TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

December 1, 1983

U.S. Nuclear Regulatory Commission A10 : 43
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - IE BULLETIN 79-13, REVISION 2, INSPECTION REQUIREMENTS - REQUEST FOR RELIEF

In response to your October 17, 1979 letter, which transmitted OIE Bulletin 79-13 (Revision 2), we are enclosing our technical justification for requesting relief from the inspection requirements in IE Bulletin 79-13, revision 2. A decision will be needed from NRC by January 9, 1984 to prevent a delay in fuel loading if the inspection requirements in the bulletin have to be performed. The fuel load date for Watts Bar Nuclear Plant unit 1 is April 1984.

If you have any questions, please get in touch with R. H. Shell at FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills by RHS

L. M. Mills, Manager
Nuclear Licensing

Enclosure
cc (Enclosure):
Mr. Richard C. DeYoung, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Records Center
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

ENCLOSURE

TVA REQUEST FOR RELIEF FROM
EXAMINING THE FEEDWATER AND
AUXILIARY FEEDWATER PIPING

TVA requests relief from the requirements of IE Bulletin 79-13 for Watts Bar Nuclear Plant based on the following justifications.

The Watts Bar steam generators are designed with one 16-inch main feedwater (MFW) nozzle and one 6-inch feedwater (FW) bypass nozzle. The auxiliary feedwater (AFW) does not tie into the steam generator directly but ties into the 6-inch FW bypass line (see attached sketch for configuration). The FW bypass line is used to approximately 30 percent of rated flow with the MFW line isolated by the MFW isolation valve. During operation of the FW bypass line, the section of MFW line between the steam generator and the FW bypass takeoff piping is warmed by backflow and flows through the deaerating line. This will prevent the MFW nozzle from being subject to cold water injection when the MFW valve is opened. The AFW which is not prewarmed will only be used during abnormal conditions and no intermittent cold AFW injection is utilized.

The Westinghouse Owners Group's efforts which are documented in WCAP-9693, Investigation of Feedwater Line Cracking in Pressurized Water Reactor Plants, dated June 1980 provided information to substantiate that the feedwater pipe cracks are fatigue failures which are caused by thermal stratification and thermal striping during low-flow cold feedwater injections. The effects of thermal stratification and striping are enhanced by temperature difference between cold feedwater and hot steam generators.

The MFW 16-inch nozzle will not have thermal stratification and thermal striping problems because the nozzle will not be used until approximately 20-percent flow and the section of line from the MFW nozzle and MFW valve will be prewarmed. The 6-inch FW bypass nozzle will not have thermal striping problems because the FW is prewarmed and the cold AFW is injected only during abnormal conditions. Also, thermal stratification in the 6-inch FW bypass and AFW nozzle will not be present because the low flow rate will completely wash the 6-inch pipe. The above rationale is taken from WCAP-9693.

In addition, TVA believes that IE Bulletin 79-13 does not pertain to Watts Bar because:

Item 2.a of the bulletin is for steam generators with a common nozzle for both the main and auxiliary feedwater systems. Watts Bar does not have this configuration, but has a MFW nozzle and a FW bypass nozzle with AFW tieing into the FW bypass line.

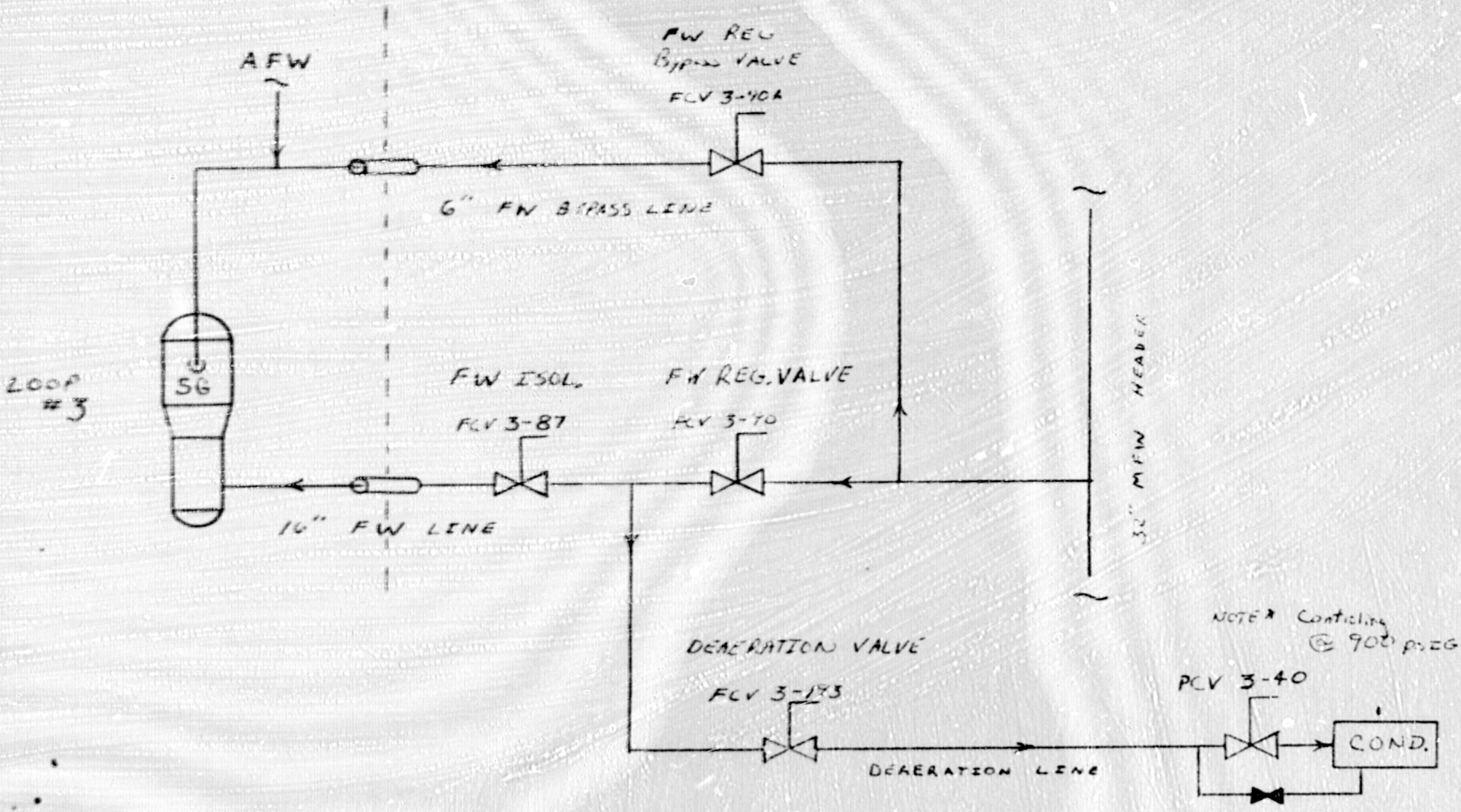
Item 2.b of the bulletin is for steam generator designs with AFW connected by separate nozzles. Watts Bar does not have a separate nozzle but a common nozzle for AFW and FW bypass. Also, the AFW system is used only during abnormal conditions.

Because of Watts Bar not having the configuration as stated in items 2.a and 2.b of the bulletin and that the water level within the steam generator is maintained essentially constant with prewarmed FW and intermittent cold AFW injections occur very infrequently during abnormal conditions, the requirements in items 1.a, 1.b, and 1.c of the bulletin should not be required following hot functional testing or during in-service. Also, the FW and AFW welds had a radiographic examination of 2T penetrameter sensitivity level performed during construction by TVA.

TVA requests relief from examining the feedwater and auxiliary feedwater piping in accordance with IE Bulletin 79-13. TVA will perform the examinations as required by ASME Section XI.

Based on the above justification, TVA concludes that the subject request for relief does not affect the safe operation of the unit.

Alternate Inspection: TVA will still perform the examination requirements of ASME Section XI.


AFW
FW REG
Bypass VALVE
FCV 3-40A
6" FW BYPASS LINE
LOOP #3
SG
FW ISOL.
FCV 3-87
FW REG. VALVE
FCV 3-70
16" FW LINE
30" MFW HEADER
NOTE* Controlling @ 900 psig
DEAERATION VALVE
FCV 3-193
PCV 3-40
COND.
DEAERATION LINE