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SUBJECT: Responds to Generic Ltr 88-17, "Loss of DHR." Response for programmed enhancements for DHR will be sent by 890202.

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FPL

P.O. Box 14000, Juno Beach, FL 33408-0420

JANUARY 3 1989

L-88-559

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

Gentlemen:

Re: Turkey Point Units 3 and 4
Generic Letter 88-17
Loss of Decay Heat Removal

Generic Letter 88-17, "Loss of Decay Heat Removal", required licensees to respond to the NRC recommended expeditious actions within 60 days of receipt of the generic letter. Provided as an attachment is the 60 day response for Florida Power & Light Company's Turkey Point Units 3 and 4. FPL will provide the 90 day response concerning programmed enhancements for decay heat removal by February 2, 1988.

Should there be any questions concerning this response, please contact us.

Very truly yours,

W. F. Conway
Senior Vice President - Nuclear

WFC/RG/cm

Attachment

cc: Malcolm L. Ernst, Acting Regional Administrator, Region II,
USNRC
Senior Resident Inspector, Turkey Point Plant, USNRC

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

W. F. Conway being first duly sworn, deposes and says:

That he is Senior Vice President- Nuclear 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.

W. F. Conway
W. F. Conway

Subscribed and sworn to before me this

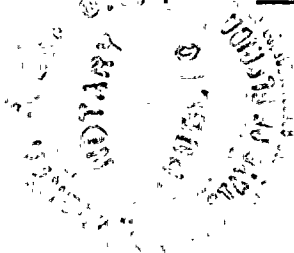
3 day of January, 1989.

Robert J. Economy

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

Notary Public, State of Florida
My Commission Expires June 1, 1989
Bonded Thru Troy Fain - Insurance, Inc.

My Commission expires: _____



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U.S. DEPT. OF AGRICULTURE
WASHINGTON, D.C.

ATTACHMENT 1
RESPONSE TO EXPEDITIOUS ACTIONS RECOMMENDED IN GENERIC LETTER 88-17

Recommendation (1)

Discuss the Diablo Canyon event, related events, lessons learned, and implications with appropriate plant personnel. Provide training shortly before entering a reduced inventory condition.

Response

Turkey Point currently provides training on Reactor Coolant System (RCS) mid-loop operations and recovery from loss of Residual Heat Removal (RHR) for licensed operators. Training topics presented during the fourth quarter of 1988 were the Diablo Canyon event, related events, lessons learned, the implications of the event and loss of RHR off normal procedure. In addition, licensed operators received simulator training concerning loss of RHR flow at midnozzle operation.

Prior to operating in a reduced inventory condition, Turkey Point will issue and provide training on a new procedure which controls operation in a reduced inventory condition with irradiated fuel in the reactor vessel. This procedure will require that operating shifts be briefed prior to and as part of shift turnover when operating the RCS in a reduced inventory condition. This briefing shall include what equipment, indications and actions are required to monitor RCS and RHR parameters during reduced inventory operation and recovery from loss of RHR. Available sources of RCS makeup water shall also be discussed.

Recommendation (2)

Implement procedures and administrative controls that reasonably assure that containment closure will be achieved prior to the time at which a core uncover could result from a loss of DHR coupled with an inability to initiate alternate cooling or addition of water to the RCS inventory. Containment closure procedures should include consideration of potential steam and radioactive material release from the RCS should closure activities extend into the time boiling takes place within the RCS. These procedures and administrative controls should be active and in use:

- (a) prior to entering a reduced RCS inventory condition for NSSSs supplied by Combustion Engineering or Westinghouse, and
- (b) prior to entering an RCS condition wherein the water level is lower than four inches below the top of the flow area of the hot legs at the junction of the hot legs to the RV for NSSSs supplied by Babcock and Wilcox,

and should apply whenever operating in those conditions. If such procedures and administrative controls are not operational, then either do not enter the applicable condition or maintain a closed containment.

Response

The new procedure identified in the response to recommendation 1 above will require that containment closure be established prior to entering a reduced inventory condition. Exceptions to containment closure will be allowed if it has been established that the sum total of time required to obtain containment closure does not exceed two hours. If openings totaling one square inch or greater exist in the RCS cold legs, Reactor Coolant Pumps (RCP) or intermediate legs, the sum total of time required to obtain containment closure shall not exceed 25 minutes. Upon loss of RHR, initiation of full containment closure will be required within five minutes. These time limits may be adjusted based upon further analysis.

Recommendation (3)

Provide at least two independent, continuous temperature indications that are representative of the core exit conditions whenever the RCS is in a mid-loop condition and the reactor vessel head is located on top of the reactor vessel. Temperature indications should be periodically checked and recorded by an operator or automatically and continuously monitored and alarmed. Temperature monitoring should be performed either:

- (a) by an operator in the control room (CR), or
- (b) from a location outside of the containment building with provision for providing immediate temperature values to an operator in the CR if significant changes occur. Observations should be recorded at an interval no greater than 15 minutes during normal conditions.

Response

The existing core exit thermocouples meet this requirement when the reactor vessel head is located on top of the reactor vessel. The core exit thermocouples do not currently provide an alarm function, however, Turkey Point will evaluate the feasibility of providing this function. If an alarm function is not available, two independent channels will be monitored and recorded every 15 minutes when operating in a reduced inventory condition. If an alarm function is available, two independent channels will be monitored and recorded every hour by an operator in the control room while operating in a reduced inventory condition. These requirements will be included in the new procedure described in the response to recommended action 1 above.

Recommendation (4)

Provide at least two independent, continuous RCS water level indications whenever the RCS is in a reduced inventory condition. Water level indications should be periodically checked and recorded by an operator or automatically and continuously monitored and alarmed. Water level monitoring should be capable of being performed either:

- (a) by an operator in the CR, or

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- (b) from a location other than the CR with provision for providing immediate water level values to an operator in the CR if significant changes occur. Observations should be recorded at an interval no greater than 15 minutes during normal conditions.

Response

Turkey Point currently has two methods of RCS level indication. One is a pressure transmitter which provides level indication to the control room. The other is a tygon hose located inside containment, and vented to the pressurizer. Both indicators are connected to the RCS at the "A" loop intermediate leg drain. FPL's engineering group will develop a correlation between indicated intermediate leg level and actual hot leg level for use during reduced inventory conditions. In addition, Turkey Point will install a permanent scale inside containment for use in reading the tygon hose level.

When in a reduced inventory condition, the level transmitter will be monitored and recorded every 15 minutes until alarm functions can be provided. When alarm functions are provided, the level transmitter will be monitored and recorded every hour. The tygon hose will be monitored and recorded every 15 minutes when in a reduced inventory condition. The operator monitoring the tygon hose shall be in communication with the control room and shall report each reading to the control room. These requirements will be included in the procedure described in the response to recommended action 1 above.

Recommendation (5)

Implement procedures and administrative controls that generally avoid operations that deliberately or knowingly lead to perturbations to the RCS and/or to systems that are necessary to maintain the RCS in a stable and controlled condition while the RCS is in a reduced inventory condition.

If operations that could perturb the RCS or systems supporting the RCS must be conducted while in a reduced inventory condition, then additional measures should be taken to assure that the RCS will remain in a stable and controlled condition. Such additional measures include both prevention of a loss of DHR and enhanced monitoring requirements to ensure timely response to a loss of DHR should such a loss occur.

Response

As a general requirement of the new procedure described in the response to recommended action 1 above, activities which may cause perturbation of the RCS water level will be avoided. In addition, Turkey Point will re-review industry events related to loss of decay heat removal in order to identify specific activities that should be avoided. These activities will then be identified in the new procedure.

In order to prevent spurious isolation of the RHR suction valves, Turkey Point is evaluating the feasibility of defeating the RCS high pressure interlock with these valves when in a reduced inventory condition. This interlock has been responsible for loss of RHR events at Turkey Point and other plants in the past. If feasible, requirements for defeating this interlock will be included in the new procedure.

Recommendation (6)

Provide at least two available or operable means of adding inventory to the RCS that are in addition to pumps that are a part of the normal DHR systems. These should include at least one high pressure injection pump. The water addition rate capable of being provided by each of the means should be at least sufficient to keep the core covered. Procedures for use of these systems during loss of DHR events should be provided. The path of water addition must be specified to assure the flow does not bypass the reactor vessel before exiting any opening in the RCS.

Response

As a prerequisite to entering a reduced inventory condition, the new procedure described in the response to recommended action 1 above will require that at least one high pressure safety injection pump is available and capable of taking suction from the Refueling Water Storage Tank (RWST) and providing injection to the hot and cold legs. In addition, the procedure will require that two charging pumps are available and capable of taking suction from the RWST and providing injection to the RCS. Guidance for operation of these systems during loss of RHR will be added to existing off-normal procedures.

Recommendation (7)

(applicable to Westinghouse and Combustion Engineering nuclear steam supply system (NSSS) designs) Implement procedures and administrative controls that reasonably assure that all hot legs are not blocked simultaneously by nozzle dams unless a vent path is provided that is large enough to prevent pressurization of the upper plenum of the RV.

Response

At this time, Turkey Point does not use nozzle dams. However, the new procedure described in the response to recommended action 1 will require that a vent path be provided whenever an opening of one square inch or greater exists in the cold leg, the RCPs or the intermediate leg. Until further analysis is performed, this vent will consist of either the pressurizer manway, a steam generator hot leg manway or a steam generator cold leg manway.

Recommendation (8)

(applicable to NSSSs with loop stop valves) Implement procedures and administrative controls that reasonably assure that all hot legs are not blocked simultaneously by closed stop valves unless a vent path is provided that is large enough to prevent pressurization of the RV upper plenum or unless the RCS configuration prevents RV water loss if RV pressurization should occur. Closing cold legs by nozzle dams does not meet this condition.

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Response

The Turkey Point RCS does not contain loop stop valves.

