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AUTH.NAME AUTHOR AFFILIATION
HOVEY,R.J. Florida Power & Light Co.
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SUBJECT: Provides response to RAI re IST.

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JUL 22 1996

L-96-156
10 CFR 50.55a

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

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Response to Request for Additional
Information - Inservice Testing Program

By letter L-95-277, dated October 26, 1995, Florida Power and Light Company (FPL) submitted revision 1 of the Third Ten Year Inservice Testing (IST) Program for Turkey Point Units 3 and 4. Revision 1 of the IST Program requested review and approval of revised Relief Requests PR-4 and PR-5. The attachment to this letter provides the response to the request for additional information regarding Relief Requests PR-4 and PR-5, as requested by members of the NRC staff.

Please contact us if there are any questions about this submittal.

Very truly yours,

R. J. Hovey
Vice President
Turkey Point Plant

OIH

Attachment

cc: S. D. Ebneter, Regional Administrator, Region II, USNRC
T. P. Johnson, Senior Resident Inspector, USNRC, Turkey Point Plant

A047 1/1

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

RELIEF REQUESTS PR-4 AND PR-5

RELIEF REQUEST PR-4

NRC QUESTION

What is the maximum total inaccuracy associated with the measurement of differential pressure for each of the systems covered under Relief Request PR-4 ?

FPL RESPONSE

Table 1 provides a summary of the specific uncertainties associated with obtaining differential pressure measurements for each system covered under Relief Request PR-4. The calculated uncertainty, presented in the last column of Table 1, has been verified to meet the minimum Code required accuracy for the calculation of differential pressure, which is also calculated and presented in the last column of Table 2.

Table 1

Maximum Error in Actual Measured Differential Pressure

	Installed Suct Gauge Range (PSI)	Max. Cal. Error (PSI) (Note 1)	Gauge Elev. (Inches) (Note 2)	Max. Elev. Error (PSI) (Note 3)	Installed Disch Gauge Range (PSI)	Max. Cal. Error (PSI) (Note 1)	Gauge Elev. (Inches) (Note 2)	Max. Elev. Error (PSI) (Note 3)	Max. Total Error in DP (PSI) (Note 4)
Spent Fuel Pit Pumps	30	0.6	24	0.87	160	3.2	23	0.83	3.47
High Head Safety Injection	30	0.6	15	0.54	2000	40	17	0.61	40.0
Component Cooling Water	30	0.6	24	0.87	150	3	24	0.87	3.30
Boric Acid Transfer	10	0.2	0	0.00	160	3.2	18	0.65	3.27

Note 1: The maximum calibration error is the full scale range of the associated gauge multiplied by the required accuracy. For all gauges listed, 2% accuracy is assumed.

Note 2: The gauge elevation is the measured vertical distance of the referenced gauge above the associated piping.

Note 3: The maximum elevation error in pounds per square inch is calculated by multiplying the associated gauge elevation, in inches, by .0361.

Note 4: The maximum total error in measured differential pressure is calculated by taking the square root of the sum of the squares of the associated suction, discharge and elevation errors as listed in Table 1. This methodology for calculation of error is in accordance with the definition of instrument accuracy provided in Section 1.3 of OM Part 6.

Table 2

Maximum Code Allowable Error in Measured Differential Pressure

	Measured Suction Pressure (PSI)	Max. Error Allowed (PSI) (Note 1)	Measured Discharge Pressure (PSI)	Max. Error Allowed (PSI) (Note 1)	Max. Total Error in DP (PSI) (Note 2)
Spent Fuel Pit Pumps	10	0.6	63	3.78	3.83
High Head Safety Injection	18	1.08	1200	72	72.01
Component Cooling Water	18	1.08	95	5.7	5.80
Boric Acid Transfer	5	0.3	110	6.6	6.61

Note 1: The Code allowable maximum error is calculated by taking 2 percent of the measured suction or discharge value multiplied by 3. This represents the gauge range requirements specified in subsection 4.6.1.2(a) combined with the accuracy requirements specified in Table 1 of OM Part 6.

Note 2: The maximum total Code allowable error in differential pressure is calculated by taking the square root of the sum of the squares of the associated suction, discharge and elevation errors listed in Table 2. This methodology for calculation of error is in accordance with the definition of instrument accuracy provided in Section 1.3 of OM Part 6.

RELIEF REQUEST PR-5

NRC QUESTION

Why is it acceptable to limit the lower frequency response of the vibration program to 7 Hertz?

FPL RESPONSE

Relief Request PR-5 is specific to the Intake Cooling Water Pumps. These pumps are 900 RPM vertical line shaft pumps with ball bearing motor bearings. As required by ASME/ANSI Code, Operation and Maintenance of Nuclear Power Plants (OM), Part 6, vibration measurements are obtained on the upper motor bearing housing. Low frequency vibration response is required to detect oil whirl in sleeve bearings. Because of the motor's ball bearing construction, ball bearing problems occur at very high frequencies, therefore, the need to detect frequencies lower than one half the running speed is minimized.

NRC QUESTION

If "state of the art" equipment is being utilized at Turkey Point Nuclear, why is 7 Hertz the lowest detectable frequency?

FPL RESPONSE

Turkey Point Nuclear presently has two vibration programs in place. The first vibration program is designed to meet the code requirements of the Inservice Testing (IST) program and the second vibration program is designed in support of the predictive maintenance program. The predictive maintenance program requires the collection of filtered vibration spectral data, while the IST program requires the collection of unfiltered peak values. Currently, different vibrometers and personnel specifically trained in the particular application are utilized to implement these two programs. Turkey Point has procured new state of the art vibrometers that are easy to operate and which can be used for both applications. The vibrometers can be programmed to store spectral data for components in the predictive maintenance program. In the programmed mode, the selectable input filters can measure frequencies as low as 0.2 Hertz and retain one month's worth of spectral data prior to being down loaded into a host computer. To satisfy the IST vibration program the test technician requires unfiltered peak values to be displayed at the time of the test. To obtain this data using the new vibrometers, the vibrometers must be used in the "off route" mode. The "off route" feature runs a factory set default program intended to provide the operator with quick information on non-programmed equipment. When "off route" is evoked the collector displays each overall vibration amplitude on an LED readout. The "off route" mode uses a factory set default program which does not allow changes to any of the measuring parameters. The default frequency range while in the "off-route" mode is between 7 Hertz and 10,000 Hertz.