REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8303080399 DOC.DATE: 83/03/01 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
VARGA,S.A. Operating Reactors Branch 1

SUBJECT: Forwards justification for continued plant operation w/Category II.B electrical equipment.Justifications for equipment in Categories IB & IIA to be completed by 830331.

DISTRIBUTION CODE: A048S COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 10
TITLE: OR/Licensing Submittal: Equipment Qualification

NOTES:

	RECIPIENT ID CODE/NAME		COPIES LTTR	ENCL	RECIPIENT ID CODE/NAME		COPIES LTTR	ENCL
	NRR ORB1 BC	12	1	0	McDONALD,D	01	1	1
INTERNAL:	ELD/HDS4	12	1	1	GC	13	1	1
	IE FILE	09	1	1	NRR CALVO,J		1	1
	NRR/DE/EQB	07	2	2	NRR/DL DIR	14	1	1
	NRR/DL/ORAB	06	1	1	NRR/DSI/AEB		1	1
	REG FILE	04	1	1	RGN2		1	1
EXTERNAL:	ACRS	15	8	8	LPDR	03	1	1
	NRC PDR	02	1	1	NSIC	05	1	1
	NTIS	31	1	1				

TOTAL NUMBER OF COPIES REQUIRED: LTTR 25 ENCL 24

P.O. BOX 14000, JUNO BEACH, FL 33408

FLORIDA POWER & LIGHT COMPANY

March 1, 1983
L-83-112

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

Dear Mr. Varga:

Re: Turkey Point Units 3 & 4
Docket Nos. 50-250 & 50-251
Environmental Qualification SER

Attached please find our justification for continued operation of Turkey Point Units 3 and 4 with electrical equipment that you categorized as II.B in your letter of December 13, 1983. We are expeditiously reviewing the equipment remaining in the other two categories, IB and IIA, and we expect to have those justifications complete by March 31, 1983.

If you have any questions regarding the attached, please contact us accordingly.

Very truly yours,

Robert E. Uhrig
Vice President
Advanced Systems & Technology

REU/PLP/js

Attachment

cc: J. P. O'Reilly, Region II
Harold F. Reis, Esquire
PNS-LI-83-126-1

A046

[illegible]

Item #39

Component: Flow Transmitter

Identification No: FT-3-932, 933
FT-4-932, 933

Function:

Provide indication of safety injection flow to the reactor coolant system hot legs.

Analysis:

1) Loss of Coolant Accident

Following a loss of coolant accident, the safety injection system is aligned to provide flow to the reactor coolant system hot legs. The hot leg injection path flow transmitter provides verification to the control room operator that there is flow to the hot legs. In the event of failure of this transmitter there is an additional flow transmitter in the flow path that is outside of containment and thus is not affected by adverse environmental conditions. This transmitter provide input to the plants Digital Data Processing System computer which can be read in the control room. Since hot leg injection is not required until 18 hours after the accident, the computer readout of flow is sufficient for monitoring purposes.

2) High Energy Line Break

The hot leg injection flow path is not required for recovery from a high energy line break.

Conclusions:

Interim operation of Turkey Point Units #3 & #4 with the existing hot leg injection flow transmitters is justified because of redundant flow transmitters that are not in containment and are not subjected to accident environments.

Item #40

Component: Flow Transmitter

Identification No: FT-3-474, 475, 484, 485, 494, 495
FT-4-474, 475, 484, 485, 494, 495

Function:

Provide steam flow signal from each steam generator.

Analysis:

1) Loss of Coolant Accident

The operability of the steam generators during a loss of coolant accident is not required since the steam generators are not utilized to remove decay heat when the reactor coolant system pressure boundary is not intact. Therefore, recovery from a loss of coolant accident does not necessitate the use of main steam flow instruments. The failure of the steam flow transmitters will not impair accident recovery following a large break loss of coolant event.

2) High Energy Line Break

The steam flow transmitters provide an input to protection logic during a high energy line break. The protection signal will identify which of the three steam generators has a failed high energy line and this signal is derived from a comparison of steam flow, feed flow and steam generator level. Since the high energy line break accident is postulated to occur very rapidly, the steam flow/feed flow/water level mismatch will occur within the first few seconds after the accident. This time period is sufficiently short to allow the steam flow signal to input into the protection logic before the environmental conditions can degrade the performance of the transmitter. In addition, there are redundant steam flow transmitters for each steam generator and this significantly lowers the probability of failure prior to providing the necessary protection system logic input.

The complete failure of the steam flow transmitters was also considered. With no input to the protection logic from steam flow, the control room operator will need to take manual action to isolate the faulted steam generator. With indication of steam generator pressure available in the control room, the control room operator will be able to determine which steam generator is faulted, i.e., the steam generator with the lower steam pressure. The faulted steam generator pressure should rapidly fall below 100 psig. The operator will take manual action to align auxiliary feedwater to the intact steam generators and commence recovery.

Conclusions:

Interim operation of Turkey Point Units #3 and #4 with the existing steam flow transmitters is justified for the following reasons:

a) The transmitter is only required to function for the first few seconds following the accident initiation.

b) There are redundant transmitters on each steam line.

c) Failure of the transmitter does not inhibit accident recovery.

Item #42

Component: Level Transmitter

Identification No: LT-3-474, 475, 476, 484, 485, 486, 494, 495, 496
LT-4-474, 475, 476, 484, 485, 486, 494, 495, 496

Function:

Provide steam generator level signal from each steam generator.

Analysis:

1) Loss of Coolant Accident

The operability of the steam generators during a loss of coolant accident is not required since the steam generators are not utilized to remove decay heat when the reactor coolant pressure boundary is not intact. Therefore, recovery from a loss of coolant accident does not necessitate the use of the steam generator level instruments. The failure of the steam generator level transmitters will not impare accident recovery following a large break loss of coolant event.

2) High Energy Line Break

The steam generator level transmitters provide a signal to the reactor protection system and it also provides indication of steam generator water level to the control room operators. There are five steam generator level transmitters on each steam generator; three protection channels and two control channels. Since the high energy line break accident is postulated to occur very rapidly, the low steam generator water level condition will occur very shortly after the accident initiation. This time period is sufficiently short to allow the low steam generator level signal to input into the protection logic before the environmental conditions degrade performance of the transmitter. Since there are three redundant level transmitters for protection logic input on each steam generator, the probability that all three transmitters will fail in the first few moments of the event is significantly reduced.

The complete failure of the steam generator water level transmitters was also considered. Separate and diverse protection logic input during a high energy line break event is provided by numerous protection system inputs such as high containment pressure, high neutron flux or low pressurizer pressure.

The complete failure of the steam generator water level transmitters will not preclude accident recovery during a high energy line break event. The reactor coolant system will remain intact and pressurized by the safety injection system. Reactor coolant system temperature is significantly lowered by the blowdown from the faulted steam generator. Recovery can be completed by filling the intact steam generators until the reactor coolant temperature is at 350°F when the residual heat removal system is placed into operation to complete the cooldown.

Conclusions:

Interim operation of Turkey Point Units #3 and #4 with the existing steam generator water level transmitters is justified for the following reasons:

a) The protection signals are initiated in the first several seconds following accident initiation.

b) There are three redundant transmitters on each generator.

c) There are diverse protection system inputs for the high energy line break accident.

d) Loss of the transmitter does not inhibit accident recovery.

Item #46

Component: Pressure Transmitter

Identification No: PT-3-455, 456, 457
PT-4-455, 456, 457

Function:

- Provide pressurizer pressure signal to engineered safety features protection system, reactor protection system and control room indication.

Analysis:

1) Loss of Coolant Accident

The pressurizer pressure transmitters provide a low pressure signal to the reactor protection system to initiate a reactor trip, and they provide a low pressure signal to the engineered safety features protection system to initiate safety injection flow to the reactor core following a large break loss of coolant accident. These signals occur less than one second after the accident begins. It is reasonable to assume that these transmitters will function during the first few seconds of this event before the environmental conditions begin to degrade their performance.

In addition, diverse protection is provided by a high containment pressure signal that also initiates safety injection and reactor trip.

Finally, control room indication of pressurizer pressure is not required following a loss of coolant accident because the reactor coolant pressure boundary is not intact.

2) High Energy Line Break

The pressurizer pressure transmitters provide a low pressure signal to the reactor protection and engineered safety features protection systems to trip the reactor and initiate safety injection flow to the reactor coolant system following a high energy line break. These signals are generated less than one minute after the accident begins and are no longer required to function once their signals are supplies to the protection logic. This very short time frame provides reasonable assurance that they will fullfill their function. However, diverse protection is provided by the high containment pressure signal which will also trip the reactor and initiate safety injection flow after a high energy line break.

Control room monitoring of reactor coolant system pressure following a high energy line break is provided by several means. The reactor coolant system will be repressurized by the safety injection system after the accident and will remain pressurized at 1350 psig until pressurizer level is restored and the pressurizer heaters reenergized; this corresponds to the shutoff head of the safety injection pumps. Additionally, the coolant sampling system can be aligned to indicate pressure gauges in the sampling system. Finally, pressurizer temperature may be used, if available, to determine pressurizer saturation pressure.

Conclusions:

Interim operation of Turkey Point Units #3 and #4 with the existing pressurizer pressure transmitters is justified for the following reasons:

a) The protection system signals are initiated in less than one minute after the accident and are no longer required.

b) There are three redundant transmitters on the pressurizer.

c) There are diverse protection system inputs that accomplish the same function.

d) Loss of the transmitter does not inhibit accident recovery.

Item #47

Component: Pressure Transmitter

Identification No: PT-3-403
PT-4-403

Function:

Provide low pressure permissive signal to the residual heat removal system isolation valves.

Analysis:

1) Loss of Coolant Accident

Following a loss of coolant accident the residual heat removal system is not utilized to cool down the reactor coolant system. Therefore, the pressure transmitter that provides the low pressure permissive signal to the isolation valves need not function after this accident.

2) High Energy Line Break

Following a high energy line break the reactor coolant system is aligned with the residual heat removal system and core cooling is completed with this forced flow cooling system. If a failure of the pressure transmitter precluded a permissive signal and thus blocked the opening of the residual heat removal system isolation valves, the valves can still be opened by overriding the permissive block in the control logic and opening the valve. Since the residual heat removal system is not required until a significant time after the event, the location and removal of the control fuse is reasonable.

Conclusions:

Interim operation of Turkey Point Units #3 and #4 with the existing valve permissive pressure transmitters is justified because valve permissive may be established via operator action in a reasonable time to initiate long term recovery.

Item #50

Component: Pressure Transmitter

Identification No: PT-3-404, 406
PT-4-404, 406

Function:

Provide reactor coolant pressure signal to the subcooled margin monitor.

Analysis:

1) Loss of Coolant Accident

The subcooled margin monitor is not used for accident mitigation or recovery following a large break loss of coolant accident because the reactor coolant system is not intact. Accordingly, the reactor coolant pressure transmitter that inputs to the subcooled margin monitor is not required to function after this accident.

2) High Energy Line Break

The subcooled margin monitor provides indication to the control room operator of the margin to saturation that is occuring in the reactor coolant system. This is an aid to the operator during recovery from a high energy line break but it is not essential to recovery operations. The operator has several means available to determine the reactor coolant system pressure following a high energy line break which include sampling system mechanical pressure indication, safety injection discharge pressure and pressurizer temperature. Since the reactor coolant system remains intact following a high energy line break, the control room operator may restore pressurizer level and control reactor coolant system pressure well above saturation by use of pressurizer heaters.

Conclusions:

Interim operation of Turkey Point Units #3 and #4 with the existing pressure transmitter for the subcooled margin monitor is justified for the following reasons:

a) The subcooled margin monitor provides no protection system inputs.

b) Subcooled margin can be determined by the control room operator via several alternate methods.

c) The pressurizer is available to control system pressure during a high energy line break.

d) Subcooled margin is not required during a loss of coolant accident.

[illegible]