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ACCESSION NBR:8003170268 DOC.DATE: 80/03/10 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
AUTH.NAME AUTHOR AFFILIATION
UHRIG,R.E. Florida Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
SCHWENCER,A. Operating Reactors Branch 1

SUBJECT: Forwards addl documentation requested during NRC Jan 1980 Short Term Lessons Learned Task Force implementation review. Info re emergency power supply, direct indication of valve position & plant shielding review included.

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FLORIDA POWER & LIGHT COMPANY

March 10, 1980
L-80-79

Office of Nuclear Reactor Regulation
Attention: Mr. A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Schwencer:

Re: Turkey Point Units 3 & 4
Docket Nos. 50-250 & 50-251
Short Term Lessons Learned

The purpose of this letter is to provide additional documentation requested during a Short Term Lessons Learned implementation review conducted by the NRC Staff at the Turkey Point Plant in January, 1980. The documentation is attached and supplements our letter L-80-39 of January 31, 1980.

Very truly yours,

Robert E. Uhrig
Vice President
Advanced Systems & Technology

REU/MAS/RJA/ah

Attachment

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

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ATTACHMENT

RE: TURKEY POINT UNITS 3 & 4
Docket Nos. 50-250 & 50-251
SHORT TERM LESSONS LEARNED

Additional documentation on the following NUREG-0578 sections is being submitted as a result of an NRC implementation review conducted at the Turkey Point Plant site in January 1980:

2.1.1	Emergency Power Supply
2.1.3.a	Direct Indication of Valve Position
2.1.3.b	Instrumentation for Inadequate Core Cooling
2.1.4	Containment Isolation
2.1.6.a	Systems Integrity for High Radioactivity
2.1.6.b	Plant Shielding Review
2.1.7.b	Auto Initiation of AFW
2.1.8.b & c	Radiation Monitors & Iodine Monitoring
2.1.9	RCS Vent
2.2.1.a	Shift Supervisor Responsiblities
2.2.1.b	Shift Technical Advisor
2.2.1.c	Shift Turnover Procedure
2.2.2.b	On-Site Technical Support Center

2.1.1 EMERGENCY POWER SUPPLY

Pressurizer Heaters

Two similar Westinghouse PWR's are located at Turkey Point. To maintain clarity the following discussion will address single unit operation. Unless otherwise stated, comments concerning one unit also apply to the second unit.

1. The Turkey Point Unit has three banks of pressurizer heaters. Control Group (400 kw), Backup Group A (450 kw), and Backup Group B (450 kw) have a combined capability of 1300 kw in the 1300 cubic foot pressurizer. During normal power operation the heaters are powered from 480 volt load centers. In the event of a loss of off-site power, these same load centers are fed from emergency diesel generators. In the event of a loss of off-site power the three groups of heaters are tripped. The Control Group and Backup Group B receive a continous trip signal until power via the startup transformer is reinstated to the plant. Unless special actions are performed, these heaters are lost to the operator until off-site power is restored. Backup Group A can be reinstated after the A emergency diesel generator is running and the Backup Group A lockout relay in the electrical penetration room is reset.

   Westinghouse Electric Corporation, Nuclear Service Division, has performed a study to determine the minimum heater capacity necessary to maintain subcooling for the shutdown reactor and the maximum time available to restore heater operation in the event of a loss of off-site power to assure core subcooling.

   The results of this study were transmitted to Florida Power & Light Co. in a letter dated September 26, 1979, numbered TMI-OG-83, to Mr. G.E. Liebler from Mr. B. L. King. The study determined that the minimum heater capacity for a pressurizer of our approximate size is one hundred twentyfive (125) KW and the ability to supply emergency power to one group of heaters within four hours will prevent loss of subcooling in the primary system following a loss of off-site power.

   Therefore, the required number of groups of heaters for a unit is one. In our plant, this is Backup Group A which is available for manual reinstatement from the Control Room after first resetting its lockout relay in the electrical penetration room.

2. Procedural changes have been implemented which inform the operator when he must have Backup Group A energized and the method necessary to accomplish energizing Backup Group A in the event of a loss of off-site power. Emergency load shedding is not necessary to energize Backup Group A because the load added by energizing Backup Group A on both units will be within the capability of Emergency Diesel A.

3. Westinghouse predicts that subcooling would be lost within five to six hours unless the heaters are energized. They recommend that heaters be available within sixty minutes to assure subcooling. The action necessary to restore power to Backup Group A (resetting of its lockout relay) can easily be accomplished within this time frame and the directive to accomplish the reinitiation of Backup Group A heater operation within one hour is now included in the procedures.

4. Pressurizer heater motive power is supplied from a 480 volt load center. The 480 volt load centers and the 4160 volt buses from which they are fed are designated as Class I equipment as defined in Turkey Point's FSAR, Sections 1.3.1 and 8.1.1.
Pressurizer heater control power is supplied from the 125 volt station batteries via emergency D.C. buses which are designated as Class I equipment.

CLARIFICATION:

1. Backup Group A is fed from the "A" 480 volt load center which is fed from the "A" 4160 volt bus which is fed during loss of off-site power conditions from the "A" Emergency Diesel. Its alternate is Backup Group B which is fed from the "D" 480 volt load center which is fed from the "B" 4160 volt bus which is fed during loss of off-site power conditions from the "B" Emergency Diesel.

   In the event of a failure of the Backup Group A heaters, procedures have been formulated giving the operator instructions how to overide the trip signal to Backup Group B to use the B group as an alternate.

2. Only one group of heaters is required to maintain natural circulation. As stated above, Backup Group A and Backup Group B each have access to separate emergency power sources.

3. It is estimated that even with the loads required for LOCA, the Emergency Diesels have adequate capacity to also provide power to the required heaters on both units.

4. As stated previously, it is necessary to reset a lockout relay in the Electrical Penetration Room so that Backup Group A will be available for operation from the console in the Control Room.

5. No ESF loads will be needed to be shed to load pressurizer heaters.

   Reset of Safety Injection is addressed in the procedures in regard to regaining use of pressurizer heaters.

   Although is is not likely that the operator would overload the diesel, instrumention and criteria are outlined in the procedure.

6. The interfaces for main power and control power are protected by Class I circuit breakers.

7. Pressurizer heaters are automatically shed from the emergency power sources upon the occurrence of a safety injection actuation signal.

Pressurizer Level and Relief Block Valves

1. The Turkey Point Unit PORV's are solenoid operated diaphram valves. The motive component is normally supplied by instrument air whose compressors are fed from the vital side of motor control centers. These motor control centers will automatically be fed from emergency diesels in the event of a loss of off-site power. In the event of a loss of off-site power concurrent with safety injection the compressor's operation is blocked but this block can be overridden locally by push button actuation. Should instrument air be lost, a completely redundant nitrogen system supplied from cylinders will automatically supply force to the PORV's.

   The control power is supplied from the vital D.C. buses which are supplied from station batteries regardless of whether off-site power exists or not.

2. The motive and control components to the PORV block valves originate from the same source. The source is the vital side of motor control centers which are fed from emergency diesels in the event of a loss of off-site power.

3. Control power for PORV's is fed from the emergency D.C. buses which are designated as Class I equipment. Motive power for PORV's is supplied from instrument air compressors which are connected to the vital side of motor control centers which are designated as Class I equipment. Control and motive power to PORV block valves are supplied from the vital side of motor control centers which are designated as Class I equipment.

4. The pressurizer level indicating instrument channels are powered from the vital A.C. instrument buses. The vital A.C. instrument buses are fed from the station batteries which supply power whether off-site power is available or not.

CLARIFICATION:

1. Since the PORV's and PORV block valves are energized by emergency diesels during a loss of off-site power, the design does retain the capability to open these valves.

2. The motive and control power for the block valves are fed from the vital side of MCC "C" (MOV 536) and MCC "B" (MOV 535) which are powered by the "A" diesel and "B" diesel respectively. The PORV's control power is from the station battery as stated previously and the motive power (instrument air compressor) is fed from the "A" diesel and "B" diesel respectively Again, if instrument air is lost, backup nitrogen is automatically supplied.

3. No manual changeover for either PORV's or block valves is necessary as both emergency power supplies are the same as normal power supplies or the changeovers are automatic.

4. Instrument air is used for PORV operation. The electrical supply requirement (as discussed previously) is automatically connected to the emergency power sources and if instrument air supply is lost backup nitrogen is automatically supplied.

2.1.3.a DIRECT INDICATION OF VALVE POSITION

Technology for Energy Corporation (TEC), supplier of Turkey Point Units # 3 and # 4 valve position indication, has conducted a design review of their equipment with respect to seismic and environmental qualifications. TEC has concluded from their design review that equipment they provided to Turkey Point can be qualified to meet Regulatory Guides 1.100 and 1.89. They are now proceeding to qualify their equipment by independent tests. Testing should be completed before the end of this year. Documention supporting seismic and environmental qualification per regulatory requirements will be available by 1/1/81.

Off Normal Operating Procedure 1208.1 covers backup methods of determining valve position.

2.1.3.b INSTRUMENTATION for INADEQUATE CORE COOLING

By 1/1/81 FP&L will upgrade inputs to the existing subcooling monitor to provide:

a) Redundant safety grade temperature input from each hot leg.

b) Seismic qualification per Reg. Guide 1.100.

c) Environmental qualification per Reg Guide 1.89.

The above depends on material availibility and delivery schedules. FP&L is now actively pursuing equipment to implement criteria before 1/1/81.

NOTE: Per Oct. 30, 1979 NRC clarification letter the ENTIRE SYSTEM is not required to be safety grade; only the inputs.

INFORMATION REQUIRED ON THE SUBCOOLING METER

TURKEY POINT 3+4
(ONE UNIT ON EACH PLANT)

Display

Information Displayed (T-Tsat, Tsat, Press, etc.)	MARGIN TO SAT. (°F/PSI)
Display Type (Analog, Digital, CRT)	DIGITAL
Continuous or on Demand	CONTINUOUS
Single or Redundant Display	SINGLE
Location of Display	CONTROL ROOM
Alarms (include setpoints)	50°F
Overall uncertainty (°F, PSI)	* NORMAL OPERATION ±5°F ±35 PSI
Range of Display	-100 to +200°F
Qualifications (seismic, environmental, IEEE323)	SAFETY CLASS 1, SEISMIC CLASS 1, QUALITY CLASS 1:

Calculator

Type (process computer, dedicated digital or analog calc.)	DEDICATED DIGITAL (C-E)
If process computer is used specify availability. (% of time)	N/A
Single or redundant calculators	SINGLE
Selection Logic (highest T., lowest press)	HIGHEST TEMP / LOWEST PRESS.
Qualifications (seismic, environmental, IEEE323)	SAME AS DISPLAY ABOVE
Calculational Technique (Steam Tables, Functional Fit, ranges)	STEAM TABLES / INTERPOLATION ROUTINES

Input

Temperature (RTD's or T/C's)	RTD
Temperature (number of sensors and locations)	1 T_H & T_C in each loop (A,B,C)
Range of temperature sensors	0-700°F

* SYSTEM EXCLUDING INPUTS
HEPB ±5°F / ±250 PSI

Uncertainty* of temperature sensors (°F at 1)	± 0.5%
Qualifications (seismic, environmental, IEEE323)	SEISMIC CLASS 1, ENV. IE
Pressure (specify instrument used)	ROSEMOUNT 1153A
Pressure (number of sensors and locations)	1- LOOP A; 1 LOOP-B
Range of Pressure sensors	0 - 3250 PSI
Uncertainty* of pressure sensors (PSI at 1)	± 0.5%
Qualifications (seismic, environmental, IEEE323)	IEEE 323 - 1975 IEEE 344 - 1971

Backup Capability

Availability of Temp & Press	Yes
Availability of Steam Tables etc.	Yes
Training of operators	Yes
Procedures	Yes

*Uncertainties must address conditions of forced flow and natural circulation

2.1.4 CONTAINMENT ISOLATION

The concern regarding "ganged" valves on one switch has been reviewed by our Engineering Department. They have concluded that there is sufficient separation at the switch to maintain electrical independence between redundant valves and that the electrical circuits are designed consistant with the safety criteria as outlined in the Turkey Point FSAR.

2.1.6.a SYSTEMS INTEGRITY for HIGH RADIOACTIVITY

A new procedure has been written to inspect and reduce leakage to as-low-as-practical levels from systems outside containment that would or could contain highly radioactive fluids during a serious transient or accident. The leak reduction program will be performed at a frequency not to exceed refueling cycle intervals.

The following systems are included in the program:

High Head Safety Injection.
Containment Spray.
Sampling.
Waste Gas.
CVCS; Letdown, and Makeup.
Residual Heat Removal.

The program implementation includes step-by-step instructions to ensure the detection, measurement, recording, and correction of any leakage found in the above mentioned systems.

Furthermore, the appropiate maintenence department informs the PWO originator upon completion of any requested work, for reinspection of the particular system (portions and/or components worked on).

Final leak results of the reinspected portions and/or components worked on are then compaired with as-found original leakage results to make sure that the leakage is reduced to as-low-as-practical levels.

Systems excluded from the leak reduction program are listed on the following 8 pages. A brief justification is given next to the corresponding system. Systems included in the program are marked "YES."

NUREG-0578; LEAK REDUCTION PROGRAM

Systems excluded & justification:

1000 REACTOR AND REACTOR COOLANT SYSTEM

- 1100 Reactor Coolant Pumps
- 1200 Pressurizer
- 1300 Pressurizer Relief Tank
- 1400 Reactor Vessel

EXCLD. - INSIDE CONT. - VISUAL INSPECTION COVERED UNDER AP 1004.1.

1500 Steam Generator including Steam Dump — EXCLD. - VISUAL INSPECTION COVERED BY OP 1506.2.

- 1560 Secondary Chemistry and Chemical Addition
- 1600 Full Length Rod Control Cluster Assemblies
- 1700 Part Length Rod Control Cluster Assemblies

NOT AFFECTED DURING SERIOUS TRANSIENT OR ACCIDENT.

1800 Rod Position Indication — ELECTRICAL.

1900 Fuel — COVERED BY NORMAL CHEMISTRY MONITORING.

2000 CHEMICAL AND VOLUME CONTROL SYSTEM

2100 Charging and Letdown System

2110 Regenerative Heat Exchanger — EXCLD. — INSIDE CONT.

2120 Non-regenerative Heat Exchanger — YES.

2130 Volume Control Tank — YES.

2140 Charging Pump — YES.

2150 Deborating Demineralizer

2160 Cation Bed Demineralizer

— EXCLD. - NOT USED DURING A SERIOUS ACCIDENT OR ACCIDENT.

2170 Mixed Bed Demineralizer — YES.

2180 Resin Fill System — EXCLD. - SAME AS 2150.

2190 RCP Seal Water System — YES.

2200 Hydrogen Supply System — EXCLD. - NOT AFFECTED.

2210 Nitrogen Purge and Supply System — NOT USED.

2400 Chemical Mix System — NOT AFFECTED

2500 Heat Tracing System — NOT A SYSTEM.

2600 Boron Concentration Control System

2610 Boric Acid Batching Tank

2620 Boric Acid Transfer Pumps

2630 Boric Acid Tanks

— NOT AFFECTED DURING AN ACCIDENT OR TRANSIENT.

2640 Boric Acid Blender — YES.

2800 Boron Recycle System

2810 Holdup Tank — YES.

2820 Holdup Tank Recirculation Pump — YES

2830 Gas Stripper Feed Pumps

2840 Base and Cation Ion Exchangers

— NOT AFFECTED

	2850	Ion Exchanger Filters	
	2860	Gas Stipper Package	
	2870	Evaporator Package	
	2880	Concentrates Filters	
	2890	Concentrates Holding Tank	NOT AFFECTED. DURING AN ACCIDENT DIL TRANSIENT.
	2900	Concentrates Holding Tank Transfer Pumps	
	2910	Evaporator Condensate Demineralizers	
	2920	Condensate Filters	
	2930	Monitor Tanks	
	2940	Monitor Tank Pumps	
3000	COOLING WATER SYSTEMS		
	3100	Component Cooling	NOT AFFECTED
	3200	Residual Heat Removal	YES.
	3300	Turbine Plant Cooling	
	3400	Intake Cooling	
	3500	Spent Fuel Pit Cooling	
	3600	Closed Canal System	
4000	SAFEGUARDS		
	4100	Safety Injection	YES.
	4200	Containment Spray	YES.
	4300	Diesel Generator	NOT AFFECTED
	4400	Refueling Water Storage Tank	
	4500	Accumulators	INSIDE CONT.
	4600	Containment Recirculation Sump	INSIDE CONT.
	4700	Emergency Filters and Coolers	INSIDE CONT.
5000	WASTE DISPOSAL		
	5100	Liquid Waste	

5110 Reactor Coolant Drain Tank System - INSIDE CONT.

5120 Chemical Drain Tank System

5130 Laundry and Hot Shower System

— NOT AFFECTED DURING AN ACCIDENT OR TRANSIENT.

5140 Waste Holdup System Including Radioactive Sumps - SYSTEMS NOT PRESSURIZED AND ISOLATED FROM CONT. DURING AN ACCIDENT OR TRANSIENT.

5150 Waste Evaporator Package

5160 Waste Condensate System

— NOT AFFECTED. DURING A SERIOUS ACCIDENT OR TRANSIENT.

5300 Solid Waste

5310 Spent Resin System

5320 Solid Waste Baler

5330 Drumming Stations Including Handling Equipment

5500 Gaseous Waste

5510 Gas Analyzer — YES

5520 Gas Decay Tanks System — YES

5530 Waste Gas Compressor Package — YES

6000 CONDENSER AND AUXILIARIES

6100 Condenser

6200 Circulating Water System

6300 Lube Water System

6400 Intake Screens

6500 Chlorinator

6600 Air Ejectors

6700 Cathodic Protection (Intake)

6800 Cathodic Protection (Water Box)

6900 Intake Hoists

— NOT AFFECTED

7000 CONDENSATE AND FEEDWATER

7100 Condensate Pumps

7200 Steam Generator Feed Pumps

	7300	Auxiliary Feedwater Pumps	
	7400	Feedwater Heaters	
	7500	Heater Drain Pump	
	7600	Condensate Recovery	
8000	TURBINE GENERATOR		
	8100	Turbine	
		8110 Turbine Seals	
		8120 Turbine Valves	
	8200	Turbine Controls	
		8210 Governor	
		8220 Trips and Interlocks	
		8230 DACA	
	8300	Lubricating, Lift and Hydraulic Oil	NOT AFFECTED DURING AN ACCIDENT OR TRANSIENT.
	8400	Turning Gear	
	8500	Lube Oil Purification and Storage	
	8600	Generator	
	8700	Generator Cooling (H_2 and Seal Oil)	
	8800	Exciter and Voltage Regulator	
	8900	Reheater	
9000	ELECTRICAL		
	9100	Main Transformers	
	9200	Auxiliary Transformers	
	9300	Startup Transformer	
	9400	4 KV Switchgear	
	9500	480 KV Switchgear and MCC	
	9550	Lighting	
	9600	DC System	

9650 Batteries and Chargers

9700 Instrument AC (inverter and constant voltage transformer)

9800 Communication Systems

9900 Iso Phase Bus

— NOT AFFECTED. DURING AN ACCIDENT OR TRANSIENT.

10000 VENTILATION SYSTEM

10100 Containment — ISOLATED DURING A SERIOUS ACCIDENT OR TRANSIENT.

10200 Auxiliary Building — NEGATIVE PRESSURE SYSTEM.

10300 Control Building — SYSTEM ISOLATED ON HIGH RADIATION LEVELS. SYSTEM RELIES. ITSELF.

10600 New and Spent Fuel Areas — NOT AFFECTED.

11000 RADIATION MONITORING AND PROTECTION

11100 Process Monitoring — NOT AFFECTED AND ISOLATED AUTOMATICALLY.

11200 Area Monitoring

11300 Environmental Monitoring

11400 Surveys

11500 Radiation Protection

11550 Health Physics Instructions

11600 Radio-Chemistry

12000 NUCLEAR INSTRUMENTATION

12100 Source

12200 Intermediate

12300 Power

12400 Incore

12500 Refueling

12600 Incore Thermocouples

12700 Excore

— NOT AFFECTED

13000 CONTAINMENT

13100 Leakage Surveillance

13200 Tendons

13300 Isolation System

NOT AFFECTED. DURING AN ACCIDENT OR TRANSIENT.

13400 Penetrations

13410 Piping — COVERED IN -- OP 13404.1

13420 Electrical — " — OP 13404.2

13500 Access Hatches

13510 Personnel — " — OP 13514.1

13520 Emergency — " — OP 514.1

13530 Equipment — " — OP 531.1

14000 PROCESS INSTRUMENTATION

15000 MISCELLANEOUS

15100 Water Treatment

15200 Demineralizers

15300 Primary Water System

15400 Service Water System

15450 Non-Radioactive Sumps

15500 Fire Protection Systems

15510 Fire Fighting Equipment

15520 Fire Water System

15530 Smoke Detection System

15540 Transformer Deluge Systems

15600 Instrument Air

15700 Service Air

15800 Auxiliary Steam

NOT AFFECTED.

15900 ~~Polar Crane~~

15950 ~~Containment Elevator~~

15960 ~~Auxiliary Building Elevator~~

15970 ~~Turbine Gantry Crane~~

16000 FUEL HANDLING

16100 Fuel Transfer Tube and Upending Devices

16120 Refueling Canal and Reactor Cavity

16200 Manipulator Crane

16300 Spent Fuel Pit Bridge Crane

16400 New Fuel Elevator

16500 New Fuel Bridge Crane

16600 Spent Fuel Casks

16700 Spent Fuel Cask Crane

16900 Fuel Handling Tools and Fixtures

NOT AFFECTED DURING A SERIOUS TRANSIENT OR ACCIDENT.

17000 SAMPLING SYSTEM —— YES.

18000 ~~DIGITAL DATA PROCESSING SYSTEM~~

20000 EMERGENCIES

~~20100 Emergency Plan Implementation~~

UNIT 3 LEAK REDUCTION PROGRAM RESULTS

Ref. PWO # 019813 Unit # 3 NUREG 0578.

CVCS - CHARGING.

Components to be free of boric acid (B.A.):

COMPONENT.		LEAKAGE.	LOCATION.
Vlvs. 286, 287, 2[illegible], 2[illegible]		B.A. buildup.	discharge of chg. pp. 3A.
Vlv. 289		" "	" "
LCV-115B	*	24 drops/min	excess letdn. chg. pp. room.
Vlvs. 290 and 291		B.A. buildup	discharge of chg. pp. 3C.
Drain vlvs. 287B & C		" "	discharge of chg. pp. 3A.
Bypass vlv. 333	*	two (2) drops/sec.	RCS chg. line.
Vlvs. 295, 292B, 293A, B & C		B.A. buildup.	seal water injectn. filters.
Vlv. 292A	*	90 drops/min.	" " "
Vlv. 285C	*	2 drops/min.	Drain off Penetration - 24.
Vlvs. 285A & B		B.A. buildup.	Off. Penetration P-24.
Vlv. 297A, B & C		" "	" "

* Actual quantitative leakage.

Ref PWO # 019811 Unit #2 NUREG 0578

SAMPLING

Components to be free of boric acid (B.A.)

COMPONENT	LEAKAGE	LOCATION
Outlet tee conn. on vlv. 956A	* one (1) drop/sec.	Pipe and valve Room
Inlet tee conn. on vlv. 956B	B.A. buildups.	" "
First fitting downstream of vlv. 956A	* three (3) drops/sec.	" "
Fitting on vlv. 956C	* one (1) drop/2 min.	" "
Valve 956D	B.A. buildups.	" "
Valve 989B	" "	Sample Room
Valve 989C	" "	" "
Tee conn. downstream of vlv. 974C	* one (1)/drop/3 min.	" "
Fitting conn. upstream of vlv. 970A	B.A. buildups.	" "
Check vlv. 984A	" "	" "

* Components actually leaking.

CVCS - LETDOWN

PWO # 019913 Unit 3 NUREG 0578

LEAKAGE AS FOUND ON SYSTEM IDENTIFIED by yellow flagging on 5010-T-LE-4405.

LCV # 115A build up around VALVE STEM

TCV # 143 " " " " "

RV 209 build-up on FLANGE

974B build-ups around VALVE STEM

309B "

309C "

309A "

RCV-#-145 "

206 "

207 "

FT # 150 heavy build-up AROUND ORIFICE PLATE

NON-REGEN HX " " INLET + OUTLET FLANGE

Vlv. 279G - B.A. BUILD UP. - NEXT TO FI-147. (DEMIN. SYST.)

Vlv. 244 - " - DIVERT VLV. (DEMIN. SYST.)

Ref. PWO # 019814 Unit # 3. NUREG 0578.

SIS.

Components to be free of boric acid (B.A.):

COMPONENT	LOCATION
3-856 (B.A. buildup at packing).	C.C.W. room.
3-998A & B (" " ").	SI pump room.
vent flange at discharge of SI pump 3B.	" " " .
" " " suction " " " .	" " " .
" " " discharge " " " 3A.	" " " .
drain valve packing B.A. buildup on SI pump 3A	" " " .
B.A. buildup at suction flange of SI pump 3A.	
SI pump 3A - pump housing keep seal bolt B.A. buildup around bolt.	" " " .
SI pump 3B - bearing cooler B.A. buildup at south outboard. (both flanges and connections to the coolers).	" " " .
SI pump 3B - discharge and suction seal leaks.	" " " .
* 3-895 F & G - leaks 5 & 10 drops/min.	
Regulator valve off the FT-943.	" " " .
Vlv. 895V - B.A. buildup	B.I.T. Room.
Drain vlv. 942 - B.A. buildup.	" " " .
Vlv. 841 A - B.A. buildup	Penet. Room.
Vlvs. 843 A & B. - B.A. buildup.	BIT Room.
Vlvs. 895N, 895T, 857, 883U, 883T, 883S (B.A. buildup)	"
Vlv. 837 - 20 drops/min.	"
*Vlv. 867 A - B.A. buildup.	"

* Actual leak measured at full operating pressure during Periodic Test.

Ref PWO # 019817 Unit # 3. NUREG-0578.

MAKEUP.

Components to be free of boric acid (B.A.):

COMPONENT.	LEAKAGE.	LOCATION.
Stem on vlv. 355	B.A. buildup	Chg. pp. room.
Fittings or simple vlv. 367	" "	" "

Ref. PWO # 01981S Unit # 3. NUREG 0578.

CONT. SPRAY SYST.

Components to be free of boric acid (B.A.):

COMPONENT	LOCATION
3-880 A & B – B.A. buildup at packing.	Discharge of cont. spray pps A & B
3-891 A & B – " " " "	" " " "
3-940T (vent) – Swagelok fitting B.A. buildup	Recirc. to RWST.
Cont. Spray Pp. 3B vent (Swagelok plug threaded with B.A. buildup.)	
B.A. buildup at flange between cyclone separator and valves on 3A & 3B Cont. Spray pps	
B.A. buildup at the packing between cyclone separator and vent on 3A cont. spray pp.	
B.A. buildup at fitting of air test valve 3-896D.	Discharge of 3B cont. spray pp.
3-883K (covered by plastic bag) – possibly being worked up.	Recirc. to RWST.
PI's in series with PT-3-1596 A & B (B.A. buildup at fitting to PT).	Suction side of cont. spray pps. 3A & 3B
PT-3-1596 B – B.A. buildup at the connection.	" " 3B.
Vlv. going from cyclone separator to cont. spray pp. 3A (dirty water pump suction) – B.A. buildup at valve end. –	3A Cont. Spray Pp.
B.A. buildup at packing of 3-844 A & B.	Suction of cont. spray pps. 3A & B.
B.A. buildup at suction flange of 3B cont. spray pp.	" " " 3B.

PWO # 019816 · Unit # 3. NUREG 0578.

RHR.

Components to be free of boric acid (B.A.):

COMPONENT	LOCATION
Butterfly vlv. 3-887 - B.A. buildup.	RHR pumps room. recirc back to pump
MOV-3-864 A & B - B.A. buildup in packing.	suction line from #3 RWST.
B.A. buildup at packing on vlv. 3-761 A.	Penetration (P-2) Room.
mf. (FT-605)	
B.A. buildup at packing on vlv. 3-771F.	RHR pumps room. - downstream of RHR B
B.A. buildup at packing on vlv. 3-762 B.	suction of RHR pump B. (flush conn.)
MOV-3-861A B.A. packing buildup	suction of RHR pump A.

UNIT 4 LEAK REDUCTION PROGRAM RESULTS

Unit #4.

System	Results	Resolution.
RHR	vlv. 861B – packing leak – 5 drops/sec.	PWO #76292.
	" 862A – " " – 5 gal/hr.	PWO #76291.
	" 862B – " " – 12 gal/hr.	PWO #77508.
	" 752B – " " – 1 gal/hr.	PWO #76293.
	" 741B – " " – 5 drops/sec.	PWO #76294.
HHSI	Flange drain outboard seal leak – line goes to the center of the west HX. (cooler) – 6 drops/min. (4A S.I. PP.)	PWO #76286.
	Drain vlv. on suction line – packing leak – unmeasurable (small). Inboard seal leak – unmeasurable (small). (4B S.I. PP.)	PWO #76287.
	East HX. (cooler) bottom flange leaks – 12 drops/min (4B S.I. PP.)	" "
	Drain vlv. on suction line has packing leak – 3 drops/min (4B S.I. PP.)	" "
	Outboard vent line leaks at flange (Swagelok fitting) – unmeasurable (small).	PWO #76283.
	Head is leaking on discharge side of pump (unmeasurable B.A. buildup around the leak leaks (4) of the outboard at the pump.) 4-942E	PWO #76263.
	Drain valve leak (6 drops/min) and missing threaded cap (BIT)	PWO #38044.
	Drain vlv. 4-942F – missing threaded cap (no apparent leak). (BIT)	" "
	Sample vlv. 895L leak (4 drops/min.) (at B.I.T. Room)	PWO #18739.
	Outboard mech. seal assbly. leak – unmeasurable (small)	PWO #18740.
	FT-943 leak (B.A. buildup) Swagelok fitting conn. at the flow transmitter – unmeasurable.	PWO #18741.

System	Results	Resolution
CVCS 1/4 SHUTDOWN.	B.A. buildup on components (see attached list)	PWO # 19755.
	PCV-4-145 NRHx outlet pressure control vlv. packing leak - 2 drops/sec.	PWO # 19752.
	HCV-4-121 Bypass. - 4-333. packing leak from vlv. 4-333 (2 drops/min.) + B.A. falls on HCV-4-121.	PWO # 19756.
	Diaphragm vlv. 4-252B - leakage at bonnet - (1 drop/2 min.)	PWO # 19757.
	Vlv. 4-288A leaks - one drop/min.	PWO # 19765.
	Flange on MOV-4-350 leakage - 5 drops/min.	PWO # 19760.
MAKEUP	No visual leakage.	N/A.
CONT. SPR.	Valves 4-844A & B - B.A. buildup around bonnet.	PWO # 18744.
	Valve 4-891A - packing with B.A. buildup.	PWO # 18745.
	Cyclone separator on B Cont. Spray HX. has heavy B.A. buildup on top.	PWO # 18746.
	Cont. Spray Hx vent valve on A-Hx. has packing leak - down and around jumper.	PWO # 18747.
SAMPLING	Valve 971B - 28 cc/min. (at valve seat)	PWO # 19774.
	Valve 971C - 18 cc/min. - (" ")	" "
	Valve 971E - 17 drops/min. (" ")	" "
	Valve 989C - 1 drop/min. (Swagelok fitting)	PWO 19775.
	Valve 965B - 2 drops/min. (" ").	" "
WASTE GAS.	PCV-117 small leak around bottom flange. (Lead "SWOOP"). - in extra gasket water.	PWO # 81886.
	V.V. 4-975 - packing leak (B.A. buildup.)	PWO # 19782.

5 1/23/80 & LETDOWN

REF. PWO REQ [redacted] # 019754 SHEET 1 OF 5

COMPONENTS TO BE CLEANED FREE OF BORIC ACID

COMPONENT	LOCATION
4-974A STEM	UNIT #4 CH. PUMP ROOM
	UNIT #4 PIPEWAY ROOM
4-120A STEM (TC)	" " " " "
4-202A BODY/GLAND	" " " " "
4-120B STEM (TC)	" " " " "
4-294F BODY	" " " " "
FITTINGS FROM 4-383	" " " " "
4-287D	UNIT #4 CH. PUMP ROOM
	" " " " "
SEAL WATER RETURN FILTERS BOTTOM FLANGES	" " " " "
FLANGED CONNECTIONS ON SEAL WATER HX	" " " " "
CV CLOSURE PLATES ON 4C CHG. PUMP.	" " " " "

Components to be Cleaned Free of Boric Acid

Component	Location
4-204 (Flow Control Vlv) Flange & Gland	Pipe & Valve Room (Pen #4)
HCV-4-142 Flange & Gland	" " " " "
MOV-4-381 Gland	" " " (Pen #25)
LCV-4-115A Flanges & Gland	Unit #4 Ch. Pump Room
LCV-4-115C Gland. Check for Leak	" " " "
TCV-4-143 Flange	" " " "
RV-209 Flange	" " " "
Check Vlv 4-257 Flange	" " " "
4-358 Gland - Stem	" " " "
4-268 Gland - Stem	" " " "
4-267A Gland	" " " "
4-269 Gland - Stem	" " " "
Diaphram Vlv. 4-252	" " " "

REF. PWO REQ SERIAL #: 019255 A 5 SHEET 3 OF 5

COMPONENT	LOCATION
VALVE 4-1104	UNIT #4 DEMINERALIZER ROOM.
3-1104	"
3-1105	"
3-1111	"
3-1106	"
4-1106	"

COMPONENTS TO BE CLEANED FREE OF BORIC ACID

COMPONENT	LOCATION
MOV-4-872 GLAND & BODY	UNIT #4 PIPE & VALVE ROOM
4-887 BODY & STEM	RHR PUMP PIT 4A & B
MOV-4-862A	" " " "
MOV-4-862B	" " " "
4-296A, 4-296B, 4-296C, 4-296D, 4-296E — INST. STOPS ON FI'S NEAR PEN #24	UNIT #4 PIPE & VALVE ROOM,
4-297A, 4-297B, 4-297C — MANUAL ISOLATION VALVES AT PEN # 24	" " " "
4-285A, 4-285B, 4-285C — VENT VALVES AT PEN # 24	" " "
FI-4-124 FITTING (PEN #24)	" " "

COMPONENTS TO BE CLEANED FREE OF BORIC ACID

COMPONENT		LOCATION
4-287A	Cit. Pump. Disch.	Unit #4 Cit. Pump Room
4-288B	"	" " " "
4-288C	"	" " " "
4-291A	"	" " " "
4-291B	"	" " " "
4-291C	"	" " " "
4-295	"	" " " " Seal Water Inj. Filters.
4-294A	"	" " "
4-269C	Cit. Pump. Suction	Unit #4 Cits. Pump Room.
4-270C	"	
RV-4-283C	Unit #4C CCP Relief Base	" " " "

2.1.6.b PLANT SHIELDING REVIEW

Elastomer or plastic insulation materials used in the auxiliary building on safety grade systems have a threshold for radiation damage of 106 rads or higher.

We have concluded from our radiation assessment study that the maximum dose rates in high radiation areas at the auxiliary building would be less than one (1) percent of that found in containment during a postulated accident. The estimated FSAR, Post-LOCA accident radiation dose for in containment equipment qualification is 108 rads. Thus, the maximum dose in high radiation areas of the auxiliary building is 106 rads or less.

We believe all safety grade plastic or elastomer material used in the auxiliary building can be qualified to meet post-accident TMI radiation levels.

We are continuing our investigation of equipment environmental qualification in conjuction with Bulletin 79-01B and intend to make all necessary modifications required by 1/1/81.

A general arrangement ground floor plan for Elevation 18' enclosed for information (Appendix A). See FPL letter dated January 11, 1980 (L-80-16) to Mr. Eisenhut for a description of the zones.

2.1.7.b AUTO INITIATION OF AFW

The maximum inaccuracy of the AFW indication system is 2%. This takes into account all variables that could affect the accuracy of the measured parameter.

2.1.8.b & c RADIATION MONITORS & IODINE MONITORING

1. NOBLE GAS EFFLUENTS

a. Sample Locations:

Plant Vent – Auxiliary building, rad-waste building, units #3 and #4 containment buildings, gas decay tanks, unit #4 spent fuel pool, and laundry room. All exhaust through the plant.

Unit #3 spent fuel pool
Units #3 & #4 air ejectors
Blowdown flash tank vent
Secondary safety valves and atmospheric steam dumps

b. Monitors and Sampling Techniques

Plant Vent – Sampling will be accomplished using the NMC monitor used for normal sampling and dilution techniques as described in procedure NC-56. Equipment necessary has been installed and could be put in service in 2-3 minutes when needed. NC-56 also includes calculations which correct for the sample dilution & convert cpm to ci per second release rate.

Unit #3 spent fuel pool–
Sampling will be performed using the NMC monitor used for normal sampling.

Units #3 and #4 air ejectors–
An NMC monitor with gas, iodine, and particulate monitors will be stored on the turbine deck. Quick disconnects will allow the monitor to be placed in service within a few minutes on either unit. Procedure NC-71 has instructions for using the monitor.

Blowdown flash tank vent–
Direct sampling of the vent is impractical. Steam generator blowdown water will be sampled instead, and using blowdown flow data and NRC guidelines for partition factors, an estimate of released isotope quantities can be made. Procedure NV-73 has instructions.

Secondary safety valves and atmospheric steam dumps- Direct sampling is impractical. Condensed main steam will be sampled, and, along with estimated flow data, isotopic release quantities can be approximated.

c. The plant vent monitor will read out in the control room while the other monitors will be read in-situ. Their readings will be transferred back to the control room via telephone or portable radio.

d. A procedure for the annual calibration of the NMC monitors is available and current calibration curves are available for the plant vent and unit #3 spent fuel pit NMC monitors.

e. For all systems on normal AC power, backup power will be supplied by the emergency diesels.

f. Health physics procedures and shielding materials are available for minimizing occupational exposures.

g. Accident related information will be transmitted to the control room.

2. RADIODINE AND PARTICULATE EFFLUENTS

a. The NMC monitors described in 1.b above will also collect the iodine and particulate samples. Filters will be installed for short durations to minimize overloading them. For the flash tank and atmospheric steam dumps, iodine release quantities will be determined using the blowdown and main steam liquid samples, and known or estimated flows data.

b. Monitor locations are listed in 1.a.

c. See 1.f for methods to minimize occupational exposure.

d. Filters will be either the silver zeolite or the activiated charcoal type and will be back-flushed with compresses air to help remove noble gases.

e. See 1.e for method to handle power interruption.

f. Information will be disseminated as in 1.g

g. The filters will be analyzed on a multichannel analyzer system which is calibrated annually.

2.2.1.a SHIFT SUPERVISOR RESPONSIBILITIES

Plant procedures have been revised to incorporate wording to address concerns expressed by the NRC implementation review team during their site visit. The concerns related to subsections 2.a and 2.b under section 2.2.1.a in the October 30, 1979 letter form Harold R. Denton to All Operating Nuclear Power Plants. The revised procedures are available for further review at the plant site.

Item 2.2.1.b - Shift Technical Advisor

The Shift Technical Advisor requirement for Turkey Point has been met in the following manner:

The responsibility to accomplish this requirement has been assigned to the plant Technical Department, which provides plant engineering support and special testing capability in support of operating and maintaining the nuclear plant. Authorization to increase the Technical Department plant engineering staff by five engineers to a total of twelve has been approved. This will assure that at least five engineers can be assigned to the STA position without reducing the capability to perform the normal duties of the Technical Department. Three of the positions have been filled and active recruiting is continuing to fill the remaining positions.

On January 1, 1980, four engineers were assigned to fulfill the STA accident assessment requirement on a round-the-clock basis, with two engineers assigned as backup. Initial training consisted of five weeks of accelerated training in nuclear physics, instrument and control, plant systems, plant response to off normal conditions, and in accident and transient analysis. Training was conducted by use of video tapes, by presentations by Technical Department and Training personnel, and by presentations by personnel from our General Office's Thermal Hydraulics and System Analysis Section.

All of the initial six STAs have at least a four year degree in engineering from an accredited university or college. The experience level ranges from ten years to one and a half years with various ranges of plant experience. It is planned to fill the remaining positions with experienced, degreed engineers and train them for the STA function. A training program has been started for a second group of STAs. After initial training, they will be available to relieve the first group of STAs so they can be given additional training. Further training will be provided in transient response and accident analysis, including training at an off-site simulator.

Limited assessment of operating experience has been conducted on a routine basis by the plant Technical Department as a result of having the responsibility for the following items:

1. Investigating abnormal occurrences, preparing LERs, and for assuring that adequate corrective action is taken;

2. review of the technical aspects of all plant changes and modifications, and for coordinating plant inputs to the engineering department responsible for design;

3. coordinating all requests for engineering assistance and for all budget items requiring engineering assistance;

4. assuring that initial and follow-up action is taken on all I & E Bulletins, Circulars, and Information Notices;

5. and implementing the pump and valve testing programs required by our Inservice Inspection Program.

This assessment will be continued on an expanded basis utilizing both off shift personnel and the on shift STAs in an attempt to improve the safety of plant operations.

2.2.1.c SHIFT TURNOVER PROCEDURES

The practice of periodic independent verification of the effectiveness of shift turnover procedures by the Quality Control Department has been established.

2.2.2.b ON-SITE TECHNICAL SUPPORT CENTER (TSC)

The following information is submitted to update our letter L-80-39 dated January 31, 1980:

The TSC has been equipped with conference table, chairs, desks, filing cabinets, storage cabinet, and supplies. The TSC has been equipped with the following instruments for monitoring airborne and direct radiation:

20 0-500 mrem dosimeters
2 chargers for dosimeters
1 β-γ survey instrument
1 RM-14 with 210 (β-γ) and 44-6 (α) probes
1 high volume air sampler

The TSC has been stocked with the drawings, documents, and technical data listed below:

Operating Procedures
Emergency Plan
Technical Specifications
FSAR
Precautions, Limitation, and Setpoints Document
Circuit Breaker List
Plant Curve Book
Plant Data Book
Training Department Lesson Plans
Training Department P & ID's (5610-T-E series)
Valve Index
Miscellaneous Training Information

The remaining information listed in our 1/31/80 letter will be placed in the TSC as soon as practical. Also, the in-plant paging system is being extended to the TSC.