCALE | DRAWING NUMBER: D-302-845 | SHT. NUMBER: 5 | REV: 5

SYSTEM OPERATING DATA NOTE 10

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

ECR50793C
XUP5100-AH
(DIESEL BACKED)
NOTE E

(100% VENT AIR)
400 CFM
OUTSIDE
VENTILATION
AIR INTAKE

DRAIN

WALL MOUNT HVAC UNIT
COMPRESSOR 9HP
INDOOR BLOWER 1/2HP,1070RPM
CONDENSER FAN 3/4HP,1075RPM
HEATING COIL 15 KW
VOLTAGE 460V

VENT

RF CC HC

33%

UP TO 1400 CFM
IF NOT VENTILATING

1400 CFM

EB ELECTRICAL ROOM
EL. 436'-6"

FS FIRE SERVICE HVAC UNIT DISABLE
NOTE 3

TC
79211

NOTE A

400 CFM 400 CFM

SS P5387
AH421B

FS FIRE SERVICE
FAN DISABLE
NOTE3

FAN RUNNING

1/6 HP
RPM 1697
120V
(VARIABLE SPEED
FANMOTOR)

G FC

(100% VENT AIR)

XDP5205-AH

ECR50793C
XFN0201-AH

CS P5387
AH421A

FS FIRE SERVICE
FAN DISABLE
NOTE3

FAN RUNNING

1/6 HP
RPM 1697
120V
(VARIABLE SPEED
FANMOTOR)

G FC

(100% VENT AIR)

XFN0200-SSW-1-AH

SSW

XDP5204-AH

ECR50793C
XFN0200-AH NOTE A

LOW FLOW
NOTE 11
LOW FLOW
ALARM LIGHT

NOTE 8

FAN RUNNING

EB BATTERY ROOM
EL. 436'-6"

400 CFM

XFD5402-AH

UP TO 1400 CFM
IF NOT VENTILATING

1400 CFM

UP TO 1400 CFM
IF NOT VENTILATING

1400 CFM

RF CC HC

33%

VENT

400 CFM
(100% VENT AIR)

OUTSIDE VENTILATION
AIR INTAKE

DRAIN

ECR50793C
XUP5102-AH

WALL MOUNT HVAC UNIT
COMPRESSOR 9HP
INDOOR BLOWER 1/2HP,1070RPM
CONDENSER FAN 3/4HP,1075RPM
HEATING COIL 15 KW
VOLTAGE 460V

ECR50793C
XUP5101-AH
(DIESEL BACKED)
NOTE E

HVAC UNIT OPERATION NOTES:

A. 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.
B. ONLY ONE HVAC UNIT IS ALLOWED TO HEAT AT A TIME.
C. VENTILATION AIR INTAKE IS ONLY ALLOWED ON THE LEADING UNIT.
D. BLOWERS ARE CONTINUALLY RUNNING ON LEADING AND LAGGING UNITS.
E. XUP5100 AND XUP5101 ARE DIESEL BACKED. XUP5100 WILL AUTOMATICALLY VENTILATE WHEN POWER IS PROVIDED BY DG.
F. 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.
G. REFERENCE 208-004 SHEETS AH417, AH418 AND AH419 FOR ADDITIONAL HVAC UNIT CONTROL LOGIC.
H. UPON SHUTDOWN THERE IS A 150 SEC. DELAY ON BREAK TIMER THAT PREVENTS THE IMMEDIATE RESTART OF THE COMPRESSOR.
I. 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:

1. ONLY XUP5100 AND XUP5101 ARE DIESEL BACKED.
2. ALL FANS ARE BACKED BY EB DIESEL GENERATORS.
3. IF A FIRE IS DETECTED IN ELECTRICAL OR BATTERY ROOM ALL HVAC UNITS AND VENTILATION FANS ARE STOPPED.
4. IF A FIRE IS DETECTED IN DG ROOM ALL FANS ARE STOPPED AND DG IS STOPPED.
5. ALL CONTROL RELAYS ARE LOCATED IN XPN5387.
6. FAN CONTACTORS ARE LOCATED IN XPN5391.
7. 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.
8. 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.
9. REFERENCE 208-004 SHEETS AH417 THROUGH AH423 FOR HVAC UNIT AND FAN CONTROL LOGIC AS WELL AS ALARMS.
10. REFERENCE DC07690-010 ISFSI ELECTRICAL BUILDING HVAC CALCULATION FOR ADDITIONAL INFORMATION.
11. 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

1/4"=1'-0" 0 5 10 15 20

ESSENTIAL

ALL SYSTEM COMPONENTS ARE
NON-NUCLEAR SAFETY RELATED

DRAWING CLASS
LEGIBILITY 1

NO.	DATE	BY	REVISION	CKD. BY	APPROVAL
0	2/3/15	JMR	ISSUED PER ECR-50793	MGR	RS

FSAR Figure 9.4-35 SH. 1

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM
EB HVAC – ELECTRICAL AND BATTERY ROOM

DESIGN ENGINEERING
A SCANA COMPANY V. C. SUMMER NUCLEAR STATION JENKINSVILLE S. C.

MADE	CHECKED	LE APPROVAL
1. JMR	2. MGR	3. RS

WAS NO MORE	D-912-192	1	0
	DRAWING NUMBER	SHT. NUMBER	REV

SYSTEM OPERATING DATA NOTE 10

#	AIR FLOW CFM	AIR TEMP. ° F
3	900	19-120
4	19000	95-200
5	3000	19/120
6	14000	19/95

FAN OPERATION NOTES:

A. 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.

B. 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.

C. HVAC ALARMS ARE INDICATED ON XPN5387. GENERAL 'EB HVAC TROUBLE ALARM' IS INDICATED ON TEMP MONITORING SYSTEM AND ANNUNCIATED IN MAIN CONTROL ROOM.

D. COMMON LOW DG COOLING FLOW ALARM LIGHT ON XPN5387.

EB DIESEL GENERATOR ROOM
EL. 436'-6"

OUTSIDE AIR INTAKE
FC
XDP5201-AH
SSW
XFN0204-SSW-1-AH
2 HP RPM 1160 460V
ECR50793C NOTE B
XFN0204-AH
6 → 14000 CFM (100% RADIATOR COOLING SUPPLY)
FAN RUNNING L
LOW FLOW NOTES 8,11 LOW FLOW ALARM LIGHT A L
NOTE D L

FS FIRE SERVICE FAN AND DAMPER DISABLE NOTE 4
SS P5387 AH421D
DIESEL GENERATOR XEG0103 RUNNING SIGNAL
TS 78002
CS P5387 AH421E
FS FIRE SERVICE FAN AND DAMPER DISABLE NOTE4

DIESEL GENERATOR XEG0103
DIESEL DRIVEN RADIATOR EXHAUST FAN NOTE B
FC
XDP5200-AH
SSW
XEX0103-SSW-1-AH
4 → 19000 CFM (100% RADIATOR COOLING EXHAUST)
LOW FLOW NOTE 11 LOW FLOW ALARM LIGHT A L L
NOTE D
FAN RUNNING L
NOTE 8

OUTSIDE AIR INTAKE
FC
XDP5202-AH
SSW
XFN0205-SSW-1-AH
3/4 HP RPM 860 460V
ECR50793C XFN0205-AH NOTE B
5 → 7000 CFM (100% ROOM COOLING SUPPLY)
FAN RUNNING L
LOW FLOW NOTES 8,11 LOW FLOW ALARM LIGHT A L L
NOTE D

XFN0203-SSW-1-AH
SSW
FC
XDP5203-AH
1.5 HP RPM 1725 460V
ECR50793C XFN0203-AH NOTE B
5 → 3000 CFM (100% ROOM COOLING EXHAUST)
FAN RUNNING L NOTE 8
LOW FLOW NOTES 8,11 LOW FLOW ALARM LIGHT A L L
NOTE D
CS P5387 AH421C
FS FIRE SERVICE FAN DISABLE NOTE4
FAN IN OPER. L
1/6 HP RPM 1697 120V (VARIABLE SPEED FANMOTOR)

OUTSIDE AIR INTAKE
G
FC
XDP5207-AH
3 → 900 CFM (100% VENT AIR)

XFN0202-SSW-1-AH
SSW
G
FC
XDP5206-AH
3 → 900 CFM (100% VENT AIR)
ECR50793C XFN0202-AH NOTE A

3

LOW FLOW NOTE 11 LOW FLOW ALARM LIGHT A L L
NOTE 8
FAN RUNNING L

GENERAL NOTES (1-11): SEE SHEET 1

ESSENTIAL

ALL SYSTEM COMPONENTS ARE NON-NUCLEAR SAFETY RELATED

DRAWING CLASS LEGIBILITY 1

SYSTEM DESIGN DATA NOTE 10

#	AREA AIR FLO W CFM	AREA AIR TE MP.° F	AREA EMERGENCY* AIR TEMP.°F
3	900/21,900	19/120	19/120

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

1/4"=1'-0" 0 5 10 15 20

NO.	DATE	BY	REVISION	CKD. BY	APPROVAL
1	4/28/15	JTS	REVISED PER ECR-50793C	MGR	RS
0	2/3/15	JMR	ISSUED PER ECR-50793	MGR	RS

FSAR Figure 9.4-35 SH. 2

SOUTH CAROLINA ELECTRIC & GAS COMPANY

V.R.O.L. C. SUMMER NUCLEAR STATION

BUILDING SERVICE SYSTEM FLOW DIAGRAM
EB HVAC DG1 ROOM

BECHTEL	DESIGN ENGINEERING V. C. SUMMER NUCLEAR STATION JENKINSVILLE S. C.		
	MADE	CHECKED	LE APPROVAL
1.	JMR	MGR	RS

SCALE NO SCALE

D-912-192 2 1

DRAWING NUMBER SHT. NUMBER REV

SYSTEM OPERATING DATA NOTE 7

②	AIR FLOW CFM	AIR TEMP. °F	
1	1050	19/122	
2	19000	95/200	
3	2700	19/122	
4	7000	19/95	
5	3000	19/95	

AEB DIESEL GENERATOR ROOM
EL. 436'-6"

3/4 HP RPM 860 460V
OUTSIDE AIR INTAKE
XDP5210
FC
SSW
XFN0208-SSW-1-AH
ECR50870A NOTE 9
XFN0208-AH
7000 CFM (50% RADIATOR COOLING SUPPLY)
FAN IN OPER. NOTE 3
LOW FLOW NOTE 5
LOW FLOW ALARM LIGHT NOTE 11

3/4 HP RPM 860 460V
OUTSIDE AIR INTAKE
XDP5211-AH
XFN0209-SSW-1-AH
ECR50870A NOTE 9
XFN0209-AH
7000 CFM (50% RADIATOR COOLING SUPPLY)
FAN IN OPER. NOTE 3
LOW FLOW NOTE 5
LOW FLOW ALARM LIGHT NOTE 11

1/3 HP RPM 860 115V
OUTSIDE AIR INTAKE
XDP5212-AH
XFN0226-SSW-1-AH
ECR50870A NOTE 9
XFN0226-AH
3000 CFM (50% ROOM COOLING SUPPLY)
FAN IN OPER. NOTE 3
LOW FLOW NOTE 5
LOW FLOW ALARM LIGHT NOTE 11

1/3 HP RPM 860 115V
OUTSIDE AIR INTAKE
XDP5213-AH
XFN0227-SSW-1-AH
ECR50870A NOTE 9
XFN0227-AH
3000 CFM (50% ROOM COOLING SUPPLY)
FAN IN OPER. NOTE 3
LOW FLOW NOTE 5
LOW FLOW ALARM LIGHT NOTE 11

OUTSIDE AIR INTAKE
XDP5214-AH
1050 CFM (100% VENTILATION AIR)

FIRE SERVICE FAN AND DAMPER DISABLE NOTE2
P5387 AH423C
DIESEL GENERATOR XEG0102
DIESEL GENERATOR XEG0102 RUNNING SIGNAL
TS 7804B
DIESEL DRIVEN RADIATOR EXHAUST FAN NOTE 9
19000 CFM (100% RADIATOR COOLING EXHAUST)
XEG0102-SSW-1-AH
LOW FLOW NOTE 5
LOW FLOW ALARM LIGHT NOTE 11
FAN IN OPER. NOTE 3
P5387 AH423B
FIRE SERVICE FAN AND DAMPER DISABLE NOTE2

2 HP RPM 1725 460V
XDP5209-AH
2700 CFM (100% ROOM COOLING EXHAUST)
XFN0207-SSW-1-AH
ECR50870A NOTE 9
XFN0207-AH
FAN IN OPER. NOTE 3
LOW FLOW NOTE 5
LOW FLOW ALARM LIGHT NOTE 11
P5387 AH423A
FIRE SERVICE FAN DISABLE NOTE4
1/4 HP RPM 1725 120V (VARIABLE SPEED FANMOTOR)
FAN IN OPER.

XDP5208-AH
XFN0206-SSW-1-AH
ECR50870A NOTE 8
XFN0206-AH
1050 CFM (100% VENTILATION AIR)
LOW FLOW NOTE 5
LOW FLOW ALARM LIGHT NOTE 10

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 208-004 SH. AH422 PAGE C.
6. REFERENCE 208-004 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 XFN0208 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 80DEG 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

②	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

1/4"=1'-0" 0' 5' 10' 15' 20'

ESSENTIAL

DRAWING CLASS LEGIBILITY 1

FSAR Figure 9.4-36

SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION
BUILDING SERVICE SYSTEM FLOW DIAGRAM
AEB DG2 ROOM HVAC

DESIGN ENGINEERING
A SCANA COMPANY — V. C. SUMMER NUCLEAR STATION JENKINSVILLE S. C.

NO.	DATE	BY	REVISION	CKD. BY	LE APPROVAL
1	4/28/15	JTS	REVISED PER ECR-50870A	MGR	RS
0	2/3/15	JMR	ISSUED PER ECR-50870A	MGR	RS

MADE: 1. JMR — CHECKED: 2. MGR — LE APPROVAL: 3. RS

SCALE NO SCALE — DRAWING NUMBER D-912-193 — SHT. NUMBER — REV 1