

ACCELERATED DOCUMENT DISTRIBUTION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9309290026 DOC. DATE: 93/09/15 NOTARIZED: NO DOCKET #
 FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250
 50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251
 50-335 St. Lucie Plant, Unit 1, Florida Power & Light Co. 05000335

AUTH. NAME AUTHOR AFFILIATION
 BOHLKE, W.H. Florida Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION
 Document Control Branch (Document Control Desk)

SUBJECT: Responds to info requested by NRC during 930720 meeting re
 USI A-46, including narrative describing how safe shutdown
 will be accomplished & proprietary flowchart w/regard to
 relay functionality. Flowchart withheld, per 10CFR2.790.

DISTRIBUTION CODE: A025D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 10 + 1
 TITLE: Seismic Qualification of Equipment in Operating Plants - A-46

NOTES:

	RECIPIENT		COPIES			RECIPIENT		COPIES	
	ID CODE/NAME		LTR	ENCL		ID CODE/NAME		LTR	ENCL
	OGC/HDS3		1	1		NRR/PD11-2		1	1
	PD2-2 PD		1	1		RAGHAVAN, L		1	1
	NORRIS, J		1	1					
INTERNAL:	ACRS		6	6		NRR/DE		1	1
	NRR/DE/ECGB		2	2		NRR/DE/EELB		1	1
	NRR/DE/EMEB		4	4		NRR/DRCH/HICB		1	1
	NRR/DRPE/PD1-3		1	1		NRR/DSSA/SPLB		1	1
	NRR/DSSA/SRXB		1	1		REG-FILE 01		1	1
EXTERNAL:	NRC PDR		1			N-PROP			

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK,
 ROOM P1-37 (EXT. 504-2065) TO ELIMINATE YOUR NAME FROM DISTRIBUTION
 LISTS FOR DOCUMENTS YOU DON'T NEED!

TOTAL NUMBER OF COPIES REQUIRED: LTR 25 ENCL 25



FPL

SEP 15 1993

L-93-171

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

Re: Turkey Point Units 3 & 4
Docket Nos. 50-250 and 50-251
St. Lucie Unit 1
Docket No. 50-335
Verification of Seismic Adequacy
of Mechanical and Electrical
Equipment in Operating Reactors,
Unresolved Safety Issue (USI) A-46
Generic Letter (GL) 87-02

This letter responds to information requested by NRC during our recent A-46 meeting in your offices on July 20, 1993. We believe this additional information and our proposed Relay Functionality Review will help NRC staff finalize their acceptance of FPL's A-46/GL 87-02 program.

Item 1: Safe Shutdown Path Description

In addition to material previously provided, FPL provides herewith a written narrative describing how safe shutdown will be accomplished using the equipment listed in the final reports. The narrative is Attachment 1 to this letter.

Item 2: Maintenance of Safe Shutdown

In addition to the condensate storage tank, FPL provides herewith a list of sources of water available to maintain hot standby. The list is Attachment 2 to this letter. Due to the diversity of these sources, FPL will not perform seismic adequacy reviews for any of them under USI A-46/GL 87-02.

*Change the PDR
w/last Attachment 3*
A025 1/1

9309290026 930915
PDR ADOCK 05000250
an FPL Group company PDR

010053

Item 3: Relay Functionality

FPL offers to revise its "Plant Specific Seismic Adequacy Implementation Procedure" and increase its scope to include a review of the list of Low Ruggedness Relays (EPRI NP 7148 SL Appendix E). Credit will be taken for generic IEEE 344-75 qualification, which may already exist in the industry, other appropriate qualification, and proceduralized operator action. The detailed steps in the relay review have been flowcharted and are provided as Attachment 3 to this letter. Non-conforming relays in our shutdown equipment lists will be identified. These will be evaluated for operator action via operating procedure changes or be replaced with an acceptable alternate. This review will be documented by FPL engineering.

The addition of a relay review into FPL's program will address the last of the six items which the NRC requested to be addressed as part of an acceptable program in its letter to FPL dated August 4, 1989. This relay review will be completed within one year of NRC acceptance of FPL's seismic program as described in Item 3 above and Revision 1 of the "Plant Specific Seismic Adequacy Implementation Procedure".

Proprietary Information

By letter dated August 17, 1989 to FPL from the NRC's St. Lucie and Turkey Point Project Managers, FPL's "Plant Specific Adequacy Implementation Procedure" was accepted as proprietary, to be withheld from public disclosure per 10 CFR 2.790. Item 3 and Attachment 3 of this letter describe proposed revisions to "Plant Specific Adequacy Implementation Procedure" and accordingly FPL requests that they be withheld from public disclosure per 10 CFR 2.790.

Very truly yours,



W.H. Bohlke
Vice President
Nuclear Engineering and Licensing

WHB/JRL/vmg

cc: Stewart D. Ebnetter, Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant
Senior Resident Inspector, USNRC, St. Lucie Plant

ATTACHMENT 1
L-93-171

The equipment list generated for St. Lucie Unit 1 and Turkey Point Units 3 & 4 was based on one train of active equipment necessary to achieve hot shutdown and maintain hot shutdown for 8 hours and perform the following functions:

1. Supervise and control the power plant
2. Remove decay heat
3. Provide electrical power assuming a loss-of-offsite power
4. Provide for reactivity and volume control
5. Provide cooling for the reactor auxiliaries

When possible, the Appendix R shutdown equipment lists were used in selecting equipment that meet these A-46 criteria.

Figures 1 and 2, attached, for St. Lucie Unit 1 and Turkey Point Units 3 & 4, show the relationship of this equipment to reactor control.

SUPERVISORY AND CONTROL FUNCTIONS:

For St. Lucie Unit 1, the supervisory and control equipment that were reviewed included the main control board (RTGB), engineered safety features logic, and the auxiliary feedwater actuation logic and controls. This equipment is housed in the main control building.

For Turkey Point Units 3 & 4, the supervisory and control equipment that were reviewed included the main control room and the safeguards sequencer. This equipment is housed in the main control building and the 4160V bus rooms.

DECAY HEAT REMOVAL:

For both sites, decay heat removal is accomplished by the auxiliary feedwater system taking suction on the condensate storage tank, the steam generators and the atmospheric steam dump valves. The steam generator code safety valves provide a back-up heat removal path should the atmospheric steam dump valves fail to function. The auxiliary feedwater system was previously reviewed for seismic adequacy in accordance with Generic Letter 81-14 and was therefore exempt from further review. The condensate storage tank was reviewed for both sites. The condensate storage tank provides the water source for the auxiliary feedwater pumps and by technical specification requires a minimum volume to meet the decay heat removal demands for 8 hours. In addition to maintaining the heat removal capability, the back-up pressurizer heaters were added to maintain reactor coolant system sub-cooling. Therefore, the non-safety pressurizer heater load centers were added for both sites. Figure 3, attached, shows the heat removal train reviewed.

ATTACHMENT 1 (Continued)
L-93-171

ELECTRICAL POWER FUNCTIONS:

The electrical power requirements for obtaining hot shutdown included the assumption that the switchyard would be out of service placing the unit in a loss-of-offsite-power condition. This assumption and the equipment required for maintaining hot shutdown determines which electrical busses, load centers and motor control centers are required to meet all electrical demands. In addition, the pressurizer heaters were included to maintain sub-cooling of the RCS. The list of equipment for each unit was developed using the Appendix R equipment list and the operating procedure requirements for maintaining hot shutdown. Figures 4 and 5, attached, show the AC and DC electrical equipment necessary for maintaining St. Lucie Unit 1 in hot shutdown. The same process was used to develop the electrical equipment list for Turkey Point.

REACTIVITY AND VOLUME CONTROL FUNCTIONS:

For both sites, the chemistry and volume control requirements to achieve hot shutdown adds equipment necessary to increase the RCS boric acid solution to meet hot shutdown reactivity requirements and charging requirements necessary to maintain reactor coolant system inventory. The flow of one charging pump taking suction from the refueling water tank will meet the inventory requirements. One train of boric acid solution addition capability was added to achieve the reactivity control requirements. This capability provides a back-up or redundant function to the reactor control rods.

REACTOR AUXILIARY COOLING

Both sites have similar essential service water systems and component cooling water systems. Reactor auxiliary components and heat exchangers require cooling water to maintain the functionality of this equipment for items like seal cooling, lube oil cooling and heat removal. This requires one train of component cooling water and intake cooling water to be operable.

FIGURE 1

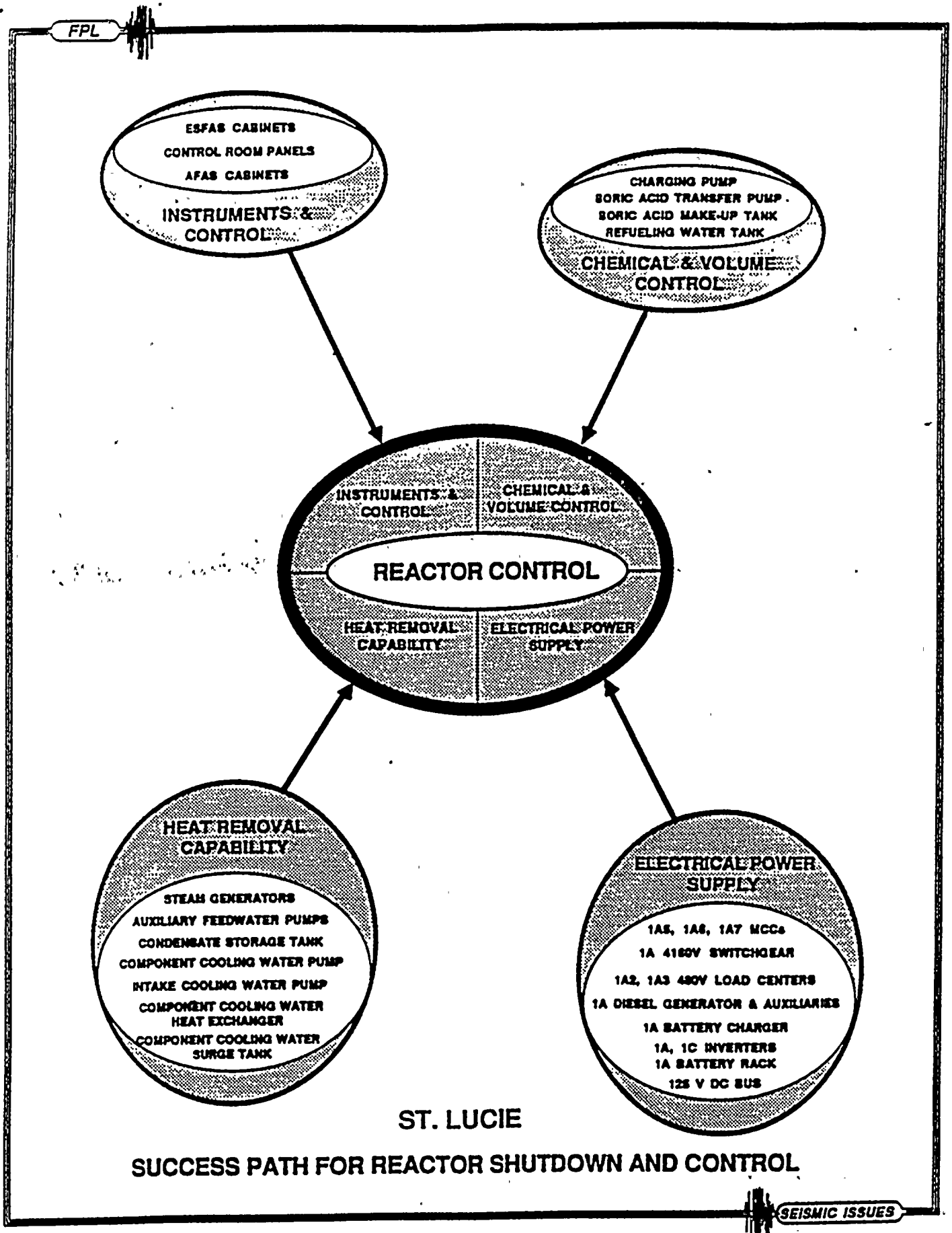


FIGURE 2

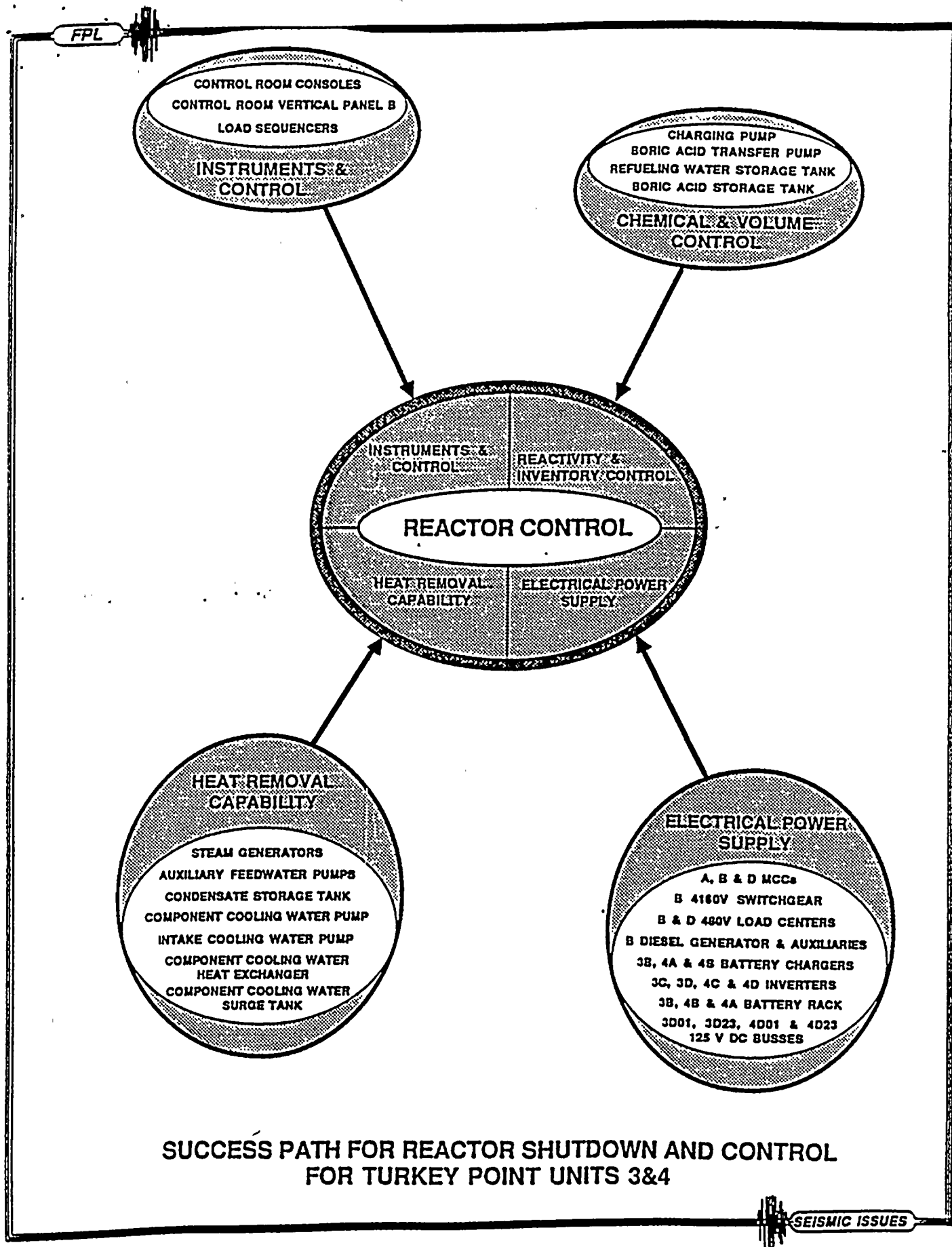
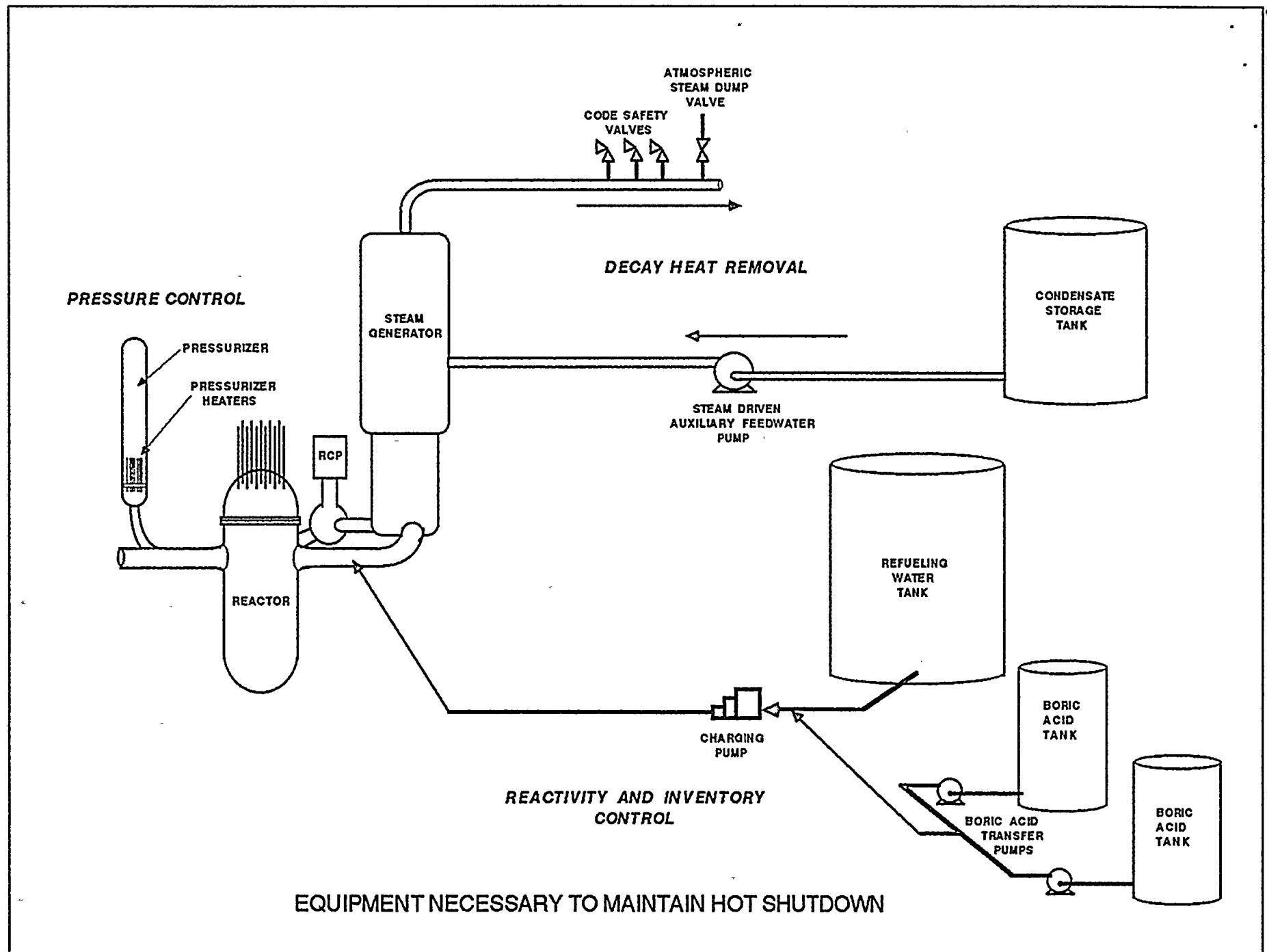


FIGURE 3

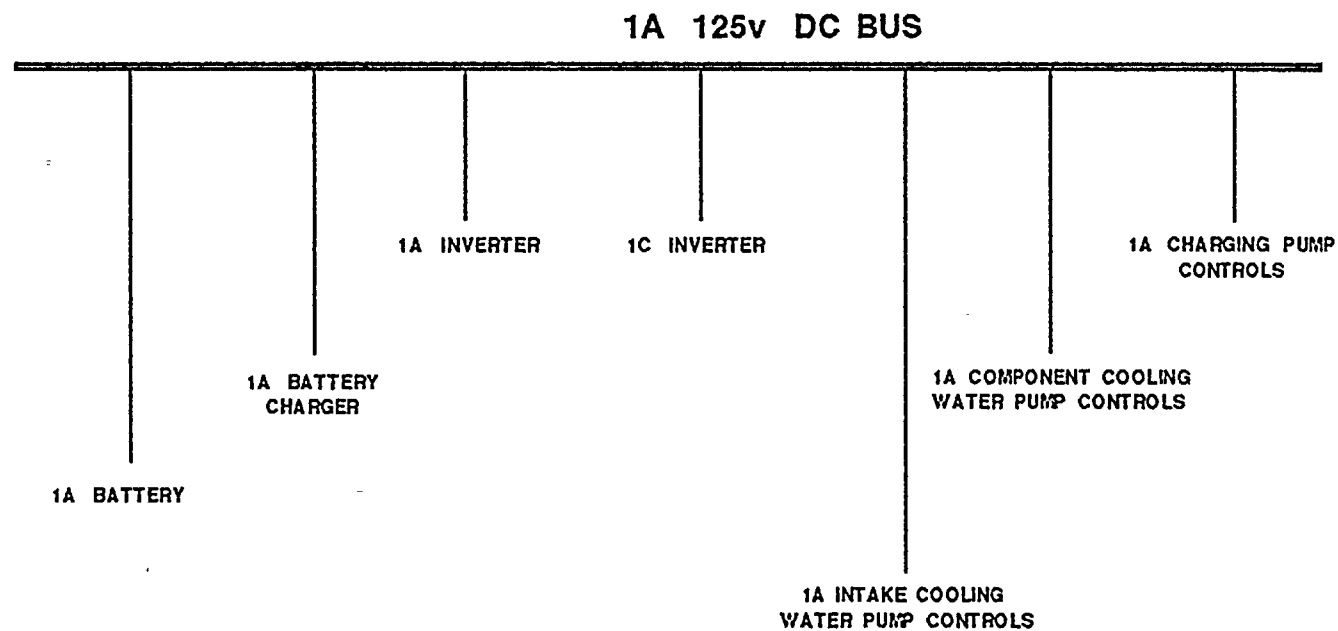


100

100

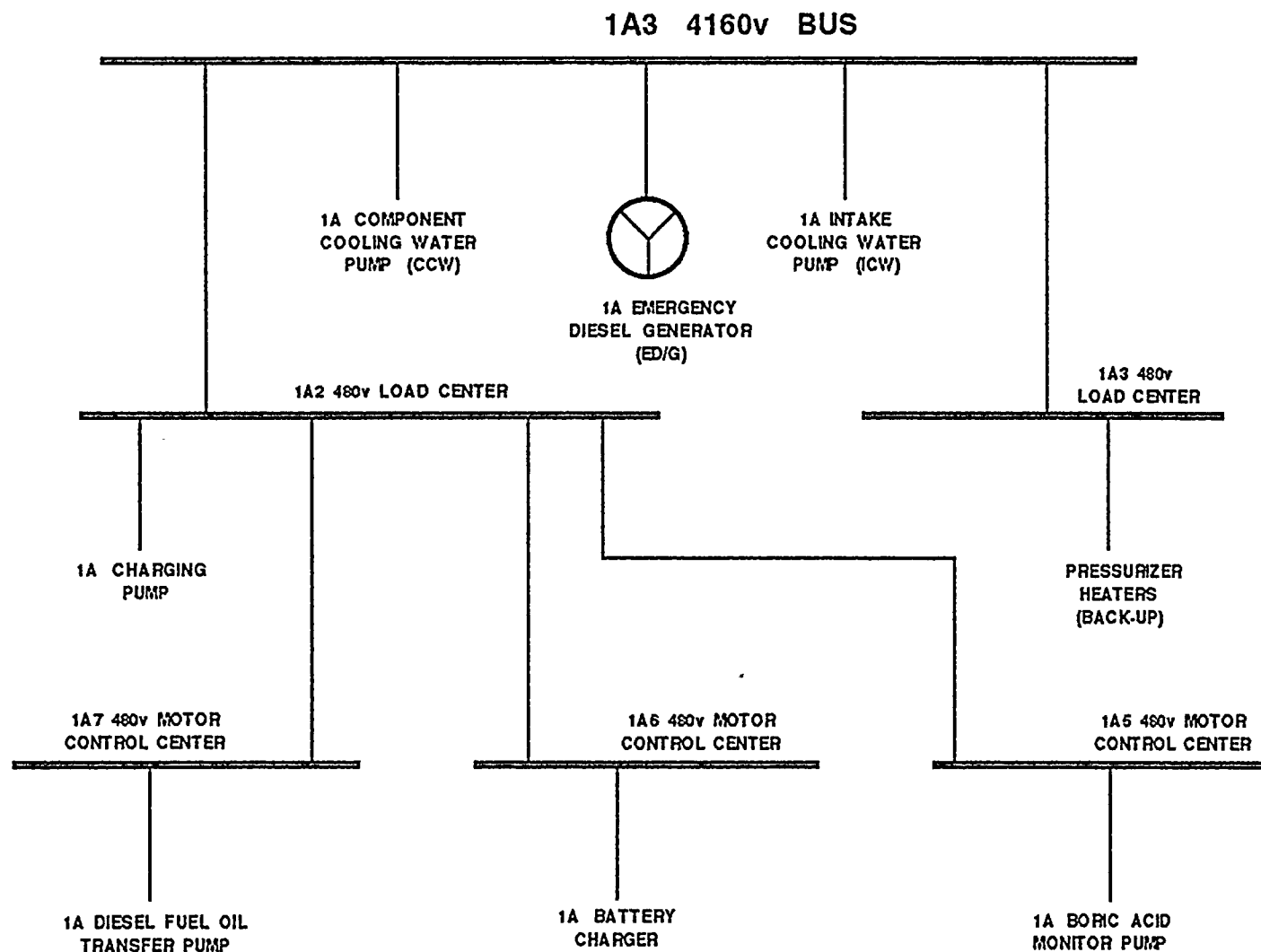
[illegible]

FIGURE 4



125v VITAL POWER DISTRIBUTION FOR
EQUIPMENT NECESSARY TO MAINTAIN HOT SHUTDOWN
BASED ON ST. LUCIE UNIT 1

FIGURE 5



AC POWER DISTRIBUTION FOR
EQUIPMENT NECESSARY TO MAINTAIN HOT SHUTDOWN
BASED ON ST. LUCIE UNIT 1

ATTACHMENT 2
L-93-171

St. Lucie Unit 1

FSAR Section 10.5.3 provides the information that 138,000 gallons of water are used to keep the unit at hot standby for 8 hours including cooling it to 325°F at which point the Shutdown Decay Heat Removal System can be put into service. This is an average of about 17,700 gallons per hour, including both sensible heat removal and decay heat removal. Since the sensible heat does not change over time and since the decay heat decreases exponentially over time, subsequent 8 hour periods will use successively less water.

Water storage available includes:

• Unit 1 Condensate Storage Tank	250,000 gal.
• Unit 2 Condensate Storage Tank	250,000 gal.
• Unit 1 City Water Storage Tank	500,000 gal.
• Unit 2 City Water Storage Tank	500,000 gal.
• Treated Water Tank	500,000 gal.
• Unit 1 Hotwell	160,000 gal.
• Unit 2 Hotwell	160,000 gal.

Turkey Point Units 3 & 4

FSAR Section 9.11.3 provides the information that 185,000 gallons of water are used to keep each unit at hot standby for 15 hours, including cooling it to 350°F at which point the Residual Heat Removal System can be put into service. This is an average of about 12,400 gallons per hour, including both sensible heat removal and decay heat removal. Since the sensible heat does not change over time and since the decay heat decreases exponentially over time, subsequent 15 hour periods will use successively less water. For example, after 10 hours following a full power reactor trip, the auxiliary feedwater requirement is less than 7,500 gallons per hour and this can easily be met by the water treatment plant which can supply up to 12,000 gallons of demineralized water per hour.

Water storage available includes:

• Unit 3 Condensate Storage Tank	240,000 gal.
• Unit 4 Condensate Storage Tank	240,000 gal.
• Demineralized Water Storage Tank	500,000 gal.
• Raw Water Storage Tank No. 1	500,000 gal.
• Raw Water Storage Tank No. 2	750,000 gal.
• Unit 3 Hotwell	160,000 gal.
• Unit 4 Hotwell	160,000 gal.

