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TO: Mr. George Lear

FROM: FPL
Miami, Fl. 33101
Robert E. Uhrig

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DESCRIPTION

Response to NRC's ltr
dtd 09/02/77...consisting of info-
mation concerning design and/or
procedural modifications necessary at
Units 3 & 4 to preclude water hammer
in the steam generator feedwater system....

2p

PLANT NAME: TURKEY POINT UNITS 3 & 4
jcm 01/11/78

ENCLOSURE

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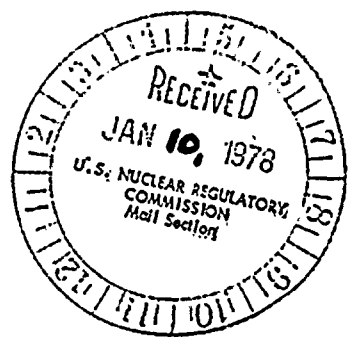
CONTROL NUMBER

780110069 msh



January 3, 1978
L-78-6

Office of Nuclear Reactor Regulation
Attention: Mr. George Lear, Chief.
Operating Reactors Branch #3
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555



Re: Turkey Point Units 3 & 4
Docket Nos. 50-250 & 50-251
Water Hammer in PWR Feedwater Systems

Dear Mr. Lear:

By letter dated September 2, 1977, you forwarded a request for information concerning design and/or procedural modifications which might be necessary at Turkey Point Units 3 and 4 to preclude water hammer in the steam generator feedwater system. The intent of the staff's request was to gain assurance that feedwater hammer will not occur under normal and transient operating conditions.

As was described in our letter of July 3, 1975 (L-75-246), FPL has already implemented design modifications at Turkey Point in an effort to eliminate the occurrence of feedwater hammer. These modifications are consistent with vendor recommendations and include the following:

- 1) The lengths of the horizontal runs of feedwater piping entering the steam generator at the level of the feedwater inlet nozzle were decreased to within the guidelines of the vendor recommendations.
- 2) Auxiliary feed flow is manually controlled with the operator routinely limiting flow rate to the minimum necessary to meet operating requirements.

Additionally, automatic initiation logic is provided for starting the auxiliary feedwater system upon a signal(s) indicating a loss of normal feedwater.

Since the modifications were implemented (1974), the operating experience of both units has demonstrated that the effects of water hammer have indeed been eliminated or at least reduced. This is evident from the fact that no indications of water hammer damage have been observed during the period from 1974 to 1977. Therefore, we do not believe that further modifications are

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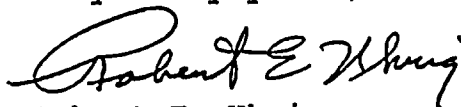
Mr. George Lear, Chief
U. S. Nuclear Regulatory Commission

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required to prevent equipment damage from feedwater hammer.

One conclusion of the report (NUREG-0291, An Evaluation of PWR Steam Generator Water Hammer, Final Technical Report, June 1, 1976-December 31, 1976), which was commissioned by the USNRC and was prepared by CREARE, Inc., is that "the most immediate means available to reduce the frequency and severity of steam generator water hammer is for operating reactors to upgrade their system within the framework of the present PWR vendor recommendations." As was described above, FPL has been responsive to this conclusion with past action.

Very truly yours,



Robert E. Uhrig
Vice President

WAK:dt

cc: Mr James P. O'Reilly, Region II
Robert Lowenstein, Esq.

