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50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251
AUTH.NAME AUTHOR AFFILIATION
UHRIG,R.E. Florida Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
NOVAK,T.M. Assistant Director for Operating Reactors

SUBJECT: Forwards addl info in response to NRC 800728 ltr re containment ventilation isolation. Three oversize electrical drawings encl. SEE DRAWINGS

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FLORIDA POWER & LIGHT COMPANY

October 27, 1980
L-80-355

Office of Nuclear Reactor Regulation
Attention: Mr. Thomas M. Novak, Assistant Director
for Operating Reactors
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Novak:

Re: Turkey Point Units 3 & 4
Docket Nos. 50-250 and 50-251
Containment ventilation isolation

A reply to a NRC letter dated July 28, 1980 requesting additional information on the above subject is attached.

Very truly yours,

Robert E. Uhrig

Robert E. Uhrig
Vice President
Advanced Systems & Technology

REU/PLP/md

Attachment

cc: J.P. O'Reilly, Region II
Harold F. Reis, Esquire

A001
S
1/1

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8011040341

PEOPLE . . . SERVING PEOPLE

Re: Turkey Point Units [redacted] & 4
Docket Nos. 50-250, 50-251
Containment ventilation isolation

ATTACHMENT

Item 1:

What is the memory element in the CVI control circuit shown on FPL drawing 5610-T-LI? Is it an MG-6 relay? Shown on what drawing? Please send drawing. Also, please send drawings 5610-E-25, sheet 59, E-389, and lesson 45. What is the form of switch QR50? Momentary? Key lock?

Response 1:

"T" Drawings are simplified logic used to familiarize operators in training with the various plant systems. They are not appropriate for design review purposes.

The memory element in the CVI control circuit shown on FPL drawing 5610-T-L1, sheet 11, is device 3-86/CIV1 shown on FPL drawing 5610-E-28, sheet 31F. This is a General Electric type HEA61 relay which is a "lock-out" relay. This device locks in the energized position, requiring manual operation by turning it clockwise to reset it to the de-energized position. The designation of "QR50 and QR51" on FPL drawing 5610-T-L1, sheet 11, refers to the location of these relays. QR50 and QR51 are the containment isolation relay racks. The "switch" shown in the manual operating handle of the relay. (See attached General Electric drawing). This handle turns to reset, however, the relay will not maintain the de-energized (reset) position if the originating signal is still present.

Item 2:

What is the function of the 86 "lock out relays"? Do they have memory function? Shown on what drawing? Send drawing if not 5610-E-28, sheet 31G. If they have memory function, how are they reset?

Response 2:

See response to Item 1.

Item 3:

Are the CVI radiation monitors R3-11 and R3-12 qualified as safety grade? If not, justify their use in a function required to protect public health and safety.

Response 3:

Radiation monitors R-3-11 and R-3-12 are supplied by vital AC power and are environmentally qualified. They were purchased as safety related in accordance with the criteria in existence at time of procurement. The PRMS includes R-11 and R-12 and is on the FPL Q-List. In addition, their operability is a Technical Specifications item to insure that adequate protection exists for the public health and safety. They are a redundent leak detection system. Refer to FSAR Section 6.5.

Item 4:

Are the MG-6 relays qualified as safety grade (class 1E)? (Used in other engineered safety features circuits?)

Response 4:

The MG-6 relays are safety grade relays provided by the NSSS vendor for the protection and safeguards systems.

Item 5:

Is there a system level (containment ventilation isolation) annunciation and indication of the overridden status of an initiating signal (radiation monitor or safety injection)?

Response 5:

Radiation monitor signals cannot be overridden, therefore, no annunciation at the containment ventilation isolation channel is required. Safety injection can be blocked to prevent actuation during shutdown from low pressurizer pressure, high steam line differential pressure, or high steam line flow coincident with low steam generator pressure or low Tavg. This is targeted as "SI blocked". This does not remove "SI" initiation or containment isolation from diverse signals such as "Hi" and "Hi-Hi" containment pressure, therefore, "containment ventilation isolation" override annunciation would be inappropriate.

Item 6:

Are the safeguard actuation systems shown on FPL drawing 5610-T-LI, sheet 11 redundant? Are all channels redundant, including containment radiation monitors?

Response 6:

The safety actuation signals are redundant with diverse signals and separate logic trains. There is one R-11 and R-12 monitor per unit. These sensors feed both logic trains for isolation signals. Although diverse from each other, they are functionally redundant. In addition, the SI initiation signals, e.g., high containment pressure, will actuate containment ventilation isolation, giving functional redundancy. See FSAR Section 6.5.

LESSON 45
SAFEGUARDS SYSTEMS
HIGH AND LOW HEAD SAFETY INJECTION
AND CONTAINMENT ISOLATION

REFERENCES AND READING ASSIGNMENT

FSAR Paragraph 6.1, 6.2 and Figures 6.2-1, 6.2-2, 6.2-4
W FPL-200/D, Safety Injection System.
W Logic Diagrams 2, 6, 8, 9, 12, 13, and FPL Sheet 7
OP 1508.2, 3206.1, 4104.1, 4504.1, 4004.2

LECTURE OUTLINE

1.0 FSAR Section 6

2.0 Detailed Drawings, SIS and RHR, OC, IC.

- 2.1 Control Room Indicators VPB
- 2.2 Control Room Controls, Hi Head SI-VPB
- 2.3 Control Room Controls, Lo Head SI-VPB
- 2.4 Control Room Controls, Recirc. Phase - VPB
- 2.5 Local Controls
- 2.6 Annunciator Targets

3.0 Logic Diagrams Related to SIS

4.0 SI Status Windows, - VPA

5.0 Reactor Protection Status Windows, VPB

6.0 White Lamps - Status of SI System VPB

7.0 Containment Isolation Phase A, B

8.0 Discussion Redundancy, Power Supplies

9.0 Study, Article on SI

10. OP Relating to SI

LESSON 45
SAFEGUARDS SYSTEMS
HIGH AND LOW HEAD SAFETY INJECTION
AND CONTAINMENT ISOLATION

1.0 FSAR Section 6

1.1 Study, discussion of selected portions of Sections 6.1, 6.2, and Figures 6.2-1, 6.2-2, and 6.2-4.

2.0 Detailed Drawings, SIS and RHR Systems, OC, IC

Study, discussion of details relating to High Head and Low Head Safety Injection.
NOTE: Be capable of making a sketch of system, showing important valving and instrumentation.

2.1 Control Room Indicators - VPB

a. P1-*-940 Hi Head SI Hot Leg Header [not used].

b. P1-*-943 Hi Head SI, Cold Legs A, B, C, through Boron Inj. Tank.

c. F1-*-932 Hi Head SI, Hot Leg Loop A [not used].

d. F1-*-933 Hi Head SI, Hot Leg Loop B [not used].

e. F1-*-940 Hi Head SI, Hot Legs A & B [not used].

f. F1-*-943 Hi Head SI, Cold Legs A, B, C, through Boron Inj. Tank.

g. P1-*-934 Hi Head SI, Lvg Boron Inj. Tank, Alarm Function.

h. L1-*-1545, RWST, Alarm Functions.

i. P1-*-921, 923, 925, 927, 929, 931, Accumulators A, B, C Pressure, Alarm Function.

j. L1-*-920, 922, 924, 926, 928, 930, Accumulators A, B, C Level, Alarm Function.

k. F1-*-605 RHR Hx out to A, B, C Cold Legs Alarm Function [Control Function for RCS Cooldown].

l. TR-*-604 RHR Hx in and out Temperature.

m. NPSH Lamps, Recirc. Sumps A, B. Indicate Sufficient Level to Start Recirc. Phase.

2.2 Control Room Controls, Hi Head SI - VPB

a. Control switches and ammeters, 4 SI pumps. Receive S signal if not in stop.
NOTE: SI pump switches for all pumps located on both Units 3 and 4 (VPB). Any pump switch in stop will prevent that pump start and give alarm (SI pump trip).

Lesson 45 - Continued

b. 2 P.B. train A, B SI Initiation. Manual start of SI. Refer to W Logic Diagram 6.

c. 2 P.B. train A, B SI Reset. Must push both to Reset. Refer to W Logic Diagram 6 and handout on SI.

d. Switch, SI block, normal, unblock. Refer to Paragraph 3.4, this lesson and handout on SI.

e. *-843 A, B Hi Head SI leaving boron injection tank to cold legs A B C. N.C., S signal opens.

f. *-878A, B, Hi Head discharge header isolation between 3A and B and 4A and B SI pumps. N.O.

g. *-864 A, B. RWST out to Hi, Lo Head SI and contain spray pumps. N.O. closed during recirc. phase.

h. *-867A, B, Hi Head SI to inlet of boron injection tank. N.C., S signal opens.

i. *-856A, B. Hi Head SI pumps, contain. spray pumps recirc. return to RWST. N.O. Discuss consequences of a closed valve.

j. *-850B, D, E. Hi Head SI test lines, loops A, B, C.

k. *-841A, B. Boron injection tank return to BA tanks N.C., S signal closed valves.

l. *-869 and *-866A, B Hi Head SI to hot legs, loops A, B, N.C., breakers L.O. lines not normally used.

Accumulators, Controls

a. *-865A, B, C, Accum. discharge to loops A, B, C. N.O. breaker locked open. Receive S signal to open.
NOTE: When bringing system down to cold standby BKRS are unlocked, closed and valves are run to closed position when system pressure is reduced to 1000 psig. BKRS are then locked open to prevent inadvertant opening of valves.

b. *-851A, B, C, makeup for accum. N.C.

c. *-852A, B, C, Accum. drain to RCDT. N.C.

d. *-850A, C, E, Accum. flow test line. N.C.

e. *-853A, B, C, Accum. A, B, C Vent and N_2 supply N.C.

f. H1C-*-936 positioning valve to vent N_2 from accum. Also relief valve - lifts at 900 psig.

g. *-855 N_2 supply to accum. receives T signal.

Lesson 45 - Continued

2.3 Control Room Controls, Lo Head SI, VPB

a. *-862A, B. RHR Pumps A, B, suction from RWST. N.O. Closed during recirc. phase. (Manual operation).

b. *-863 A, B, Lo Head SI leaving RHR Hx. N.C. Opened during recirc. phase to furnish suction to Hi Head SI pumps, contain. spray pumps or for alternate Lo Head SI.

c. *-744 A, B, Lo Head SI to Loops A, B, C. N.C. receives S signal to open.

d. *-872 alternate Lo Head SI to Loops B & C N.C.

e. Control switches RHR pumps A, B. S signal starts pump unless switch is in Stop.

f. HCV-*-758. For normal line-up [aligned for SI] Manual loader shall position valve wide open.

g. FCV-*-605. For normal line-up [aligned for SI]. Auto-manual set point station shall be on Manual with valve fully closed.

2.4 Control Room Controls, Recirc. Phase, VPB

a. *-861A, B. Recirc. sump A, B to RHR pump A, B suction. Opened only during recirc. phase.

b. *-860 A, B. Recirc. sump A, B to RHR pump A, B suction. Opened only during recirc. phase.

2.5 Local Controls

P.B. Start/Stop at SI and RHR pumps.

2.6 Annunciator Targets

C-2/4, Manual SI has been initiated.

C-3/6, PRZ Lo Pressure and Lo Level has initiated SI.

C-8/4, 8/5, 8/6, Hi ΔP, Steam Generators A, B, C has initiated SI.

C-9/3, Hi ΔP. At least one ΔP channel on steam line from Steam Generators A, B, C has tripped.

C-9/4 Hi Steam Line Flow with Lo Steam line pressure or Lo Tavg has initiated SI.

C-9/5 Hi Containment Pressure has initiated SI.

COMMON - 1/3, 1/4, 9/3, 9/4 SAFEGUARDS SEQUENCING TIMER 3A,B; 4A,B FUSE FAILURE.

Lesson 45 - Continued

G-8/1 RWST, Hi Level or below tech spec. level.

G-9/1, 9/2, 9/3, 9/4 SI pump 3A, B, 4A, B Lo suction pressure.

H-2/1, 2/3, 2/5 Accumulator A, B, C Hi/Lo pressure.

H-2/2, 2/4, 2/6 Accumulator A, B, C Hi/Lo level.

H-3/1, 3/2, 3/3, 3/4, SI pump 3A, B; 4A, B trip (overcurrent).

H-3/5, 3/6 Boron injection tank, Hi, Lo temp.

H-4/1, 4/2, 4/3, 4/4 SI pump 3A, B; 4A, B Motor overload.

H-4/5 Boron inject. tank header Hi pressure.

H-4/6 Boron inject. tank Lo level.

H-5/1 Containment Hi or Hi Hi pressure.

H-5/5 Safeguard Logic Test.

H-5/6 Safeguard Power Supply Failure (Train A or B)

H-6/2 RHR Hx out Lo Flow.

H-6/3 RHR pumps, overload.

H-6/4 RHR pumps trip, (overcurrent).

H-6/5 RWST Lo Level, 27%

H-6/6 RWST Lo Lo Level, 9%

H-7/3, 7/4 RHR pumps A, B cooling water Lo flow.

COMMON - 7/6 HI HEAD SI PUMPS COOLING WATER LO FLOW.
I-7/6 RHR pump A sump Hi Level.

I-8/6 RHR pump B sump Hi Level.

3.0 Logic Diagrams Related to SI System

3.1 W Logic Diagram Sheet 6, Safeguards Actuation Logic.
Note: Manual SI does not initiate containment isolation Phase A. Physical location of safeguards logic cabinets, Train A, Train B - rear of VPA.

3.2 W Logic Diagrams Related to SI Initiation
Sheet 13, Steam Generator
Sheet 12, PRZ

Lesson 45 - Continued

3.3 Logic Diagrams and Lists, Devices Actuated by S Signal

W Logic Sheet 2, Reactor Trip
W Logic Sheet 8, Feedwater Isolation
W Logic Sheet 9, Auxiliary Feedwater
FP&L Sheet 7, Sequencer Actions
List, this Lesson, Devices actuated from safeguards logic cabinet, Train A, B. (Receive S Signal).
List, this Lesson, Containment Isolation Phase A, B. (Receive T Signal) Also refer to Paragraph 7.

3.4 Logic Diagrams Auto/Manual Unblock, Manual Block, of SI.

W Sheet 12, PRZ Press, Level
W Sheet 13, Steam Line ΔP.

NOTE: Know all signals and the logic that initiate SI.

4.0 SI Status Windows, VPA

4.1 Window "Lo Tavg Block SI" [Tavg is below 543F] permissive. Will allow Manual Block of SI from Hi Steam Line Flow, Lo Steam Line Pressure or Low Tavg W Logic Diagram 13.

4.2 Window "Steam Line Saf Inj. Blocked". SI signal from 4.1 above is blocked.

4.3 Window "Saf Inject. Block Tripped" - means that RCS pressure is below 2000 psig. Permissive. Will allow Manual Block of SI from Lo PRZ Level coincident with Lo PRZ Press, W Logic Sheet 12. Also from Steam Gen Hi ΔP, W Logic Sheet 13.

4.4 Window "Safety Inj. Blocked". SI signal from 4.3 above is blocked.

5.0 Reactor Protection Status Windows, Status Panel C, VPB

Refer to drawing of Status Windows, Panel C Windows give a visual display of the status of channels which initiate SI. Class discussion.

6.0 White Lamps - Status of the SI System, VPB

Refer to drawing of VPB. Upon receiving a SI signal certain valves must open and others must close for proper operation of the system. Bright lamp indicates that valve is in proper position after a SI signal. If not, manual action is required. Normally some may be bright, some dim.

7.0 Containment Isolation Phase A

7.1 Initiated by the SI signal. Path is from Train A, Train B safeguard logic racks to containment isolation racks QR 50 and QR 51 (rear of VPB) to all devices as listed on attached list, except those under heading of Phase B.

Lesson 45 - Continued

7.2 Phase A may be reset by turning the three Phase A reset handles on QR 50 and QR 51 after resetting SI (pushbutton VPB). This will then permit operation of valves and normal containment coolers as required.

NOTE: Racks QR50 and QR51 develop the logic that:
a. Initiates SI due to Hi containment pressure.
b. Containment ventilation isolation and control building isolation due to Hi activity in containment.
c. Phase B containment isolation due to Hi and Hi Hi containment pressure.
d. Spray actuation, Hi and Hi Hi containment pressure. Refer to W Logic Diagram 6.

7.3 Status Lamps, Phase A, VPB glow brightly when valve is closed.

7.4 Annunciator targets related to Phase A.

H-5/1, Containment Hi or Hi Hi Pressure.

H-5/2, Phase A Containment Isolation operated.

H-5/3, Containment Isolation Cabinet A or B Fuse Failure.

H-5/4, Containment Isolation Racks in Test.

8.0 Discussion. Redundancy, Train A, Train B.

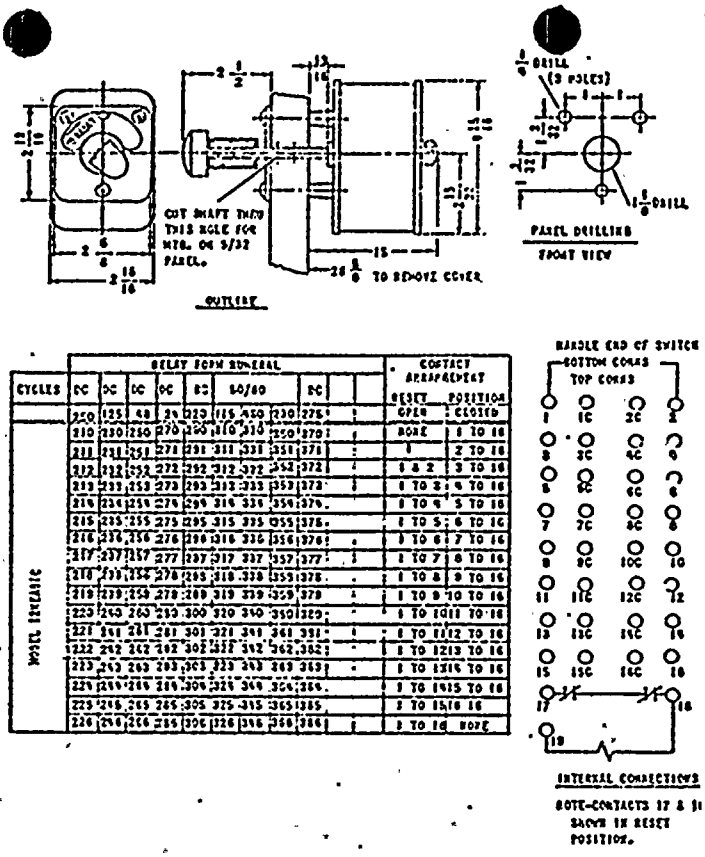
Parallel Flow Paths and Valves. Power Supplies to Valves, Pump Motors.

9.0 Study, Article on SI System by L. F. Pabst.

10.0 OP Relating to SI

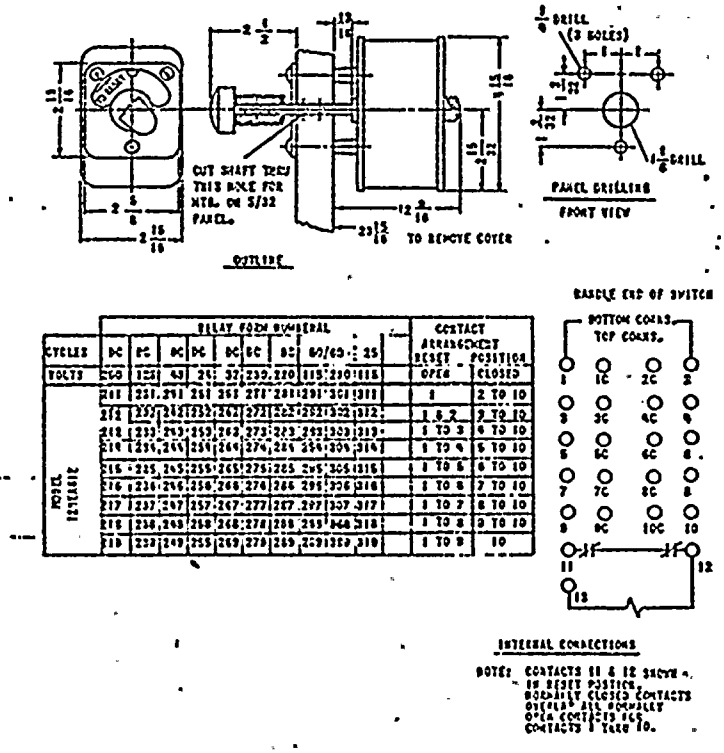
OP 1508.2, 3206.1, 4004.2, 4104.1, 4504.1

"86" RELAYS



CYCLES	RELAY FORM SYMBOL								CONTACT ARRANGEMENT	
	DC	DC	DC	DC	82	80/60	DC		RESET	POSITION
	250	125	48	24	123	115	250	230	OPEN	CLOSED
	210	230	250	270	290	310	330	350	BOTH	1 TO 16
	211	231	251	271	291	311	331	351	1	2 TO 16
	212	232	252	272	292	312	332	352	1 & 2	3 TO 16
	213	233	253	273	293	313	333	353	1 TO 3	4 TO 16
	214	234	254	274	294	314	334	354	1 TO 4	5 TO 16
	215	235	255	275	295	315	335	355	1 TO 5	6 TO 16
	216	236	256	276	296	316	336	356	1 TO 6	7 TO 16
	217	237	257	277	297	317	337	357	1 TO 7	8 TO 16
	218	238	258	278	298	318	338	358	1 TO 8	9 TO 16
	219	239	259	279	299	319	339	359	1 TO 9	10 TO 16
	220	240	260	280	300	320	340	360	1 TO 10	11 TO 16
	221	241	261	281	301	321	341	361	1 TO 11	12 TO 16
	222	242	262	282	302	322	342	362	1 TO 12	13 TO 16
	223	243	263	283	303	323	343	363	1 TO 13	14 TO 16
	224	244	264	284	304	324	344	364	1 TO 14	15 TO 16
	225	245	265	285	305	325	345	365	1 TO 15	16
	226	246	266	286	306	326	346	366	1 TO 16	NONE

Fig. 10 (165A7677-1) Outline, Panel Drilling and Internal Connection Diagram for HEA61C Relay



CYCLES	RELAY FORM SYMBOL										CONTACT ARRANGEMENT	
	DC	DC	DC	DC	DC	DC	82	80/60	25		RESET	POSITION
VOLTS	250	125	48	24	32	230	220	115	230	115	OPEN	CLOSED
	211	231	251	271	291	311	331	351	371	391	1	2 TO 10
	212	232	252	272	292	312	332	352	372	392	1 & 2	3 TO 10
	213	233	253	273	293	313	333	353	373	393	1 TO 3	4 TO 10
	214	234	254	274	294	314	334	354	374	394	1 TO 4	5 TO 10
	215	235	255	275	295	315	335	355	375	395	1 TO 5	6 TO 10
	216	236	256	276	296	316	336	356	376	396	1 TO 6	7 TO 10
	217	237	257	277	297	317	337	357	377	397	1 TO 7	8 TO 10
	218	238	258	278	298	318	338	358	378	398	1 TO 8	9 TO 10
	219	239	259	279	299	319	339	359	379	399	1 TO 9	10

Fig. 11 (165A7678-1) Outline, Panel Drilling and Internal Connection Diagram for HEA61E Relay

B3

3/4.3 INSTRUMENTATION

BASES

3/4.3.1 and 3/4.3.2 PROTECTIVE AND ENGINEERED SAFETY FEATURES (ESF) INSTRUMENTATION

The OPERABILITY of the protective and ESF instrumentation systems and bypasses ensure that 1) the associated ESF action and/or reactor trip will be initiated when the parameter monintored by each channel or combination thereof reaches its setpoint, 2) the specific coincidence logic is maintained, 3) sufficient redundancy is maintained to permit a channel to be out of service for testing or maintenance, and 4) sufficient system functional capability is available for protective and ESF purposes from diverse parameters.

The OPERABILITY of these systems is required to provide the overall reliability, redunancy and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the accident analyses.

The surveillance requrements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability.

The measurement of response time at the specified frequencies provides assurance that the protective and ESF action function associated with each channel is completed within the time limit assumed in the accident analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable.

Response time may be deonstrated by any series of sequential, overlapping or total channel test masurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either 1) in place, onsite or offsite test masurements or 2) utilizing replacement sensors with certified response times.

The Safety Injection Actuation Signal (SIAS) provides direct actuation of the Containment Insolation Signal (CIS) to ensure containment isolation in the event of a small break LOCA.

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that 1) the radiation levels are continually measured in the areas served

F-502706
sh 1 of 1

@ RCP

(TE438B) (TE428B) TE418B | (TE126) (TE129) TE132 | (TE125) (TE128) TE131 | (TE437A) (TE427A) TE417A | (TE437B) (TE427B) TE417B | (TE438A) (TE428A) TE418A | (TE439) (TE429) TE419

DEVICE	CABLE NUMBER	WIRE NOS A	B	C	SEE DWG	DEVICE	CABLE NUMBER	WIRE NOS A	B	C	SEE DWG
TE 32	3STRCS/3T11-TE132/1	1A	1B	1C	E-426	TE437B	3STRCS/3T14-TE437B/1	2A	2B	2C	E-424
TE129	3STRCS/3T12-TE129/1	2A	2B	2C	E-423	TE438A	3STRCS/3T11-TE438A/1	3A	3B	3C	E-424
TE 26	3STRCS/3T14-TE126/1	3A	3B	3C	E-424	TE428A	3STRCS/3T14-TE428A/1	2A	2B	2C	E-423
TE134	3STRCS/3T11-TE131/1	4A	4B	4C	E-426	TE438A	3STRCS/3T14-TE438A/1	3A	3B	3C	E-424
TE128	3STRCS/3T12-TE128/1	5A	5B	5C	E-423	TE439	3STRCS/3T11-TE439/1	4A	4B	4C	E-426
TE125	3STRCS/3T14-TE125/1	6A	6B	6C	E-424	TE429	3STRCS/3T12-TE429/1	5A	5B	5C	E-423
TE417A	3STRCS/3T11-TE417A/1	7A	7B	7C	E-426	TE439	3STRCS/3T14-TE439/1	6A	6B	6C	E-424
TE427A	3STRCS/3T12-TE427A/1	8A	8B	8C	E-423	TE428B	3STRCS/3T11-TE428B/1	7A	7B	7C	E-426
TE437A	3STRCS/3T14-TE437A/1	9A	9B	9C	E-424	TE438B	3STRCS/3T12-TE438B/1	8A	8B	8C	E-423
TE417B	3STRCS/3T11-TE417B/1	10A	10B	10C	E-426	TE438B	3STRCS/3T14-TE438B/1	9A	9B	9C	E-424
TE427B	3STRCS/3T12-TE427B/1	11A	11B	11C	E-423						

3D02 BATT CHRGR 3A

TBAL-1

KCS/3C04-3D02/1 · 3D02/3D01-3D02/1 · 3D02/3D01-3D02/1 · CHRGR 4C02-4D02/1 · CHRGR 3C02-3D02/1 · 3B07/5/3D07-3D02/1

FP E45-1 & 3

3Y01 STATIC INVERTER 3A

TB3 · ATB2 · FP E46-547

3Y01/3P07A-3Y01/1 · VIPSD/3K01-3C04/1 · 3K41/3C03-3Y01/1 · 3Y01/3D01-3Y01/1 · 3Y01/3P07A-3Y01/2

3K99/TB32:3-PC957B/1 · 3K99/TB32:3-PC957A/1 · TB3213 · 3K99/3C04-TB3213/1 · 3P03A20/TB3134-TB3-5/1 · 3P03B20/TB3135-TB3-6/1

D02 BATT CHRGR 3S

TBAL-1 · PLR-1 · PLR-2 · FIELD WIRING · CLOSED N ON · FP E45-1 & 3

KCS/3C04-3D02/1 · D02/3D01-D02/1 · D02/4D01-D02/1 · C-RGR 4C02-3D02/1 · C-RGR 3C02-3D02/1 · 3D03A8/D08-D02/1 · 12CWDS/C25-CE-1&2 · 21CWDS/C25-CE-1&2

3Y02 STATIC INVERTER 3B

TB3 · ATB2 · FP E46-547

3Y02/3P08A-3Y02/1 · VIPSD/3Y02-4C08/1 · 3K41/3C03-3Y02/1 · 3Y02/3P08A-3Y02/2 · 3Y02/3Y02-4D21/1

(PL437) (PC427) PC417

DEVICE	CABLE NUMBER	
PC417	3B0654/PC417-T3121/1	E-417
PC427	3B0679/PC427-T3122/1	E-418
PC437	3B0762/PC437-T3123/1	E-419

CE 063 · 12CWDS/C25-CE-1&2 · 21CWDS/C25-CE-1&2

DEVICE	CABLE NUMBER	A	B	C
PC357A	3K99/TB32:3-PC957A/1	3K99/TB32:3-PC957A/1		
PC357B	3K99/TB32:3-PC957B/1	3K99/TB32:3-PC957B/1		
PC357C	3K99/TB32:3-PC957C/1	3K99/TB32:3-PC957C/1		
PC357D	3K99/TB32:3-PC957D/1	3K99/TB32:3-PC957D/1		

JD5 (PERSONNEL LOCK) · JD5A (ESCAPE LOCK)

(LC437) (LC427) LC417 UPPER

(LC439) (LC429) LC419 LOWER

DEVICE	CABLE NUMBER	WIRE NOS A	B	SEE DWG
LC417	3K72/LC3417-T3121/1	ANTZ	K42	E-417
LC427	3K72/LC3427-T3122/1	ANTZ	K52	E-418
LC437	3K72/LC3437-T3123/1	ANTZ	K62	E-419

3D03 BATT CHRGR 5S

TBAL-1

KCS/3C04-3D25/1 · 3D232/3D23-3D25/1 · 3D232/3D23-3D25/2 · CHRGR/3C02-3D25/1 · CHRGR/4C02-3D25/1 · 3B0636/3B06-3D25/1

FP E45-1 & 3

DEVICE	A	B	C
E-384	E-410	ANST	K61
E-385	E-410	ANST	K51

ROD.PDS INVERTER 3Y03

3IRPS/3D01-3Y03/1 · 3IRPS/3D02-3Y03/1 · LR 33 CKT 18 · 3B0766/3B07-3Y03/1

DEVICE	A	B	C	D
FIC457	E-385	E-385	ANST	K57
FIC459	E-384	E-410	ANSC	KG3
FIC458B	E-385	E-410	ANSC	KG5
FIC459	E-384	E-385	ANST	K57

TB3020 (B/M H12-25) SEE FP&L DWG E-15D838-1

BE16/3C11-TB3020/3 · BE16/TB3Z0-3Y01/1 · BE16/3C11-TB3020/1

TB3021 (B/M H12-25) SEE FP&L DWG E-15D838-2

BE16/3C11-TB3021/3 · BE16/TB3021-3Y02/1 · BE16/3C11-TB3021/1

TB3022 (B/M H12-25) SEE FP&L DWG E-15D838-2

TB20-1 · TB20-2 · 3Y04 3Y06

3Y04-STATIC INVERTER A5

	CABLE NUMBER	SEE DWG
A	3Y04/3Y04-3P07A/1	E-411
B	3Y04/3D01-3Y04/1	E-4
C	3Y04/3C03-3Y04/1	E-4
D	VIPSD/3Y04-4C08/1	E-4

3Y06-STATIC INVERTER C5

	CABLE NUMBER	SEE DWG
A	3Y06/3Y06-3Y06/1	E-412
B	3Y06/3D03-3Y06/1	E-4
C	3Y06/3C03-3Y06/1	E-4
D	VIPSD/3Y06-4C08/1	E-4

3Y05 3Y07

3Y05-STATIC INVERTER 3C

NO	CABLE NUMBER	SEE DWG
A	3Y05/3Y05-3P07A/1	E-412
B	3Y05/3D03-3Y05/1	E-412
C	3Y05/3C03-3Y05/1	E-4
D	VIPSD/3Y05-4C08/1	E-4
E	3Y05/3Y05-3P07A/2	E-412

3Y07-STATIC INVERTER 3D

NO	CABLE NUMBER	SEE DWG
A	3Y07/3P07A-3Y07/1	E-412
B	3D03/3D03-3Y07/1	E-412
C	3C03/3C03-3Y07/1	E-4
D	VIPSD/3Y07-3C08/1	E-4
E	3Y07/3Y07-3P07A/2	E-412

ACTIVE PDM 77-13

HVAC PNL C45 (PART OF)

HVAC/4P05-C45/1 · HVAC/3Q851-C45/1 · DP3&2A/DP3&2AC-C45/1 · HVAC/3Q850-C45/1 · HVAC/4Q851-C45/1

REV	DESCRIPTION	BY	CK	APP
4	REVISED AS NOTED, F	RW		
3	RELATED CT LEADS FROM WIRES FOR GROUND RELAYS REQ'D L.C. TO DCR PDM	FM		
2	ADDED AS NOTED, F	RW		
1	3K99/TB32:3-PC957A/1, 3K99/TB32:3-PC957B/1 & 3K99/TB32:3-PC957D/1 REVISED AS NOTED	FM		
0	ISSUED FOR CONSTRUCTION	R.R.		

BECHTEL CORPORATION
GAITHERSBURG, MARYLAND

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT NUCLEAR UNITS
UNIT NO. 3 1970—700 MW INSTALLATION
UNIT NO. 4 1971—700 MW INSTALLATION

CONNECTION DIAGRAM
MISCELLANEOUS EQUIPMENT

DATE 4-10-70 · DRAWING NO. 5610 E-389 · sh 1 of 1 · F-502706

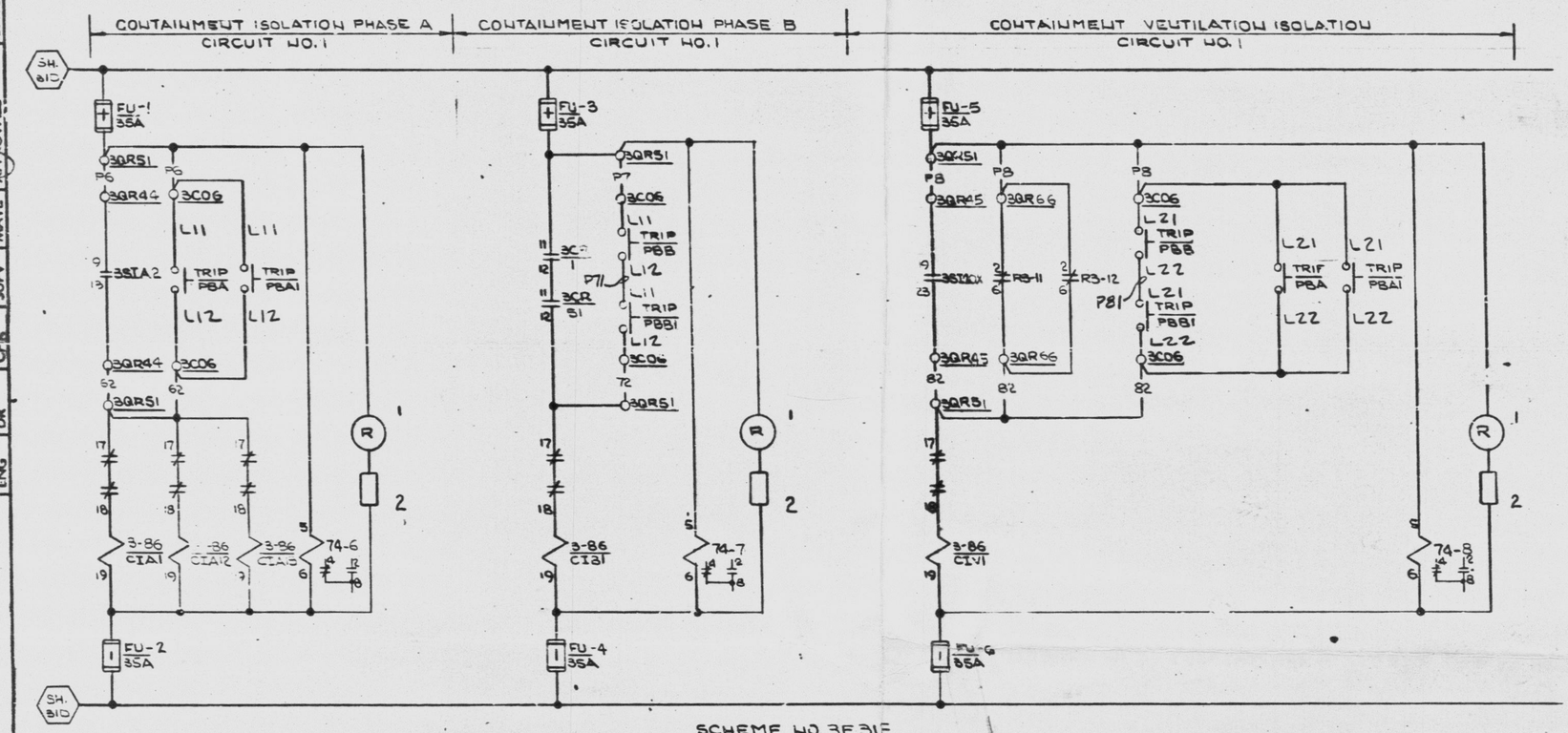
(PL,R,-)

TERA APERTURE CARD

REGULATORY DOCKET FILE COPY

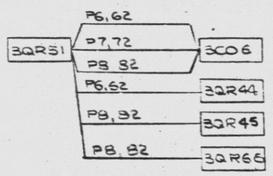
Docket # 50-250
Control # 8011040391
Date 10/27/80 of Document:
REGULATORY DOCKET FILE

-1 D



74-6 74-7 74-8

ANNUNCIATOR, SH. 31H



BLOCK DIAGRAM

NOTES:
1. SEE E-300 SH.51 FOR DESIGNATION OF EQUIPMENT NO'S.
2. DEVICE & LOCATION NO'S FOR UNIT NO.4 SHALL HAVE PREFIX 4 IN LIEU OF 3.

TURKEY POINT PLANT
UNITS 3 & 4
F. P. & L. TRACING

REV.	DESCRIPTION	ENG	DR	CHK	SUPV	MATL	APPROVALS	DATE
2	REVISED AS NOTED	CDM	RJW	CDM				4/15/70
3	REVISED AS NOTED		RJW	CDM				8/27/70
4	CONFIGURATION VERIFIED BY FIELD CHECK							12-8-72

TERA APERTURE CARD
Docket # 50-250
Control # 8011040391
Date 10/27/80 of Document:
REGULATORY DOCKET FILE

(PL,R,-)

CONTAINMENT ISOL. SAFEGUARDS #1

ELEMENTARY DIAGRAM
ELECTRICAL AUXILIARIES

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT NUCLEAR UNITS
UNIT NO. 3 1970-760 MW INSTALLATION
UNIT NO. 4 1971-760 MW INSTALLATION

BECHTEL CORPORATION
POWER AND INDUSTRIAL DIVISION

5610-E-28 Sh. 31F REV. 4

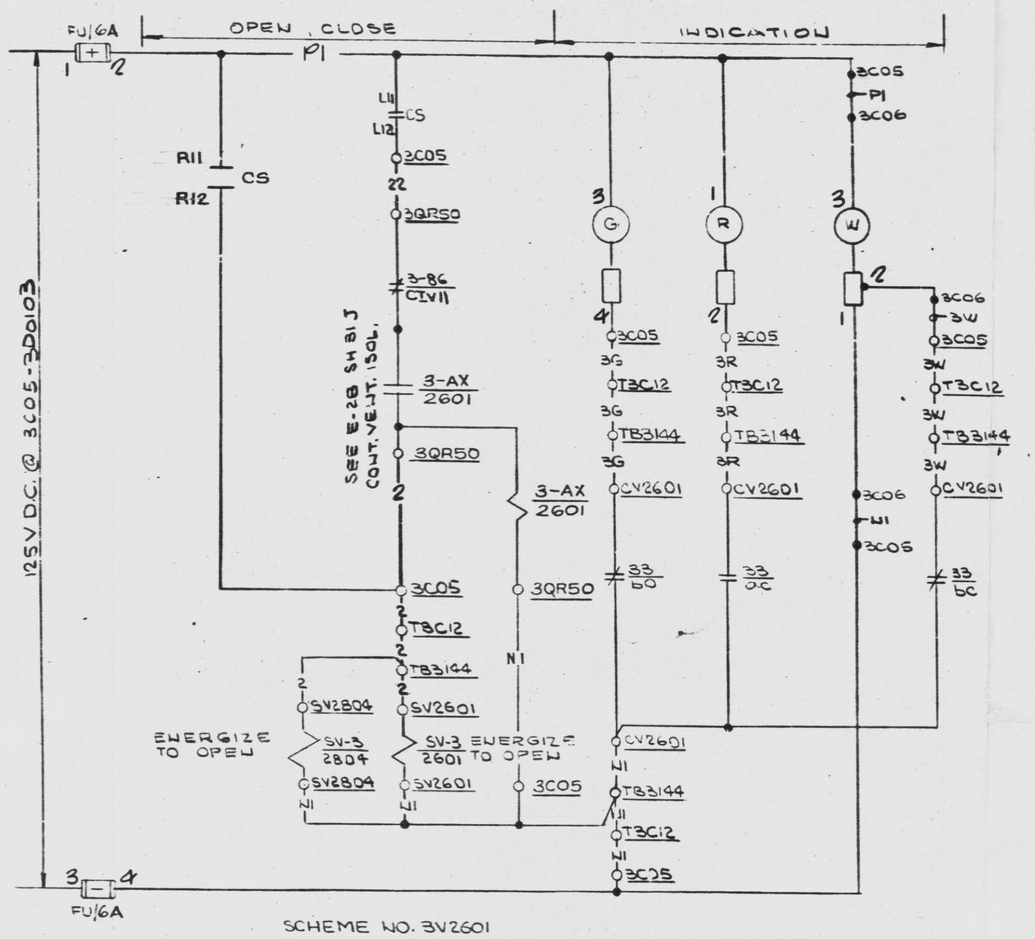
REGULATORY DOCKET FILE COPY

C-501748 SH. 69

8011040391-2 D

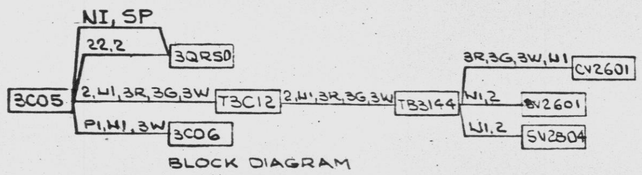
9 | INCORP. PC/M 79-756 76
8 CONFIGURATION VERIFIED BY FIELD CHECK
6 FIELD CHANGE INCORPORATED
•7 ADDED D.C. CIRCUIT NUMBERS

	BE/RH	MHA	9-15-80
	BE/AH	LLC MS	10-11-78
			11 11 72
		CDTT	11 20 73
		CDTT	
CK	ENG		



NOTES:
1. SEE E-300, SH 51 FOR DESIGNATION OF EQUIPMENT NO'S.
2. SEE SH.C FOR SW. DEV.: FIG 7, FOR ADDITIONAL CONTACTS SEE SH.59A. SEE SH.B FOR DESIGNATION OF POS. SW. 33

EQUIPMENT	SCHEME NO	SV	LOCATION						CKT#	LOCATION	SV	FUSE NO	CS	3(4)-AX
CONT. PURGE AIR SUPPLY S.VLV.	3V2601	3-2601	3C06	3C05	CV2601	SV2601	T3C12	TB3144	3D0103	3QR50	SV2804	3-2804	XLAG	L11-L12	R11-R12	2601
↓	4V2601	4-2601	4C06	4C05	CV2601	SV2601	T4C11	TB4144	4D2307	4QR50	SV2804	4-2804	XLAG	L11-L12	R11-R12	2601
CONT PURGE AIR RETURN S.VLV.	3V2603	3-2603	3C06	3C05	CV2603	SV2603	T3C12	TB3144	3D0103	3QR50	SV2806	3-2806	XLAH	L11-L12	R11-R12	2603
↓	4V2603	4-2603	4C06	4C05	CV2603	SV2603	T4C12	TB4145	4D2307	4QR50	SV2806	4-2806	XLAH	L11-L12	R11-R12	2603



BLOCK DIAGRAM

(PL,12,-)

C-501744 SH.83

TURKEY POINT PLANT
UNITS 3 & 4
F. P. & L. TRACING

CONT. PURGE AIR SUP. & RETR. S.V.

ELEMENTARY DIAGRAM
REACTOR

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT, NUCLEAR UNITS
UNIT NO. 3 1970-760 MW INSTALLATION
UNIT NO. 4 1971-760 MW INSTALLATION

BECHTEL CORPORATION
POWER AND [illegible]

5610-E-25 SH.59

REV. 9

4/11/68

8011040391-3 D