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KUNDALKAR,R.S. Florida Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
Document Control Branch (Document Control Desk)

SUBJECT: Forwards response to 970616 RAI re request for exemption from requirements of 10CFR50,App R,Section III.G.2.a,for fire barrier used in outdoor fire zones excluding turbine bldg area.Add1 info uses 25-minute barrier systems.

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JUL 31 1997

L-97-182
10 CFR §50.12
10 CFR §50.48
10 CFR Part 50 Appendix R

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

Subject: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Response to Request for Additional Information - Fire Barriers Exemption - Outdoor Fire Area Excluding the Turbine Building

By letter L-96-318, dated December 12, 1996, Florida Power & Light Company (FPL) requested an exemption from the requirements of 10 CFR Part 50, Appendix R, Section III.G.2.a, for electrical raceway fire barrier systems used at Turkey Point Units 3 and 4 in outdoor fire zones excluding the turbine building area.

By letter dated June 16, 1997, the NRC issued to FPL a request for additional information needed to complete the review of FPL's request for exemption. In accordance with the NRC request, and as discussed during the July 7, 1997 meeting between FPL and NRC Staff, Attachment 1 provides the additional information for those areas using the 25-minute barrier systems.

Should there be any questions, please contact us.

Very truly yours,

R. S. Kundalkar
Vice President
Nuclear Engineering

A006 1/1

OIH

Attachments

cc: L. A. Reyes, Regional Administrator, Region II, USNRC
T. P. Johnson, Senior Resident Inspector, USNRC, Turkey Point

Response to NRC Questions on Fire Barriers Exemption
for Thermo-Lag at Turkey Point Units 3 and 4

Florida Power and Light (FPL) prepared responses to the NRC Request for Additional Information, "Fire Barriers Exemption", Turkey Point Units 3 and 4, dated June 16, 1997. The specific questions and responses are itemized below and reflect discussions from the July 7, 1997 meeting between FPL and the NRC.

It is appropriate to review the scope, methodology and criteria that support the justification for the requested exemption. Beginning circa 1983, FPL installed Thermo-Lag as a fire barrier material for raceway protection in compliance with Appendix R, Section III.G.2.a. A safe shutdown analysis was performed and safe shutdown equipment and associated circuits identified. For consistency throughout the outdoor areas, FPL elected to protect Train B safe shutdown circuits. Where exemptions were required in selected areas, the bases for approval included combinations of the following:

- the open and expansive nature of outdoor areas to dissipate smoke and hot gases
- low combustible loading concentrations
- remote locations from major combustibles
- substantial separation of safe shutdown equipment
- fire protection, detection and suppression features
- availability of primary and secondary fire control features

The area descriptions and fire hazards analyses are presented in Appendix 9.6A, Section 4.0 of the Turkey Point Updated Safety Analysis Report (UFSAR).

The wholesale installation of Thermo-Lag was expected to be a one-time effort. Neither the NRC nor reactor licensees contemplated the additional expense of replacing degraded fire barrier material that was once reasonably relied upon as qualified. Now, in light of recent industry developments and facing substantial cost for new Thermo-Lag installations and upgrades, FPL is considering alternatives to Thermo-Lag.

The request for exemption, submitted via FPL letter L-96-318 dated December 12, 1996, defines the proposed separation and protection criteria for outdoor areas and is essential to the action plan for resolving the Thermo-Lag issue for Turkey Point Units 3 and 4. The exemption request is based on fire hazards analysis methodology. The proposed exemptions are listed in Section II.B of the attachment to the submittal letter. The fire zones that apply to each specific exemption are listed in Section II.C.

In order to perform a systematic and thorough analysis of potential fire hazards in outdoor areas at Turkey Point Units 3 and 4, a system of fire zones has been established. The outdoor fire zones are regarded as a single Fire Area, labeled "OD" in Section 4.0 of the UFSAR. Information required for the fire hazards analysis for each zone includes a description of fire prevention and control features, safe shutdown equipment, an inventory of in situ combustible materials, and the fire detection and fire mitigation features. This information was summarized in Section IV of the exemption request.

Combustible materials are classified as "cable insulation," "oil" and "other". Although combustible loadings have been calculated for a few selected outdoor zones, only significant combustibles were taken into account. Other factors such as area size, proximity of the combustible source to equipment, type of fire detection and mitigation features available, and engineering judgement are used to determine if an item constitutes a significant combustible inventory in an outdoor zone. Cable loadings are not considered significant combustible loads in outdoor zones due to high ignition temperature of the cables and the nature of outdoor zones, which precludes the stratification of hot gases.

In this context, the specific responses to NRC questions are presented below.

NRC Question 2a:

Certain protection schemes proposed by the licensee utilize ERRFBS with either 1-hour or 25-minute fire endurance ratings until either 10 feet or 20 feet of separation is obtained. Confirm that for the outdoor fire zones where redundant post-fire safe shutdown trains/functions are separated by a horizontal distance of 20 feet or more and for roof top fire zones separated by a horizontal distance of 10 feet or more, the intervening space between these safe shutdown trains is free of in-situ or transient combustibles.

FPL Response 2a:

Not all intervening spaces between redundant safe shutdown circuits are "free" of in situ or transient combustibles. However, in most cases the in situ combustible load is very low so as to be negligible, and in the few other cases where in situ combustible load is significant, dedicated containment facilities and fire detection and suppression systems are provided. This is consistent with the justifications for exemptions approved earlier.

The major combustible loads in outdoor areas are identified in Section V.C of the exemption request. The major combustible loads consist of lube oil reservoirs, station transformers, fuel oil storage tanks and hydrogen storage facilities.

For the present, only one raceway containing safe shutdown circuits passes near a major combustible load. This is one train of diesel power supply approaching within 15 feet of the Unit 4 main and startup transformers. As described in Sections IV.A and V.C of the exemption request, each transformer is served by a fixed water spray fire suppression system and thermal detection which alarms in the control room. These transformers are also located in pits surrounded by concrete dikes to contain spills.

Other in situ and transient combustible loads are described in Sections V.D and V.E respectively of the exemption request. In situ combustible loads are lube oil encased in pumps, cable and Thermo-Lag. The cable was either coated with Flammastic 71A or 77 or qualified to IEEE-383, 1974 standards. The in situ fuel loading is so low and spread out that fuel contribution from cable and Thermo-Lag would not sustain a substantial fire and is, therefore, considered negligible and essentially free of intervening combustibles.

The Turkey Point Combustible Control Program assures that a worst case transient fire caused by a spill would be far below a hazard level that could challenge protected raceways and components. There are very few transient combustibles in the plant at any one time, and those few have sufficient controls. Therefore, the potential accumulation of combustibles would not challenge the fire-resistive capability of fire barriers.

In conclusion, although the outdoor areas are not free of intervening combustibles, the major combustible sources are localized and protected, and other combustible loading is so low and spread out as to be essentially free of intervening combustibles.

NRC Question 2b:

For each fire zone describe the protection scheme which will be used to separate redundant post-fire safe shutdown trains. Specifically, identify the redundant post-fire safe shutdown trains/functions located within each fire zone; describe by fire zone, the raceway routing for each post-fire safe shutdown function and its separation from the redundant train; identify the conduit/raceway (e.g., plant raceway identification number) and the post-fire safe shutdown function being protected by either a ERFBS or a radiant energy heat shield, and the extent that they are protected in each zone (e.g., protected by a 25-minute ERFBS along its entire route through the fire zone or protected from column line XXX to YYY on elevation ZZZ).

FPL Response 2b:

A detailed description of the combustible load, fire control and fire protection features for each outdoor fire zone is provided in UFSAR Appendix 9.6A, Section 4.0. Due to the extensive volume of

information contained in the UFSAR, it will not be duplicated here. However, as indicated above, the protection plan is based on fire hazards analysis and protection will be achieved using the criteria proposed in the exemption request.

The proposed exemptions are listed in Section II.B of the attachment to the submittal letter. The fire zones that apply to each specific exemption are listed in Section II.C. The requested exemption would permit the use of fire-rated barriers, separation, radiant energy shields or any combination of these as protection schemes for outdoor fire zones. Some applications are specifically identified, as stated in Exemption Requests 1, 3, 5, 6 and 7. In other cases, as for Exemption Requests 2 and 4, the application of protection scheme options will be performed on a case-by-case basis. Nevertheless, credit is taken for 25-minute rated fire barriers in all outdoor fire zones, excluding Open Turbine Building, except where separation already exists.

The selection of protection scheme applications will be made during the re-evaluation to reduce the scope of new Thermo-Lag applications. The option to use separation will be applied based on established separation criteria. As indicated in the July 7, 1997 meeting, FPL will submit these criteria to the NRC by October 31, 1997. FPL will submit separation exemption requests for approval on a case-by-case basis. These submittals will describe the circuit safe shutdown function and the space separating redundant circuits from a fire hazards perspective.

FPL is taking credit for 25-minute rated fire barriers in all fire zones except where separation already exists. Of the outdoor fire zones for which exemption is requested, FPL credits physical separation of redundant components in the following fire zones:

Fire Zone	Description
47	Unit 4 Component Cooling Water Pump & Heat Exchanger Area
54	Unit 3 Component Cooling Water Pump & Heat Exchanger Area
79	Area West of Unit 4 Containment
113	Unit 4 Feedwater Platform
114	Unit 4 Main Steam Platform
115	Unit 3 Main Steam Platform
116	Unit 3 Feedwater Platform
118	Auxiliary Building (& partial Control Building) Roof
119	Unit 4 Circulating Water Intake Structure
120	Unit 3 Circulating Water Intake Structure

For Fire Zones 106R and 143, no credit is currently being taken for physical separation of redundant trains.

Attachment A consists of component information for specific fire zones where physical separation of redundant components is credited. The analysis provided therein is based on exemptions granted by NRC Safety Evaluation Reports dated March 27, 1984 and August 12, 1987, as referenced in the UFSAR for Turkey Point Units 3 and 4. Attachment A provides portions of the zone-by-zone analysis for cables/components in the fire zone and identifies attributes that are credited (e.g., function, separation, whether or not protection is required, redundant components) for assuring availability of one train of components. The information is limited to only those redundant components where spatial separation is one of the attributes used in the analysis. A brief summary of redundant components and the separate criteria used is included and precedes each respective fire zone.

FPL intends to take credit for spatial separation for the same redundant components in fire zones where separation is currently used in the analysis. Additionally, based on the proposed new exemption of 10 feet in lieu of 20 feet spatial separation on roof top locations (fire zones 114, 115, 106R, 118 and 143), credit for separation for additional components may also be taken.

A presentation of Definitions, Safe Shutdown Analysis Columns and Abbreviations is included at the end of Attachment A to explain terms used in the safe shutdown analysis.

NRC Question 2c:

For the Thermo-Lag radiant energy heat shield used to provide post-fire safe shutdown train separation, describe the shield design and its construction attributes. In addition, for each fire zone where they are used, address how the design of these outdoor radiant energy heat shields will provide an adequate level of fire safety and provide reasonable assurance that one train of post-fire safe shutdown capability will be maintained free of fire damage.

FPL Response 2c:

As indicated in the exemption request, the outdoor areas at Turkey Point Units 3 and 4 are characterized by having an open environment, rapid heat dissipation and no stratification of smoke or hot gases. The effects of a fire in this type of environment (radiant heat transmission only, since convective effects are limited to the plume) can be mitigated by blocking the radiant effects of the fire.

As stated in the exemption request, the radiant energy shield will have an equivalent 30-minute fire rating and is a line-of-sight barrier between redundant equipment and/or components. For a radiant energy shield to qualify for outdoor use, it must provide shielding both from one train of redundant safe shutdown equipment to another, and shielding from potential fire locations to at

least one train of redundant safe shutdown components. Many radiant energy shields are anticipated to be existing buildings and large structures.

The present exemptions for the feedwater platforms in Fire Zones 113 and 116, described in Sections 4.OD.42 and 4.OD.48 of the Turkey Point UFSAR, are good examples of this methodology application. The platforms separate redundant auxiliary feedwater supply valves. The upper level of the feedwater platform is separated from grade by a 1/4" steel deck located approximately 20' above grade. Additional shields may be constructed of steel and installed between redundant counterparts.

Due to the open nature of these outdoor areas, a radiant energy shield will provide protection of redundant counterparts in an equivalent fashion to 10CFR50 Appendix R, Section III.G.2.f.

ATTACHMENT A

FIRE ZONES OD/47, OD/54
UNIT 4(3) COMPONENT COOLING PUMP AND HEAT EXCHANGER

For fire zones OD/47 and OD/54, redundant trains of CCW Pumps are located in the fire zone. Cables and raceways pertinent to these equipment are also routed in the fire zone. CCW Pumps are separated by approximately 12 feet center to center. Credit is taken for separation of CCW Pumps and power cables at the motor termination. Local control stations are separated by greater than 20 feet. This is consistent with the existing exemptions for the fire zones.

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 47

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL B
FIRE ZONE NAME COMPONENT COOLING PUMP AND HEAT EXCHANGER

SYS	U N	C N	COMPONENT DESIGNATION	SCHEME FROM	/ TO	SUB	RACEWAY(WRAPRATE)	CABLE FUNCTION	S/D FUN	OM PROT OP REQ
CCW	4	B	4P211B	4AB13		A	4N1361(1) PB4800(1)	CCW PUMP CONTROL	ASSD/	/YES
CCW	4	B	4P211B	4AB13 4AB13	4P211B	1	4F063( )	CCW PUMP POWER	ASSD/	/NO
CCW	4	B	4P211C	4AD04 4N211C	4AD04	OU	3E149(M) 4N1418( ) CCW PUMP 4C BREAKER CONTROL 4N468 ( ) MN410 (M) PB4036( )		SSD	/OP/NO
CCW	4	C	4P211C	4AD04 4P211C	4AD04	OP	4N1417( )	CCW PUMP 4C POWER FEEDER	SSD /	/NO

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 54

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL B
FIRE ZONE NAME COMPONENT COOLING PUMP AND HEAT EXCHANGER

SYS	U N	C N	COMPONENT DESIGNATION	SCHEME FROM	/ TO	SUB	RACEWAY(WRAPRATE)	CABLE FUNCTION	S/D FUN	OP	PROT REQ
CCW	3	B	3P211B	3AB13		A	3H1372(1) P83862(1)	CCW PUMP CONTROL	ASSD/		/YES
CCW	3	B	3P211B	3AB13 3AB13	3P211B	1	3E063 (E)	CCW PUMP POWER	ASSD/		/NO
CCW	3	B	3P211C	3AD04 3N211C	3AD04	OU	3E096 ( ) P83036( )	CCW PP 3C CNTL CLOSE/TRIP LOCAL PB	SSD	/OP	/NO
CCW	3	C	3P211C	3AD04 3P211C	3AD04	OP	3N1433( ) 3Z149 (M)	POWER - CCW PP 3C PUMP FEEDER	SSD /		/NO
CCW	4	B	4P211C	4AD04 4N211C	4AD04	OU	3E149 (M)	CCW PUMP 4C BREAKER CONTROL	SSD /		/NO
CCW	4	C	4P211C	4AD04 4P211C	4AD04	OP	4Z157 ( )	CCW PUMP 4C POWER FEEDER	SSD /		/NO

FIRE ZONE OD/79
OUTDOOR AREA WEST OF UNIT 4 CONTAINMENT

For fire zone OD/79, cables and raceways pertinent to redundant equipment for Auxiliary Building Ventilation System (Exhaust Fan V8B and Supply Fan V11) are routed in the fire zone. Credit is taken for 20 feet spatial separation between the redundant trains of cables.

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 79

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL B
FIRE ZONE NAME OUTDOOR AREA WEST OF UNIT 4 CONTAINMENT

SYS	U N	C N	COMPONENT DESIGNATION	SCHEME	FROM	/ TO	SUB	RACEWAY(WRAPRATE)		CABLE FUNCTION	S/D FUN	OH PROT OP REQ
HVAC	C	C	V8A	480815	4808	3C05	OD	4F1455( ) 4J2193( )	4F1537( ) P85494( )	RUN AND IND AUX BLDG EXH FAN V8A	SSD	/ /NO
HVAC	C	B	V8B	380652	3806	M03409	OE	3F1574( )		AUX BLDG STBY EXH FAN V8B DMPR CNTL	SSD	/OH/NO
HVAC	C	B	V8B	380652	3806	M03419	OC	3F1574( )		AUX BLDG STBY EXH FAN V8B DMPR CNTL	SSD	/OH/NO
HVAC	C	B	V8B	380652	3806	N8B	OA	3F1574( )		AUX BLDG STBY EXH FAN V8B DMPR CNTL	SSD	/OH/NO
HVAC	C	B	V8B	380652	3806	P03419	OB	3F1574( )		AUX BLDG STBY EXH FAN V8B DMPR CNTL	SSD	/OH/NO
HVAC	C	B	V8B	380652	3806	V8B	OF	3J2041( )		AUX BLDG STBY EXH FAN V8B DMPR CNTL	SSD	/OH/NO

FIRE ZONES OD/113, OD/116
UNIT 4(3) FEEDWATER PLATFORM

For fire zones OD/113 and OD/116, redundant trains of AFW Flow Control Valves are located in the fire zone. Cables and raceways pertinent to these valves are also routed in the fire zone. As identified in the attachment, either cables are protected until 20 feet separation is achieved from the redundant counterpart, or required separation of 20 feet from the redundant counterpart exist or manual actions are taken.

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 113

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL A & B
FIRE ZONE NAME FEEDWATER PLATFORM

SYS	U M	C H	COMPONENT DESIGNATION	SCHEME FROM	/ TO	SUB	RACEWAY(WRAPRATE)	CABLE FUNCTION	S/D FUN	OM PROT OP REQ
AFW	4	A	CV-4-2816	4AFWA1		D	4K1055( ) 4K1076( ) PB4520( )	AFW FLOW CONTROL VALVE CONTROL	SSD /	/NO
AFW	4	A	CV-4-2816	4AFWA1		F	4K1053( ) 4K1055( ) 4K1103( ) 4K1108( ) PB4520( ) PB4524( )	AFW FLOW CONTROL VALVE CONTROL	SSD /	/NO
AFW	4	A	CV-4-2816	4V2914 4C10	SV2914	1	4BDT98( ) 4K323 (1) 4K369 (1) 4KFT20( )	AFW FLOW CONTROL VALVE CONTROL	SSD /	/YES
AFW	4	A	CV-4-2817	4AFWA2		D	4K1055( ) 4K1075( ) PB4520( )	AFW FLOW CONTROL VALVE CONTROL	SSD /	/NO
AFW	4	A	CV-4-2817	4AFWA2		F	4K1053( ) 4K1055( ) 4K1103( ) 4K1109( ) 4K1110( ) PB4520( ) PB4524( )	AFW FLOW CONTROL VALVE CONTROL	SSD /	/NO
AFW	4	A	CV-4-2817	4V2914 4C10	SV2916	1	4BDT98( ) 4K265 (1) 4K379 (1) 4K612 (1) 4KFT10( )	AFW FLOW CONTROL VALVE CONTROL	SSD /	/YES
AFW	4	A	CV-4-2818	4AFWA3		D	4K1055( ) 4K1072( ) PB4520( )	AFW FLOW CONTROL VALVE CONTROL	SSD /	/NO

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 113

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL A & B
FIRE ZONE NAME FEEDWATER PLATFORM

SYS.	UNIT	CH	COMPONENT DESIGNATION	SCHEME FROM	/ TO	SUB	RACEWAY(WRAPRATE)		CABLE FUNCTION	S/D FUN	OH PROT OP REQ
AFW	4	A	CV-4-2818	4AFWA3		F	4K1053( ) 4K1103( ) 4K1111( ) PB4524( )	4K1055( ) 4K1109( ) PB4520( )	AFW FLOW CONTROL VALVE CONTROL	SSD /	/NO
AFW	4	A	CV-4-2818	4V2914 4C10	SV2918	1	4BDT98( ) 4K614 (1)	4K389 (1) 4KFT10( )	AFW FLOW CONTROL VALVE CONTROL	SSD /	/YES
AFW	4	B	CV-4-2831	4AFWB1		D	4K1240(1) TB4835(1)	4K1243(1)	AFW FLOW CONTROL VALVE CONTROL	SSD	/OH/YES
AFW	4	B	CV-4-2831	4AFWB1		K	4K1065(1) PB4519(1)	4K1244(1) TB4835(1)	AFW FLOW CONTROL VALVE CONTROL	ASSD	/OH/YES
AFW	4	B	CV-4-2831	4AFWB1		R	4K1240(1) TB4835(1)	4K1243(1)	AFW FLOW CONTROL VALVE CONTROL	SSD	/OH/YES
AFW	4	B	CV-4-2831	4AFWB1		S	4K1240(1) TB4835(1)	4K1243(1)	AFW FLOW CONTROL VALVE CONTROL	ASSD	/OH/YES
AFW	4	B	CV-4-2831	4V2915		J	4K1407(1)	4K1408(1)	AFW FLOW CONTROL VALVE CONTROL	ASSD	/OH/YES
AFW	4	B	CV-4-2832	4AFWB2		D	4K1240(1) TB4835(1)	4K1243(1)	AFW FLOW CONTROL VALVE CONTROL	SSD	/OH/YES
AFW	4	B	CV-4-2832	4AFWB2		K	4K1068(1) PB4519(1)	4K1244(1) TB4835(1)	AFW FLOW CONTROL VALVE CONTROL	ASSD	/OH/YES
AFW	4	B	CV-4-2832	4AFWB2		R	4K1240(1) TB4835(1)	4K1243(1)	AFW FLOW CONTROL VALVE CONTROL	SSD	/OH/YES

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 113

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL A & B
FIRE ZONE NAME FEEDWATER PLATFORM

SYS	U N	C H	COMPONENT DESIGNATION	SCHEME FROM / TO	SUB	RACEWAY(WRAPRATE)		CABLE FUNCTION	S/D FUN	OM PROT OP REQ
AFW	4	B	CV-4-2832	4AFW82	S	4K1240(1) TB4835(1)	4K1243(1)	AFW FLOW CONTROL VALVE CONTROL	ASSD	OM/YES
AFW	4	B	CV-4-2832	4V2915	K	4K1407(1)	4K1409(1)	AFW FLOW CONTROL VALVE CONTROL	ASSD	OM/YES
AFW	4	B	CV-4-2833	4AFW83	D	4K1240(1) TB4835(1)	4K1243(1)	AFW FLOW CONTROL VALVE CONTROL	SSD	OM/YES
AFW	4	B	CV-4-2833	4AFW83	K	4K1066(1) PB4519(1)	4K1244(1) TB4835(1)	AFW FLOW CONTROL VALVE CONTROL	ASSD	OM/YES
AFW	4	B	CV-4-2833	4AFW83	R	4K1240(1) TB4835(1)	4K1243(1)	AFW FLOW CONTROL VALVE CONTROL	SSD	OM/YES
AFW	4	B	CV-4-2833	4AFW83	S	4K1240(1) TB4835(1)	4K1243(1)	AFW FLOW CONTROL VALVE CONTROL	ASSD	OM/YES
AFW	4	B	CV-4-2833	4V2915	H	4K1407(1)	4K1410(1)	AFW FLOW CONTROL VALVE CONTROL	ASSD	OM/YES

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 116

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL A & B
FIRE ZONE NAME FEEDWATER PLATFORM

SYS	U N	C H	COMPONENT DESIGNATION	SCHEME FROM	/ TO	SUB	RACEWAY(WRAPRATE)	CABLE FUNCTION	S/D FUN	OM PROT OP REQ
AFW	3	A	CV-3-2816	3AFWA1		D	3K1073( ) 3K1130( ) PB3523( )	AFW FLOW CONTROL VALVE CONTROL	SSD /	/NO
AFW	3	A	CV-3-2816	3V2914 3C10	SV2914	1	3K368 (1) 3K369 (1)	AFW FLOW CONTROL VALVE CONTROL	SSD /	/YES
AFW	3	A	CV-3-2817	3AFWA2		D	3K1130( ) PB3523( ) TB3733( )	AFW FLOW CONTROL VALVE CONTROL	SSD /	/NO
AFW	3	A	CV-3-2817	3AFWA2		J	3K1079( ) PB3523( )	AFW FLOW CONTROL VALVE CONTROL	SSD /	/NO
AFW	3	A	CV-3-2817	3V2914 3C10	SV2916	1	3K574 (1) 3K576 (1) 3K577 (1)	AFW FLOW CONTROL VALVE CONTROL	SSD /	/YES
AFW	3	A	CV-3-2818	3AFWA3		D	3K1080( ) 3K1130( ) PB3523( )	AFW FLOW CONTROL VALVE CONTROL	SSD /	/NO
AFW	3	A	CV-3-2818	3V2914 3C10	SV2918	1	3K568 (1) 3K570 (1) 3K585 (1)	AFW FLOW CONTROL VALVE CONTROL	SSD /	/YES
AFW	3	B	CV-3-2831	3AFWB1		D	3K1072(1) PB3524(1) TB3734(1)	AFW FLOW CONTROL VALVE CONTROL	SSD	/OP/NO

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 116

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL A & B
FIRE ZONE NAME FEEDWATER PLATFORM

SYS	U N	C H	COMPONENT DESIGNATION	SCHEME FROM	/ TO	SUB	RACEWAY(WRAPRATE)		CABLE FUNCTION	S/D FUN	OH PROT OP REQ
AFW	3	B	CV-3-2831	3AFWB1		K	3K1084(1) PB3524(1) TB3734(1)		AFW FLOW CONTROL VALVE CONTROL	ASSD/OP/NO	
AFW	3	B	CV-3-2831	3AFWB1		R	3K1326(1) PB3524(1)	3K1639(1) TB3734(1)	AFW FLOW CONTROL VALVE CONTROL	SSD /OP/NO	
AFW	3	B	CV-3-2831	3AFWB1		S	3K1326(1) PB3524(1)	3K1639(1) TB3734(1)	AFW FLOW CONTROL VALVE CONTROL	ASSD/OP/NO	
AFW	3	B	CV-3-2831	3V2915		J	3K1630(1)	3K1633(1)	AFW FLOW CONTROL VALVE CONTROL	ASSD/OP/NO	
AFW	3	B	CV-3-2832	3AFWB2		D	3K1072(1) PB3524(1) TB3734(1)		AFW FLOW CONTROL VALVE CONTROL	SSD /OP/NO	
AFW	3	B	CV-3-2832	3AFWB2		K	3K1083(1) PB3524(1) TB3734(1)		AFW FLOW CONTROL VALVE CONTROL	ASSD/OP/NO	
AFW	3	B	CV-3-2832	3AFWB2		R	3K1326(1) PB3524(1)	3K1639(1) TB3734(1)	AFW FLOW CONTROL VALVE CONTROL	SSD /OP/NO	
AFW	3	B	CV-3-2832	3AFWB2		S	3K1326(1) PB3524(1)	3K1639(1) TB3734(1)	AFW FLOW CONTROL VALVE CONTROL	ASSD/OP/NO	
AFW	3	B	CV-3-2832	3V2915		K	3K1630(1)	3K1632(1)	AFW FLOW CONTROL VALVE CONTROL	ASSD/OP/NO	
AFW	3	B	CV-3-2833	3AFWB3		D	3K1072(1) PB3524(1) TB3734(1)		AFW FLOW CONTROL VALVE CONTROL	SSD /OP/NO	
AFW	3	B	CV-3-2833	3AFWB3		K	3K1085(1) PB3524(1) TB3734(1)		AFW FLOW CONTROL VALVE CONTROL	ASSD/OP/NO	

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 116

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL A & B
FIRE ZONE NAME FEEDWATER PLATFORM

SYS	U N	C H	COMPONENT DESIGNATION	SCHEME FROM	/ TO	SUB	RACEWAY(WRAPRATE)		CABLE FUNCTION	S/D FUN	OM PROT OP REQ
AFW	3	B	CV-3-2833	3AFWB3		R	3K1326(1)	3K1639(1)	AFW FLOW CONTROL VALVE CONTROL	SSD	/OP/NO
							PB3524(1)	TB3734(1)			
AFW	3	B	CV-3-2833	3AFWB3		S	3K1326(1)	3K1639(1)	AFW FLOW CONTROL VALVE CONTROL	ASSD	/OP/NO
							PB3524(1)	TB3734(1)			
AFW	3	B	CV-3-2833	3V2915		N	3K1630(1)	3K1631(1)	AFW FLOW CONTROL VALVE CONTROL	ASSD	/OP/NO

FIRE ZONES OD/114, OD/115
UNIT 4(3) MAIN STEAM HEADER PLATFORM

For fire zones OD/114 and OD/115, redundant trains of MSIV and MSIV Bypass Valves are located in the fire zone. Cables and raceways pertinent to these valves are also routed in the fire zone. Manual actions are performed for MSIV Bypass valves in both fire zones. MSIVs are separated by 28 feet, center to center. Cables for MSIVs are protected until required separation is achieved.

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 114

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL B
FIRE ZONE NAME MAIN STEAM HEADER AREA

SYS	U N	C H	COMPONENT DESIGNATION	SCHEME	FROM	/ TO	SUB	RACEWAY(WRAPRATE)		CABLE FUNCTION	S/D FUN	OM PROT OP REQ
MSS	4	B	POV-4-2604B	4V604B			D	4K1403(1)		M.S. ISO VLV CONTROL	ASSD/	/YES
MSS	4	B	POV-4-2604B	4V604B	TB4029	TB4945	Q	4K1514(1)	4K1518(1)	M.S. ISO VLV CONTROL	ASSD/	/YES
MSS	4	B	POV-4-2605B	4V605B			D	4K1402(1)		M.S. ISO VLV CONTROL	ASSD/	/YES
MSS	4	B	POV-4-2605B	4V605B	TB4029	TB4946	Q	4K1515(1)	4K1518(1)	M.S. ISO VLV CONTROL	ASSD/	/YES
MSS	4	B	POV-4-2606B	4V606B			D	4K1401(1)		M.S. ISO VLV CONTROL	ASSD/	/YES
MSS	4	B	POV-4-2606B	4V606B	TB4029	TB4947	Q	4K1517(1)	4K1518(1)	M.S. ISO VLV CONTROL	ASSD/	/YES

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 115

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL B
FIRE ZONE NAME MAIN STEAM HEADER AREA

SYS	U N	C H	COMPONENT DESIGNATION	SCHEME FROM	/ TO	SUB	RACEWAY(WRAPRATE)		CABLE FUNCTION	S/D FUN	OM PROT OP REQ
MSS	3	B	POV-3-2604B	3V604B		D	3K1624(1)		MS ISO VLV CONTROL	ASSD/	/YES
MSS	3	B	POV-3-2604B	3V604B		G	3K1841(1)	3K1843(1)	M.S. ISO VLV CONTROL	ASSD/	/YES
							3K1845(1)	PB3946(1)			
							PB3947(1)				
MSS	3	B	POV-3-2604B	3V604B		H	3K1859( )		M.S. ISO VLV CONTROL	ASSD/	/NO
MSS	3	B	POV-3-2604B	3V604B		J	3K1859( )		M.S. ISO VLV CONTROL	ASSD/	/NO
MSS	3	B	POV-3-2604B	3V604B		K	3K1859( )		M.S. ISO VLV CONTROL	ASSD/	/NO
MSS	3	B	POV-3-2604B	3V604B		L	3K1859( )		M.S. ISO VLV CONTROL	ASSD/	/NO
MSS	3	B	POV-3-2605B	3V605B		D	3K1623(1)		MS ISO VLV CONTROL	ASSD/	/YES
MSS	3	B	POV-3-2605B	3V605B		G	3K1841(1)	3K1843(1)	M.S. ISO VLV CONTROL	ASSD/	/YES
							3K1844(1)	PB3946(1)			
							PB3947(1)				
MSS	3	B	POV-3-2605B	3V605B		H	3K1858( )		M.S. ISO VLV CONTROL	ASSD/	/NO
MSS	3	B	POV-3-2605B	3V605B		J	3K1858( )		M.S. ISO VLV CONTROL	ASSD/	/NO

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 115

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL B
FIRE ZONE NAME MAIN STEAM HEADER AREA

SYS	U N	C H	COMPONENT DESIGNATION	SCHEME FROM / TO	SUB	RACEWAY(WRAPRATE)	CABLE FUNCTION	S/D FUN	OM PROT OP REQ
MSS	3	B	POV-3-2605B	3V605B	K	3K1858( )	M.S. ISO VLV CONTROL	ASSD/	/NO
MSS	3	B	POV-3-2605B	3V605B	L	3K1858( )	M.S. ISO VLV CONTROL	ASSD/	/NO
MSS	3	B	POV-3-2606B	3V606B	D	3K1622(1)	MS ISO VLV CONTROL	ASSD/	/YES
MSS	3	B	POV-3-2606B	3V606B	G	3K1841(1) 3K1842(1) PB3946(1)	M.S. ISO VLV CONTROL	ASSD/	/YES
MSS	3	B	POV-3-2606B	3V606B	H	3K1857( )	M.S. ISO VLV CONTROL	ASSD/	/NO
MSS	3	B	POV-3-2606B	3V606B	J	3K1857( )	M.S. ISO VLV CONTROL	ASSD/	/NO
MSS	3	B	POV-3-2606B	3V606B	K	3K1857( )	M.S. ISO VLV CONTROL	ASSD/	/NO
MSS	3	B	POV-3-2606B	3V606B	L	3K1857( )	M.S. ISO VLV CONTROL	ASSD/	/NO

FIRE ZONE OD/118
UNITS 3 & 4 AUXILIARY BUILDING ROOF

For fire zone OD/118, redundant trains of DC Equipment/Inverter Room HVAC (E16D, E16E, E16F), Electrical Equipment Room HVAC (E232/V76, E16E/E16F), Cable Spreading Room HVAC (S74A/S75A, S74B/S75B) and Auxiliary Building Exhaust Fan (V8A, V8B) are located in the fire zone. Cables and raceways pertinent to these equipment are also routed in the fire zone. As identified in the attachment, either cables are protected until 20 feet separation is achieved from the redundant counterpart, or required separation of 20 feet from the redundant counterpart exist.

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 118

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL B
FIRE ZONE NAME ROOF AREA OF AUXILIARY BUILDING

SYS	U N	C H	COMPONENT DESIGNATION	SCHEME	FROM	/ TO	SUB	RACEWAY(WRAPRATE)	CABLE FUNCTION	S/D FUN.	OH PROT OP REQ
HVAC	C	C	E16D	3B0608	3B06	E16D	P	4G1375( )	DC/INV RM HVAC-E16D	SSD /	/NO
HVAC	C	B	E16E	3B0609	3B06	NS-E16E	P	3J1903( )	DC/INV RM HVAC-E16E	ASSD/	/NO

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 118

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL B
FIRE ZONE NAME ROOF AREA OF AUXILIARY BUILDING

SYS	U H	C H	COMPONENT DESIGNATION	SCHEME	FROM	/ TO	SUB	RACEWAY(WRAPRATE)	CABLE FUNCTION	S/D FUN	OM PROT OP REQ
HVAC	C	B	E16E	3B0609	NS-E16E	E16E	Q	3J1876( )	DC/INV RM HVAC-E16E	ASSD/	/NO
HVAC	C	B	E16E	3B0609	TIS-6419	E16E	A	3J1875( ) 3J1877( ) 3J1988( )	DC/INV RM HVAC-E16E	ASSD/	/NO
HVAC	C	B	E16F	4B0625	4B06	NS-E16F	P	4J1195(1)	DC/INV RM HVAC-E16F	ASSD/	/YES
HVAC	C	B	E16F	4B0625	NS-E16F	E16F	Q	4J1947( )	DC/INV RM HVAC-E16F	ASSD/	/NO
HVAC	C	B	E16F	4B0625	THRMS	E16F	A	4J1946( )	DC/INV RM HVAC-E16F	ASSD/	/NO
HVAC	C	C	E232/V76	4B0833	4B08	E232	OP	4F1443( )	ELECT EQUIP RM HVAC	ASSD/	/NO
HVAC	C	C	E232/V76	4B0833	E232	TIS6416	OA	4F1580( )	ELECT EQUIP RM HVAC	ASSD/	/NO
HVAC	C	C	E232/V76	4B0833	E232	V76	OQ	4F1441( )	ELECT EQUIP RM HVAC	ASSD/	/NO

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 118

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL B
FIRE ZONE NAME ROOF AREA OF AUXILIARY BUILDING

SYS	U N	C H	COMPONENT DESIGNATION	SCHEME	FROM	/ TO	SUB	RACEWAY(WRAPRATE)		CABLE FUNCTION	S/D FUN	OM PROT OP REQ
HVAC	C	C	NS74A	4B0822	4B08	NS74A	OP	3J1148( )	4J2103( )	POWER COMPUTER RM HVAC CHILLER UNIT	SSD /	/NO
								PB3607( )				
HVAC	C	C	NS74A	4B0822	NS74A	TB4919	A	3J1146( )	3J1147( )	COMP RM CABLE SPREAD RM CHILL CNTL	SSD /	/NO
								3J1149( )	PB3606( )			
								PB3607( )				
HVAC	C	C	NS74A	4B0822	NS74A	VS74A1	Q	3J1145( )	3J1146( )	COMP RM CABLE SPREAD RM CHILL POWER	SSD /	/NO
								3J1489( )	PB3606( )			
HVAC	C	C	NS74A	4B0822	NS74A	VS74A2	R	3J1145( )	3J1146( )	COMP RM CABLE SPREAD RM CHILL POWER	SSD /	/NO
								3J1488( )	PB3606( )			
HVAC	C	C	NS74A	4B0825	NS75A	NS74A	B	3J1146( )	3J1147( )	COMP RM CBL SPREAD RM AIR HDL CNTL	SSD /	/NO
								4J1149( )	PB3606( )			
								PB3607( )				
HVAC	C	C	NS74B	3B0818	3B08	TB7403	OQ	3F1431( )	3F1432( )	POWER FOR CHILLER S74B	SSD /	/NO
								3F1590( )	PB7402( )			
								TB5497( )				
HVAC	C	C	NS74B	3B0818	NS74B	TB4915	A	4J1186( )	4J1200( )	COMP RM CABLE SPREAD RM CHILLER CNT	SSD /	/NO
								PB4613( )				
HVAC	C	C	NS74B	3B0818	NS74B	VS74B1	Q	4J1187( )	4J1189( )	COMP RM CABLE SPREAD RM CHILLER PWR	SSD /	/NO
								4J1200( )	4J1456( )			
								PB4612( )	PB4613( )			

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 118

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL B
FIRE ZONE NAME ROOF AREA OF AUXILIARY BUILDING

SYS	U N	C H	COMPONENT DESIGNATION	SCHEME	FROM	/ TO	SUB	RACEWAY(WRAPRATE)		CABLE FUNCTION	S/D FUN	OM PROT OP REQ
HVAC	C	C	MS74B	380818	MS74B	VS7482	R	4J1187( )	4J1189( )	COMP RM CABLE SPREAD RM CHILLER PWR	SSD /	/NO
								4J1200( )	4J1457( )			
								PB4612( )	PB4613( )			
HVAC	C	C	MS74B	380818	TB7403	MS74B	P	4J1187( )	4J1188( )	COMP RM CABLE SPREAD RM CHILLER PWR	SSD /	/NO
								PB4612( )	PB4613( )			
HVAC	C	C	MS75B	380895	3808	TB7369	QQ	3F1515( )	3F1519( )	START/STOP AIR HANDLING UNIT	SSD /	/NO
								3F1591( )	PB7402( )			
								TB5497( )				
HVAC	C	C	MS75B	380895	3808	TB7369	QQ	3F1515( )	3F1519( )	POWER AIR HANDLING UNIT	SSD /	/NO
								3F1591( )	PB7402( )			
								TB5497( )				
HVAC	C	C	MS75B	380895	MS75B	MS74B	B	4J1186( )	4J1200( )	CBL SPREAD RM AIR HDL CNTL	SSD /	/NO
								PB4613( )				

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 118

APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL B
FIRE ZONE NAME ROOF AREA OF AUXILIARY BUILDING

SYS	U N	C H	COMPONENT DESIGNATION	SCHEME	FROM	/ TO	SUB	RACEWAY(WRAPRATE)	CABLE FUNCTION	S/D FUN	OM PROT OP REQ
HVAC	C	B	V88	380652	3806	M03409	0E	3F1571( ) 3F1572( ) 3F1574( ) PB5505( )	AUX BLDG STBY EXH FAN V88 DMPR CNTL	SSD /	/NO
HVAC	C	B	V88	380652	3806	M03419	0C	3F1571( ) 3F1572( ) 3F1574( ) PB5505( )	AUX BLDG STBY EXH FAN V88 DMPR CNTL	SSD /	/NO
HVAC	C	B	V88	380652	3806	N88	0A	3F1566( ) 3F1571( ) 3F1572( ) 3F1574( ) PB5505( )	AUX BLDG STBY EXH FAN V88 DMPR CNTL	SSD /	/NO
HVAC	C	B	V88	380652	3806	P03419	0B	3F1571( ) 3F1572( ) 3F1574( ) PB5505( )	AUX BLDG STBY EXH FAN V88 DMPR CNTL	SSD /	/NO
HVAC	C	B	V88	380652	3806	V88	0F	3J2041( )	AUX BLDG STBY EXH FAN V88 DMPR CNTL	SSD /	/NO

FIRE ZONES OD/119, OD/120
UNIT 4(3) CIRCULATING WATER INTAKE STRUCTURE

For fire zones OD/119 and OD/120, redundant trains of ICW Pumps are located in the fire zone. Cables and raceways pertinent to these equipment are also routed in the fire zone. Credit for separation of equipment and cables at the pump-motor termination is taken. ICW Pumps are separated by 14 feet center to center. This is consistent with the existing exemptions for the fire zones.

TURKEY POINT UNIT 3 & 4
FIRE AREA O/D
FIRE ZONE NO. 119

5610-M-722 REV 1
APPENDIX "R" SAFE SHUTDOWN ANALYSIS
TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL B
FIRE ZONE NAME INTAKE STRUCTURE 4

SYS	U N	C H	COMPONENT DESIGNATION	SCHEME FROM	/ TO	SUB	RACEWAY(WRAPRATE)	CABLE FUNCTION	S/D FUN	OM PROT OP REQ
ICW	4	B	4P9B	4AB17 4AB17	4N9B	1	4NP501( ) 4R109 ( ) TB4037( )	ICW PUMP 4P-9B CONTROL	SSD /	/NO
ICW	4	B	4P9B	4AB17 4AB17	4P9B	1	4R067 (1) 4R077 (1)	ICW PUMP 4P-9B POWER	ASSD/	/YES
ICW	4	B	4P9C	4AD05 4N9C	4AD05	ON	4R109 ( )	ICW PP4C BREAKER CONTROL	SSD	/OP/NO

TURKEY POINT UNIT 3 & 4 — 5610-M-722 REV 7
FIRE AREA O/D — APPENDIX "R" SAFE SHUTDOWN ANALYSIS
FIRE ZONE NO. 120 — TRAIN OF EQUIPMENT AND CABLES FOR SHUTDOWN, CHANNEL B
FIRE ZONE NAME INTAKE STRUCTURE 3

SYS	U N	C M	COMPONENT DESIGNATION	SCHEME FROM	/ TO	SUB	RACEWAY(WRAPRATE)		CABLE FUNCTION	S/D FUN	OM PROT OP REQ
ICW	3	B	3P9B	3AB17 3AB17	3N9B	1	3NP410( ) 3R186 (M) TB3038( )	3R144 (E) MH315 ( )	ICW PUMP 3P-PB CONTROL	SSD /	/NO
ICW	3	B	3P9B	3AB17 3AB17	3P9B	1	3R067 (1)	3R077 (1)	ICW PUMP 3P-9B POWER	ASSD/	/YES
ICW	3	B	3P9C	3AD05 3N9C	3AD05	ON	3R021 ( ) 3R144 (E) PB3038( )	3R1117( ) MH315 ( )	ICW PP 3C CNTL TRIP/CLOSE PP 3P9C	SSD /OP/NO	
ICW	3	C	3P9C	3AD05 3P9C	3AD05	OP	3Z134 (M) MH717 (M)	3Z136 (M)	POWER - ICW PP 3C PUMP FEEDER	SSD /	/NO
ICW	4	C	4P9C	4AD05 4P9C	4AD05	OP	4Z155 (M) MH717 (M)	4Z418 (E)	ICW POWER PUMP 4C FEEDER	SSD /	/NO

EXPLANATION OF TERMS

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT - UNITS 3 & 4
APPENDIX R SAFE SHUTDOWN ANALYSIS

DEFINITIONS

1. ESSENTIAL EQUIPMENT - ANY COMPONENT THAT IS RELIED UPON TO BRING THE PLANT FROM FULL POWER OPERATION TO COLD SHUTDOWN OR WHOSE SPURIOUS ACTUATION PREVENTS THE PLANT FROM ACHIEVING COLD SHUTDOWN.

2. SAFE SHUTDOWN (SSD) - A STABLE PLANT CONDITION IN WHICH THE REACTOR IS SUB-CRITICAL AND THE REACTOR COOLANT SYSTEM (RCS) TEMPERATURE AND PRESSURE ARE MAINTAINED WITHIN PRESCRIBED OPERATING LIMITS.

3. ALTERNATE SHUTDOWN (ASD) - A PLANT OPERATION REQUIRING EVACUATION OF THE CONTROL ROOM DUE TO A FIRE IN THE ALTERNATE SHUTDOWN AREAS, FOLLOWED BY SHUTDOWN/COOLDOWN OPERATIONS FROM EACH UNIT ALTERNATE SHUTDOWN PANEL AND LOCAL CONTROL STATIONS.

4. SPURIOUS ACTUATION (SPA) - THE UNPREDICTABLE OPERATION OF EQUIPMENT DUE TO A FIRE-INDUCED ELECTRICAL FAULT. SPURIOUS ACTUATION OF EQUIPMENT MAY DISABLE SAFE SHUTDOWN SYSTEMS UNLESS PROTECTED OR COMPENSATED FOR.

5. FIRE AREA - A PLANT AREA BOUNDED BY RATED FIRE BARRIERS. FIRE BARRIERS ARE 3-HOUR RATED, OR EXEMPTION REQUESTS HAVE BEEN APPROVED. A FIRE OCCURRING WITHIN A FIRE AREA IS ASSUMED TO BE CONTAINED BY THE BARRIERS, AND EQUIPMENT WITHIN THE AREA IS ASSUMED TO BE DISABLED BY THE FIRE, UNLESS ADEQUATELY SEPARATED OR PROTECTED FROM THE EFFECTS OF FIRE.

6. FIRE ZONE - A DEFINED PLANT AREA, EITHER INSIDE A PLANT STRUCTURE OR OUTDOORS, USED FOR THE ANALYSIS OF CIRCUIT FAILURES CAUSED BY FIRE. FIRE ZONES INSIDE THE PLANT FALL WITHIN A FIRE AREA, WHEREAS OUTDOOR FIRE ZONES ARE NOT ASSOCIATED WITH ANY FIRE AREA. OUTDOOR FIRE ZONES MAY NOT BE SEPARATED BY 3-HOUR RATED FIRE BARRIERS.

7. OPERATOR PREVENT (OP) - OPERATOR ACTION REQUIRED AS PART OF SAFE SHUTDOWN PROCEDURES TO PREVENT A COMPONENT FROM SPURIOUSLY ACTUATING.

8. OPERATOR MITIGATE (OM) - OPERATOR ACTION REQUIRED TO CORRECT OR COMPENSATE FOR A COMPONENT WHICH HAS SPURIOUSLY ACTUATED TO AN UNDESIRED MODE.

9. RACEWAY WRAPRATE ( ) - THE NUMBER INSIDE THE PARENTHESIS REPRESENTS THE FIRE WRAP HOUR RATING FOR AN EXPOSED RACEWAY. A LETTER "E" INDICATES EMBEDDED RACEWAY, "M" INDICATES SEALED MANHOLE.

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT - UNITS 3 & 4
APPENDIX R SAFE SHUTDOWN ANALYSIS

SAFE SHUTDOWN ANALYSIS COLUMNS

'SYS' - THE SYSTEM IN WHICH THE COMPONENT IS LOCATED IN THE ESSENTIAL EQUIPMENT LIST.

'UN' - PLANT UNIT - 3, 4, C (COMMON).

'CH' - CHANNEL DESIGNATION - A, B, C (COMMON), N (NEITHER), OR S (SPURIOUS). IN GENERAL, THE CHANNEL DESIGNATION REFLECTS THE TRAIN FOR THE POWER SUPPLY FOR THE COMPONENT. ITEMS ON SWING BUSES THAT CAN BE POWERED FROM EITHER TRAIN ARE LISTED AS COMMON (C). C-BUS, STANDBY STEAM GENERATOR FEEDWATER, AND FIRE PROTECTION EQUIPMENT IS LISTED AS NEITHER (N). ITEMS WITH A 'S/D FUN' OF SSD, ASSD, OR ASD WHICH POTENTIALLY IMPACT SHUTDOWN VIA BOTH TRAINS ARE LISTED AS SPURIOUS (S). FOR EACH FIRE AREA/ZONE WITHIN THE SSA, CABLES ARE IDENTIFIED FOR RESOLUTION BASED ON A COMPARISON OF CHANNEL DESIGNATION FOR THE CIRCUIT AND THE AREA. 'A' CABLES WILL NOT APPEAR IN A ZONE DESIGNATED FOR SHUTDOWN VIA CHANNEL B AND VICE VERSA. THE OTHER DESIGNATIONS APPEAR FOR BOTH CHANNELS.

IN SPECIFIC CASES, CABLES MAY BE IDENTIFIED WITH A CHANNEL DESIGNATION OF "*B" OR "*A", WITH THE "*" REFLECTING THE RESPECTIVE UNIT. IN THIS CABLES ARE IDENTIFIED FOR RESOLUTION IN ANY ZONE INCLUDED IN THE CABLE ROUTE AND THE AVAILABIL8ITY OF THE RESPECTIVE EQUIPMENT MAY BE ESTABLISHED FOR A FIRE IN OTHER ZONES VIA THE ABSCENCE OF THE CABLE IN THOSE ZONES. THESE SPECIFIC INSTANCES ARE IDENTIFIED IN SECTION G (NOTES).

'COMPONENT DESIGNATION' - COMPONENT IDENTIFICATION

'SCHEME FROM/ TO SUB' - CABLE IDENTIFICATION FROM THE CABLE AND CONDUIT LIST

'RACEWAY (WRAPRATE)' - THE RACEWAY THROUGH WHICH THE CABLE RUNS - EX. MANHOLE, CONDUIT, CABLE TRAY, PULL BOX, TRENCHES. THE WRAPRATE INCLUDES E-EMBEDDED, M-MANHOLE (MANHOLE LOCATED IN OUTDOOR FIRE ZONES AND CONTAINING TRAIN B OR C CIRCUITS ONLY OR CONSIDERED SEALED PER FPER-89-06), 1-ONE HOUR FIRE WRAP, 3-THREE HOUR FIRE WRAP.

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT - UNITS 3 & 4
APPENDIX R SAFE SHUTDOWN ANALYSIS

SAFE SHUTDOWN ANALYSIS (CONT'D)

'CABLE FUNCTION' - DESCRIPTION OF THE CABLE FUNCTION - EX. CONTROL, INDICATION, POWER.

'S/D FUN' - SHUTDOWN FUNCTION FOR THE CABLE, DETERMINED VIA REFERENCE TO THE ESSENTIAL EQUIPMENT LIST AND THE CABLE'S FUNCTION IN THE CIRCUIT

SPA - (SPURIOUS) AVAILABILITY OF CABLE/EQUIPMENT IS NOT REQUIRED FOR SHUTDOWN, ALTHOUGH INADVERTENT OPERATION COULD POTENTIALLY IMPACT SAFE SHUTDOWN (CIRCUITS IDENTIFIED FOR RESOLUTION IN ALL ZONES).

SSD - (SAFE SHUTDOWN) AVAILABILITY OF CABLE/EQUIPMENT IS REQUIRED FOR SHUTDOWN

ASD - (ALTERNATE SHUTDOWN) AVAILABILITY OF CABLE IS REQUIRED ONLY FOR ALTERNATE SHUTDOWN (CABLES IDENTIFIED FOR RESOLUTION IN ALTERNATE SHUTDOWN AREAS ONLY).

ASSD- (ALTERNATE SSD) AVAILABILITY OF CABLE IS REQUIRED FOR SHUTDOWN IN SAFE SHUTDOWN AND ALTERNATE SHUTDOWN AREAS (CABLES IDENTIFIED FOR RESOLUTION IN BOTH SAFE SHUTDOWN AND ALTERNATE SHUTDOWN AREAS).

'OM/OP FUN' - IDENTIFIES RESOLUTION FOR A CABLE IN THE ZONE VIA MANUAL ACTION. OP-(OPERATOR PREVENT) IS DESIGNATED WHERE THE MANUAL ACTION IS REQUIRED AS A PREVENTATIVE MEASURE. (EXAMPLE-HVPDS LOADING CONCERNS AND MAINTAINING RCS PRESSURE BOUNDARY.) OM-(OPERATOR MITIGATE) IS DESIGNATED WHERE THE MANUAL ACTION IS REQUIRED TO COMPENSATE FOR SPURIOUS ACTIONS THAT HAVE ALREADY OCCURRED OR EQUIPMENT THAT IS NOT OPERATING PROPERLY.

'PROT REQ' - IDENTIFIES RESOLUTION FOR A CABLE IN THE ZONE VIA RACEWAY PROTECTION (WRAP). IDENTIFIED AS "YES/NO".

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT - UNITS 3 & 4
APPENDIX R SAFE SHUTDOWN ANALYSIS

ABBREVIATIONS

AFW	-	AUXILIARY FEEDWATER SYSTEM
TI	-	TEMPERATURE INDICATOR
CCW	-	COMPONENT COOLING SYSTEM
PI	-	PRESSURE INDICATOR
CVCS	-	CHEMICAL AND VOLUME CONTROL
CV	-	CONTROL VALVE
HVAC	-	HEAT, VENTILATION & AIR CONDITIONING
FCV	-	FLOW CONTROL VALVE
TE	-	TEMPERATURE ELEMENT
HX	-	HEAT EXCHANGER
TR	-	TEMPERATURE RECORDER
LCV	-	LEVEL CONTROL VALVE
PCV	-	PRESSURE CONTROL VALVE
TCV	-	TEMP CONTROL VALVE
PT	-	PRESSURE TRANSMITTER
MOD	-	MOTOR OPERATED DAMPER
SV	-	SOLENOID VALVE
SWGR	-	SWITCHGEAR
LT	-	LEVEL TRANSMITTER
MCC	-	MOTOR CONTROL CENTER
ND	-	NEUTRON MONITOR
LC	-	LOAD CENTER
MOV	-	MOTOR OPERATED VALVE
OP	-	OPERATOR PREVENT
HCV	-	HAND CONTROL VALVE, AUTOMATICALLY ACTUATED
OM	-	OPERATOR MITIGATE
FI	-	FLOW INDICATOR
IA	-	INSTRUMENT AIR SYSTEM
HVPDS	-	HIGH VOLTAGE POWER DISTRIBUTION SYSTEM
NSTR	-	INSTRUMENTATION
LVPDS	-	LOW VOLTAGE POWER DISTRIBUTION SYSTEM
MS	-	MAIN STEAM
ICW	-	INTAKE COOLING WATER SYSTEM
RCS	-	REACTOR COOLANT SYSTEM
RHR	-	RESIDUAL HEAT REMOVAL SYSTEM
RPS	-	REACTOR PROTECTION SYSTEM
EDG	-	EMERGENCY DIESEL GENERATORS
FP	-	FIRE PROTECTION
SSD	-	SAFE SHUTDOWN
ASD	-	ALTERNATE SHUTDOWN
ASSD	-	ALTERNATE AND SAFE SHUTDOWN
SPA	-	SPURIOUS ACTUATION