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FPL
FLORIDA POWER & LIGHT COMPANY

September 18, 1979
L-79-259

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USNRC REGION II
ATLANTA, GEORGIA

Mr. James P. O'Reilly, Director, Region II
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

Re: RII:JPO
50-250, 50-251
IE Bulletin 79-21

Florida Power & Light Company has reviewed the subject Bulletin and a response is attached.

Very truly yours,

Robert E. Uhrig

Robert E. Uhrig
Vice President
Advanced Systems & Technology

REU/DKJ/ms

Attachment

cc: Director, Office of Inspection and Enforcement
Robert Lowenstein, Esquire

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ATTACHMENT
RESPONSE TO IEB 79-21

1. The liquid level measuring systems within containment have been reviewed to determine those systems used to initiate safety action or to provide post-accident monitoring information. The following liquid level measuring systems meet the stated criteria:

   a. Steam generator narrow range water level
   b. Steam generator wide range water level
   c. Pressurizer narrow range water level

   Descriptions of these systems are provided:

   Steam Generator Narrow Range Water Level

   Three differential pressure detectors per steam generator. These have reference legs from the upper tap of the steam generator (S/G) through a condensing pot (open column type). These three channels, per S/G, supply signals for protection and indication including Hi-Hi LVL Trip (80%) - a signal for turbine trip and feedwater isolation, Lo-Lo LVL Rx Trip (15%) and a signal to the Feedwater/Steam Flow mismatch in conjuction with low S/G level (30%) trip circuitry. In addition, one of these channels is used to regulate the S/G level control circuitry.

   Steam Generator Wide Range Water Level

   One differential transmitter per S/G used for wide range level indication during shutdown condition. These also have attached reference legs with condensing pots (open column type).

   Pressurizer Narrow Range Water Level

   Three differential pressure detectors supply protection and control signals. These electronic transmitters are installed with sealed reference legs. These signals feed reactor trip signal on high (92%) level and give alarms (±5%) for deviation from programmed level.

2. The sources of potential error (on indicated water level) considered are:

   a. Reference leg heatup
   b. Reference leg boiling
   c. Coolant density changes (pressure induced).

   a. Steam generator reference leg heatup has been previously addressed in our submittal letter L-79-217, August 9, 1979. The maximum containment temperature for any accident at the Turkey Point Units remains below 280°F (FSAR), hence the Technical Specification on steam generator low-low

level trip was raised by 10% (i.e., the correction factor associated with 280°F containment temperature, see response to item 3). The tables of steam generator corrections have been previously supplied to the NRC by Westinghouse. The attached Table 1 provides corrections for pressurizer reference leg heatup.

b. Reference leg boiling could conceivably occur following depressurization of any steam generator with high containment temperature. This combination of conditions could only occur following a steamline or feedline break inside containment. If such boiling were to occur, it could cause a major bias in the indicated level for a short period of time. Recent typical containment analyses performed using NSSS vendor's models indicate that reference leg boiling would not occur.

c. Coolant density changes - A bias in indicated water level may also be introduced by changes in steam generator and pressurizer pressure due to changes in the densities of the saturated water and steam in the respective vessels. The attached Figures 1 and 2 quantify the effects of pressure changes on steam generator and pressurizer level indications.

3. The only setpoint derived from a level signal, and initiating action required by plant safety analyses, is the steam generator narrow range water level trip. The actions initiated are reactor trip and auxiliary feedwater initiation. The plant safety analyses require that the trip be actuated when the actual water level is at or above 0% of span. The Turkey Point units' Technical Specifications require the steam generator low-low level trip to be at or above 5%. However, the plant operating setpoint was at 15%. Upon notification by the NSSS vendor of the reference leg heatup problem, FPL submitted a Tech Spec change raising the low-low level trip setpoint requirement from 5% to 15%. The 10% addition compensates for the maximum reference leg heatup which can be expected at Turkey Point. Both Turkey Point Units 3 and 4 presently have level trip setpoints at 15% of span.

Note: There is a reactor trip derived from high pressurizer water level; however, the safety analyses for high energy line ruptures inside containment do not take credit for this trip function. Hence, it is not necessary to revise the trip setpoint to include environmental effects.

4. Emergency procedures are being reviewed to determine if revisions are appropriate based upon information resulting from the evaluations of Items 1, 2, and 3. If revisions to

procedures are required, they will be completed by October 31, 1979, and operator training on the revisions, including usage of appropriate correction factors, will be completed by November 30, 1979.

TABLE 1

Typical Corrections to Indicated Pressurizer Water Level for Reference Leg Heatup

Containment Temp (°F)	Correction to Pressurizer Level (% of Span)
90°	0
200°	7
280°	15

Basis: Level calibration pressure = 2500 psia
Reference leg calibration temperature = 90°F
Height of reference leg = 1.1 x level span

Figure 4 - Bias Due to Steam Generator Pressure Change

Basis: Height of Reference Leg = 1.1 x Level Span
Calibration at 90°F, 1000 psia

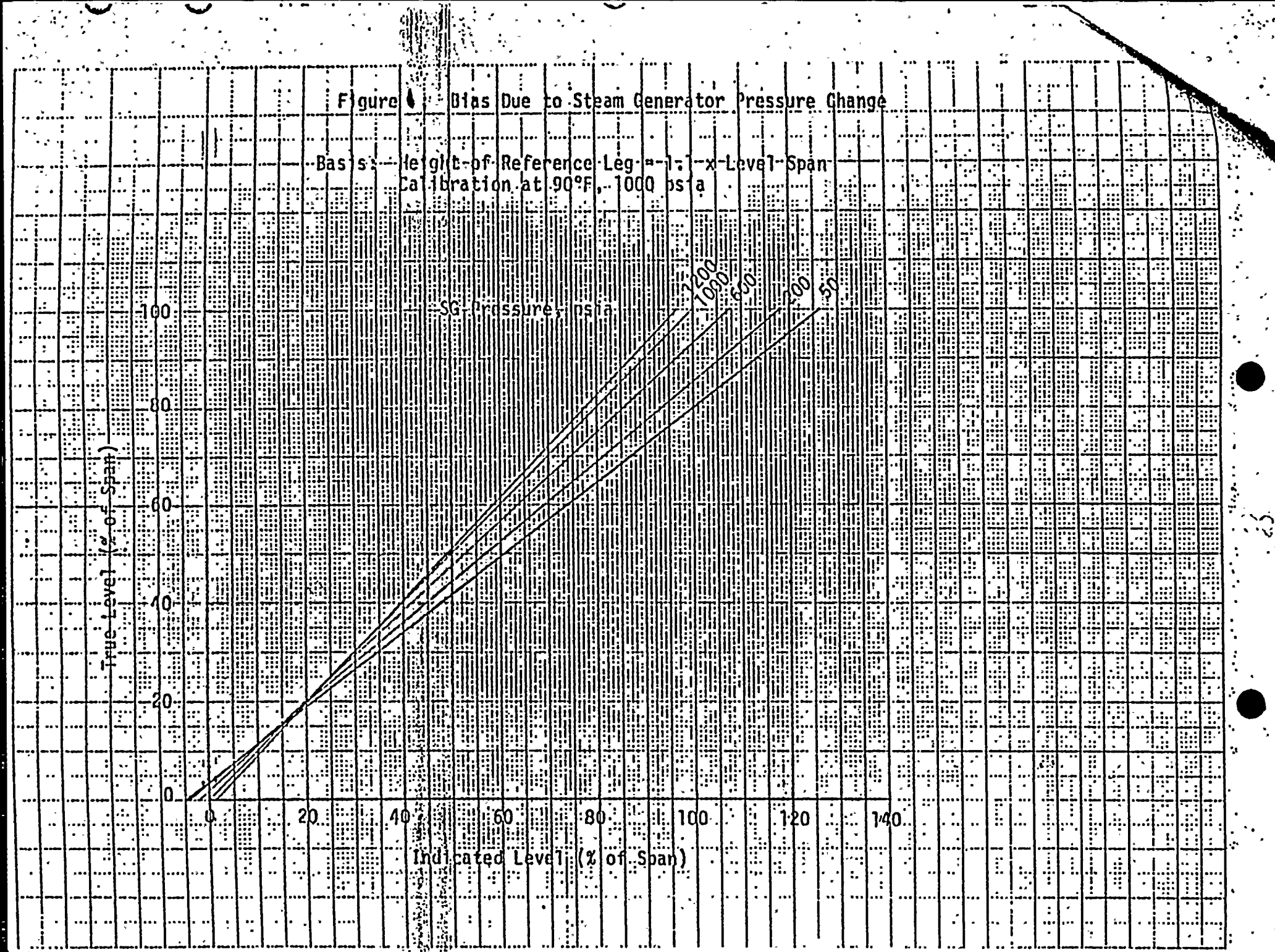

Figure 2: Bias Due to Pressurizer Pressure Change

Basis: Height of Reference Leg = 1.1 x Level Span
Calibration at 90°F, 2250 psia