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Benard C. Rusche	3 Signed			XX	XXX

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	XXXX			3	50-250/251

DESCRIPTION:
Ltr. ref. the Review of Turkey Point ECCS Analysis during week of 5-12-75....Also requesting the revised Tech Spec. for Unit 3 be made effect. 6-7-75.....

ENCLOSURES:
Consisting of additional questions & answers Asked by our staff during re-. view fo the Turkey Point ECCS analysis.....

(1 cy. Encl. Rec'd

ACKNOWLEDGED
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PLANT NAME: Turkey Point 3 & 4

FOR ACTION/INFORMATION — LTR 5-23--75

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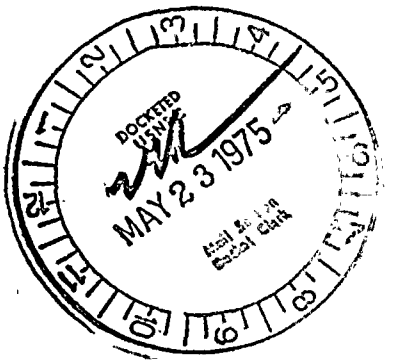
Regulatory File

FLORIDA POWER & LIGHT COMPANY

May 21, 1975
L-75-247



Mr. Benard C. Rusche, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Rusche:

Re: Turkey Point Plant Units 3 & 4
Docket Nos. 50-250 & 50-251
ECCS Analysis

Enclosed are answers to additional questions asked by your staff during the review of the Turkey Point ECCS analysis during the week of May 12, 1975.

We request that the revised Technical Specifications for Unit 3 be made effective June 7, 1975, so that they can be implemented in an orderly manner.

Yours very truly,

Robert E. Uhrig

Robert E. Uhrig
Vice President

REU:GEL:nch
Enclosure

cc: Mr. Norman C. Moseley
Jack R. Newman, Esquire

5680

HELPING BUILD FLORIDA

MAY 16, 1975
TURKEY POINT UNITS 3 & 4
DOCKET 50-250 & 50-251

1. Q. How will long term core cooling be maintained in the event of a single passive failure occurring in a) the single header feeding the three high head injection cold legs, b) the single header feeding the high head injection to the hot legs, or c) the single line from the RHR pump suction feeding the suction of the high head safety injection pumps.

A. The exact conditions which should be considered in evaluating a fluid system for passive failure are still under development as is stated in 10 CFR 50 (Appendix A Definitions and Explanations, footnote 2).

The original design of Turkey Point considered that during the long term (beyond 24 hours from the time of the accident) post accident recirculation period a passive failure could occur and result in leakage from the recirculation loop.

Such leakage would not result in a loss of the system core cooling capability because the leakage would be small compared to the system flow rate. That is to say that the margin between the system flow capability and the required flow for satisfactory core cooling is much greater than the maximum leakage considered.

However, the low head recirculation system has two separate redundant flow paths should it be desired to isolate one of the flowpaths because of the postulated leakage.

While the RCS will be depressurized 20 hours after the accident and core cooling can satisfactorily be maintained by the low head safety injection system injection into the RCS, to prevent the postulated boric acid concentration in the reactor vessel the use of hot leg injection via the high head safety injection system will be utilized at time 20 hours. If leakage develops in the single high head injection header, operation could be continued as required since as stated previously, the leakage would not significantly detract from the flow.

For the hypothetical case where the line is broken, and flow to the hot legs via the high head injection path is lost, hot leg flow can be restored via the low head safety injection system. The low head hot leg injection flow path is to loop "C" via the normal RHR cooldown piping (RHR suction piping containing MOV's 750 and 751). Using this flow path about 200 gpm can be pumped to the RCS hot leg.

The operating procedure will be modified to incorporate use of this flow path and is discussed separately in item No.4.

2. Q. What assurance can be provided that MOV's 866A and 866B and MOV's 750 and 751 can be operated in the post LOCA environment?

A. Extensive testing was conducted by the NSSS supplier to prove valve operability in the post LOCA environment. The testing subjected the valve to conditions more severe than those expected to exist after the hypothetical LOCA.

However, the testing was aimed to prove operability over the short term (less than 12 hours) rather than operation after a prolonged period of time. Based on these tests, it is estimated that the valves would operate at time 24 hours, but there is less than the normally desired margin for items of a safety related nature.

In view of the above, we will proceed on a conservative basis and revise our operating procedure to require operation of these valves at time 2 hours after the accident. To prohibit flow to the hot legs when these valves are opened, the flow paths will be blocked by advance closing of valves outside the containment. (See item No. 4 Procedure Revisions.)

3. Q. What assurance do you have that motor operated valves 744A and B will operate in the post LOCA environment?

A. Motor operated valves 744A and B have operators which have been converted to class "H" operators which are specifically designed to operate after long term exposure to the post LOCA environment. A motor operator of similar design was subjected to severe environmental tests conducted under the direction of the valve operator manufacturer and the NSSS supplier. These tests were aimed at proving satisfactory operation over the long term.

The test subjected the valve to a pressure transient (using saturated steam) as shown in figure 3 which is attached.

The temperature transient corresponds to the saturated steam temperature at the given pressure. The conservatively calculated envelope of containment pressure transients following a LOCA are shown on figure 3 to demonstrate the conservatism in the test.

4. Q. What revisions must be made to the operating procedure?

A. See Outline below.

Outline of Revisions to be Made to LOCA Emergency Procedure

A. During the valve lineup for switchover to post LOCA recirculation close valves 752A and 752B. (Individual RHR Pump Suction Isolation Valves.)

B. At time not greater than 2 hours after the accident, perform the following valve operations.

a) Shut MOV-869. (Highhead hot leg injection header isolation valve located outside the reactor containment.) Verify its position by a local visual check.

b) Unlock the circuit breakers for MOV 866A and 866B, restore power to the valves and open MOV's 866A and 866B.

c) Manually close valve 741A. (RHR miniflow line isolation.)

d) Open MOV 750 and 751. (RHR normal inlet to RHR Pumps from RCS.)

C. At time approximately 20 hours after the accident, open MOV-869 and begin high head injection to the hot legs and shut MOV's 843A and B terminating high head cold leg injection.

D. Proceed to establish injection to the cold legs using the second train of the low head injection system to establish simultaneous hot and cold leg injection. In the unlikely event that the second train of the low head injection is not available, proceed to alternately inject into the hot and cold legs using the single train of high head recirculation. The period for each mode of injection (hot leg or cold leg) should be 12 hours. Once the second train of low head injection is available, the high head injection path should be returned to the hot legs and left there as long as low head injection to the cold legs is maintained.

E. In the event that a passive failure occurs and it is desired to isolate the high head hot leg injection header, proceed to initiate hot leg injection via the low head injection system. The flow path to the hot leg is via the normal miniflow line (open manual valve 741A) to the normal RHR pump loop suction, through MOV's 750 and 751 to the RCS hot leg. During this operation, injection to the cold legs will be maintained using the high head recirculation path. While using this mode of hot leg recirculation low head injection to the cold legs must be blocked by closing MOV's 744A and B.

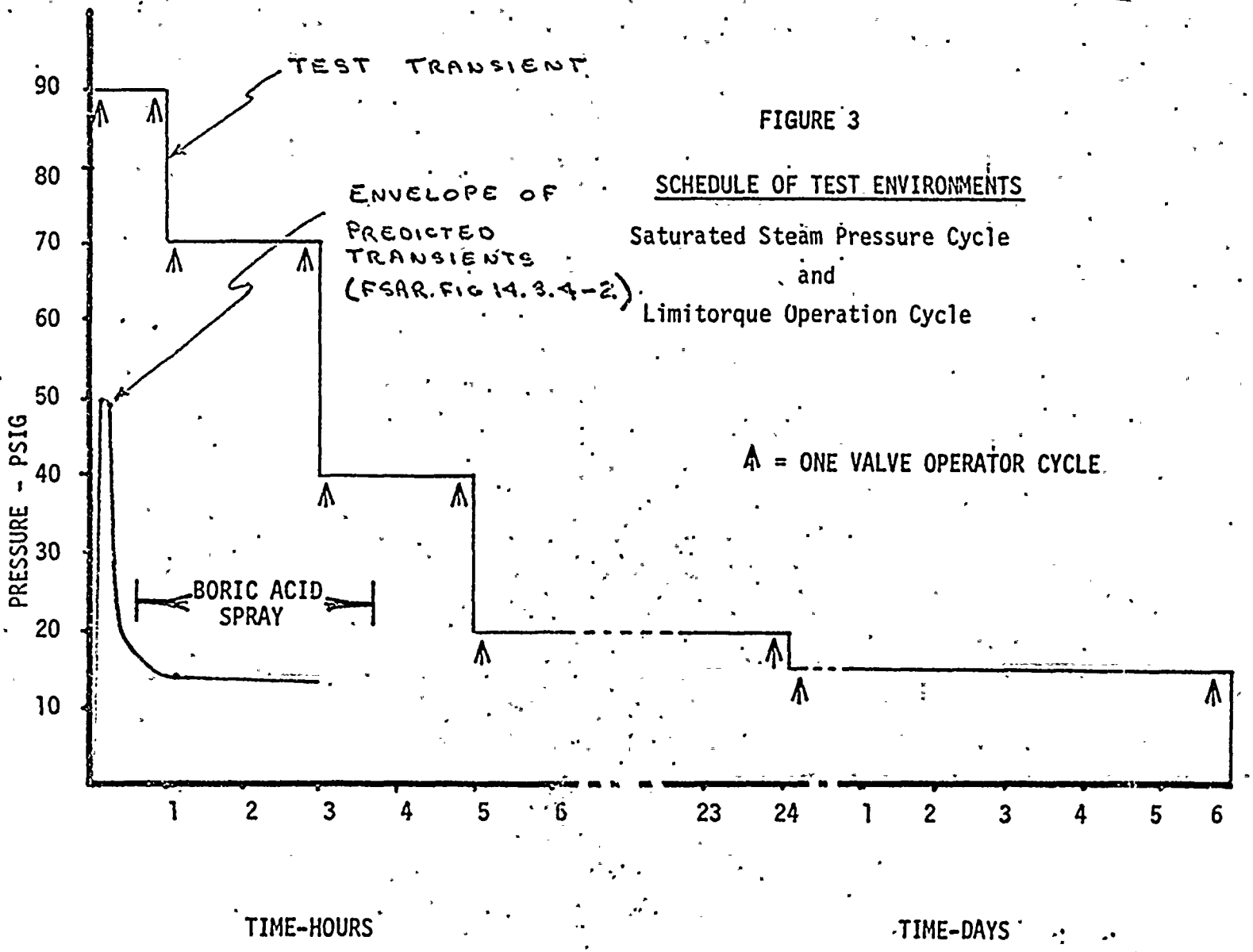


FIGURE 3

SCHEDULE OF TEST ENVIRONMENTS

Saturated Steam Pressure Cycle

and

Limitorque Operation Cycle