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SUBJECT: Responds to Generic Ltr 89-19, "Request for Action re
 Resolution of USI A-47."

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MARCH 19 1990

L-90-108

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

Gentlemen:

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Generic Letter 89-19
Request for Action Related to Resolution of
Unresolved Safety Issue A-47 "Safety Implications
of Control Systems in LWR Nuclear Power Plants"
Pursuant to 10 CFR 50.54(f)

As a result of the technical resolution of USI A-47, "Safety Implications of Control Systems in LWR Nuclear Power Plants," the NRC concluded that protection should be provided for certain control system failures, and, for certain plants, that selected emergency procedures should be modified to assure that plant transients resulting from control system failures do not compromise public safety.

Generic Letter 89-19, issued September 20, 1989, provided recommendations for control system design and procedural modifications for resolution of USI A-47. Specifically, Generic Letter 89-19 recommended that all Westinghouse plant designs provide automatic steam generator overfill protection to mitigate main feedwater (MFW) overfeed events, and that plant procedures and technical specifications include provisions to periodically verify the operability of the MFW overfill protection and ensure that the automatic overfill protection is operable during reactor power operation.

Florida Power & Light Company's response to the recommendations in Generic Letter 89-19 is attached.

Should there be any questions regarding the attached information, please contact us.

Very truly yours,

J. H. Goldberg
Executive Vice President

JHG/TCG/gp

Attachment

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

Handwritten: A001
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PDC

STATE OF FLORIDA)
) ss.
COUNTY OF PALM BEACH)

J. H. Goldberg being first duly sworn, deposes and says:

That he is Executive Vice President, of Florida Power & Light Company, the Licensee herein;

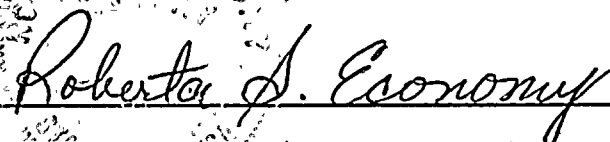
That he has executed the foregoing document; that the statements made in this document are true and correct to the best of his knowledge, information and belief, and that he is authorized to execute the document on behalf of said Licensee.



J. H. Goldberg

Subscribed and sworn to before me this

19 day of March, 1990.



Robert A. Economy

NOTARY PUBLIC, in and for the County of
Palm Beach, State of Florida

My Commission expires _____
Notary Public, State of Florida
My Commission Expires June 1, 1993
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ATTACHMENT

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Generic Letter 89-19
Request for Action Related to Resolution of
Unresolved Safety Issue A-47 "Safety Implication
of Control Systems in LWR Nuclear Power Plants"
Pursuant to 10 CFR 50.54(f)

At Turkey Point Nuclear Plant Units 3 and 4, Steam Generator Level Protection Channels I, II, III, and IV are designed to combine redundant sensors, independent channel circuitry, coincident trip logic and different parameter measurements so that a safe and reliable system is provided that is single failure proof.

Channels I and II are used for level protection while channel IV is used for level control. Channel III is used for both protection and control. The steam generator overfill protection at Turkey Point is initiated on a S/G Hi-Hi Level signal, based on a 2 out of 3 initiating logic which is safety related.

The steam generator protection and portions of the control systems utilize shared power sources. However, sufficient power and logic diversity exists to ensure steam generator overfill protection. As detailed below, a review of the Turkey Point Nuclear Plant Units 3 and 4 S/G Level Control and Protection system and applicable procedures indicates that it falls within the acceptable NRC Category (Group I) for Westinghouse PWRs, and no further actions are required.

S/G Protection

Sufficient redundancy and separation exists between the channels and applicable power supplies. The protection channels (I, II and III) are located in separate analog racks, providing adequate physical separation. The major instruments are arranged to physically separate the protection equipment from the control equipment. Power cable routing was not specifically reviewed, but based on the vintage of the Turkey Point units, there is not reasonable assurance that present day separation criteria were used. However based on the total system design we believe that adequate protection exists such that the effects of environmental factors including fire, electrical transients, and physical accidents are reduced. Channel III electrical separation between protection and control is achieved by employing isolation amplifiers. Redundant HVAC systems are provided for equipment reliability. Redundant trains "A" and "B", ensure that the feedwater (FW) pumps are tripped and that the main and by-pass feedwater control valves are closed in a Hi-Hi S/G Level condition (80% on 2 out of 3 level transmitters). (See Table 1.)

The feedwater control valves are also provided with redundant components and redundant FW isolation signals to ensure closure. In addition, these valves are designed to fail closed if the air supply to them is lost (See Table 2).



TABLE 1

Table 1 is for S/G Loop "A"; S/G loops "B" and "C" are similar.

<u>Steam Gen. Prot. Channels</u>	<u>Associated Inst.</u>	<u>Signal/Inputs</u>
I	LT-474	At 80% Hi-Hi Level
II	LT-475	• Trip Main Turbine
III	LT-476	• Trip FW pumps
		• Close FW Control Valves

TABLE 2

COMPONENTS

Main FW Control Valves	S/G A FCV-478
	S/G B FCV-488
	S/G C FCV-498
By-Pass FW Control Valves	S/G A FCV-479
	S/G B FCV-489
	S/G C FCV-499

S/G Level Control

In order to maintain a programmed water level in the secondary side of the steam generators during normal plant operation, the steam generators are equipped with a three-element feedwater control system. The three-element feedwater control system in each steam generator receives input from the following four parameters (see Table 3):

1. Feedwater Flow
2. Steam Flow
3. Steam Generator Water Level
4. Turbine First Stage Pressure

The controllers continuously compare feedwater flow with steam flow, and a steam generator water level signal with a water level setpoint to regulate the main feedwater control valve position. Manual control of the main feedwater control valve is provided by the auto-manual station on the control room console. A bypass feedwater control valve is provided around each main feedwater flow control valve. The bypass valve is used to control feedwater flow at loads below approximately 15 percent.

TABLE 3

This table is for S/G Loop "A"; S/G Loops "B" and "C" are similar.

<u>Steam Gen Level Cont. Channels</u>	<u>Associated Inst.</u>	<u>Signal/Inputs</u>
Channel III	LT-476 FT-474 FT-477 PT-446	S/G Level Steam Flow Feedwater Flow Turbine First Stage Pressure
Channel IV	FT-475 FT-476 PT-447	Steam Flow Feedwater Flow Turbine First Stage Pressure

Procedures/Technical Specifications

The Turkey Point plant procedures (Table 4) and Technical Specifications, Section 4.1, Table 4.1-1 (Section 3/4.3.1, Table 4.3-1 of the Revised Technical Specifications submitted on June 5, 1989) include requirements to periodically verify the safety function of Lo-Lo level trip operability of the S/G Level Control Channels for the S/G Level Control And Protection System. The procedures which perform the function of verifying operability of the Lo-Lo level reactor trip also check the Hi Steam Generator Level (80%) trip. Other procedures, not required by Technical Specifications, provide for monthly analog channel operational testing, periodic (CHANNEL) calibration and functional testing of instrumentation and operability tests of the feedwater control valves. Feedwater isolation testing, which includes tripping of the feedwater pumps and closure of the feedwater control valves, is performed with the unit in cold shutdown in accordance with the applicable engineering safeguards integrated test procedures. Those procedures required to be performed by Technical Specifications and those which are not are delineated on Table 4.

The NRC staff is currently reviewing the Nuclear Steam Supply System vendor specific revised standard technical specifications. Recommendations for specific Limiting Conditions for Operation pertaining to steam generator overfill protection should be addressed as part of that review. Specific changes to Turkey Point Technical Specifications will be addressed upon completion of that review.

TABLE 4

<u>Procedures</u>	<u>Description</u>	<u>Frequency</u>
3-SMI-071.1*	Steam Generator Protection Set I (QR-3) Analog Channel Test	Every 31 days when in Operating Modes 1, 2, or 3 and within 31 days prior to entering Mode 3 from Mode 4
4-SMI-071.1*	Steam Generator Protection Set I (QR-3) Analog Channel Test	
3-SMI-071.2*	Steam Generator Protection Set II (QR-13) Analog Channel Test	↓
4-SMI-071.2*	Steam Generator Protection Set II (QR-17) Analog Channel Test	
3-SMI-071.3*	Steam Generator Protection Set III (QR-17) Analog Channel Test	
3-SMI-071.4*	Steam Generator Protection Set III (QR-16) Analog Channel Test	
4-SMI-071.4*	Steam Generator Protection Set III (QR-16) Analog Channel Test	
3-SMI-071.5*	Steam Generator Protection Set I (QR-18) Analog Channel Test	
4-SMI-071.5*	Steam Generator Protection Set III (QR-18) Analog Channel Test	
3-SMI-071.6*	Steam Generator Protection Set IV (QR-25) Analog Channel Test	
4-SMI-071.6*	Steam Generator Protection Set IV (QR-25) Analog Channel Test	
3-SMI-071.7*	Steam Generator Protection Set IV (QR-24) Analog Channel Test	
4-SMI-071.7*	Steam Generator Protection Set IV (QR-24) Analog Channel Test	

* Technical Specification required.

TABLE 4 (con't)

<u>Procedures</u>	<u>Description</u>	<u>Frequency</u>
3-PMI-071.2*	Steam Generator Level (Narrow Range) L-3-477, L-3-487, L-3-497 Channel Calibration	Refueling ↓
4-PMI-071.2*	Steam Generator Level (Narrow Range) Protection Instrumentation Set 1 L-474, L-484, L-494 Channel Calibration	
3-PMI-071.3*	Steam Generator Level (Narrow Range) Protection Instrumentation Set 1 L-474, L-484, L-494 Channel Calibration	
4-PMI-071.3*	Steam Generator Level (Narrow Range) Protection Instrumentation Set II L-475, L-485, L-495 Channel Calibration	
3-PMI-071.4*	Steam Generator Level (Narrow Range) Protection Instrumentation Set III L-476, L-486, L-496 Channel Calibration	
4-PMI-071.4*	Steam Generator Level (Narrow Range) Protection Instrumentation Set III L-476, L-486, L-496 Channel Calibration	
3-PMI-071.5	Steam Generator Level (Alternate Control) L-478, L-488, L-498 Channel Calibration	
4-PMI-071.5	Steam Generator Level (Alternate Control) L-478, L-488, L-498 Channel Calibration	
3-PMI-071.6	Steam Generator "3A" Steam/FW Flow Mismatch Protection Instrumentation Set III F-3-474 and F-3-477 Channel Calibration	
4-PMI-071.6	Steam Generator "4A" Steam/FW Flow Mismatch Protection Instrumentation Set III F-4-474 and F-4-477 Channel Calibration.	↓
3/4-OSP-074.2	S/G FW Control Valves Operability Test	18 Months
3-OSP-203*	Engineered Safeguards Integrated Test	18 Months
4-OSP-203.1*	Train A Engineered Safeguards Integrated Test	18 Months
4-OSP-203.2*	Train B Engineered Safeguards Integrated Test	18 Months

* Technical Specification required.

