

LOUISIANA
POWER & LIGHT

142 DELARONDE STREET
P O BOX 6008 • NEW ORLEANS, LOUISIANA 70174 • (504) 366-2345

June 8, 1983

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Q-3-N77
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Director of Nuclear Reactor Regulation
ATTENTION: Mr. G. W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

SUBJECT: Waterford SES Unit No. 3
Docket No. 50-382
Summary of Preoperational Piping
Thermal Expansion Testing

REFERENCE: SER Confirmatory Issue 3.9.2

Dear Mr. Knighton:

Section 3.9.2.1 of the Safety Evaluation Report states that, "Piping vibration, thermal expansion, and dynamic effects testing will be conducted during the Waterford 3 plant's preoperational and startup testing program. The purpose of these tests is to assure that the piping vibrations are within acceptable limits and that the piping system can expand thermally in a manner consistent with the design intent."

In accordance with this requirement Louisiana Power & Light Co. conducted testing to verify, by observation or measurement, that piping and component thermal expansions were free, unrestrained, and within design limits. The information that follows is based on the preoperational phase of the Waterford 3 startup testing program.

Additionally, vibration monitoring and piping thermal expansion testing will be conducted during post-core hot functional and power ascension testing. Results of those phases will be submitted after the completion of the startup testing program in accordance with USNRC Regulatory Guide 1.68 Rev 2.

Test Method

Thermal expansion testing of piping systems was performed in accordance with LP&L procedure SPO-99P-002, "Thermal Expansion Testing". Rigid restraints and building structural steel were used to measure movement at various locations by establishing benchmarks on the restraint or pipe.

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Spring hangers and snubbers were used to measure pipe movement independent of the built-in scales provided. Variable springs were measured from the bottom of the moving spring plate to the underside of the top plate on the rigid can assembly. Snubber measurements were taken from a lip on the snubber fixed section to a lip on the moving barrel assembly. Carpenter squares, plumb bobs and steel rulers were used for the measurements. Pipe temperatures were measured using hand-held digital pyrometers and thermocouple probes.

Results

Acceptance criteria for thermal expansion measurements was 20% of the design prediction or $\frac{1}{4}$ " whichever was greater. Thermal expansions measured during testing were within acceptance criteria except as follows:

- a) Hydraulic transients were experienced in the Main Steam and Blowdown Systems impacting baseline data measurements for these systems.
- b) Clearances between piping and restraints at several locations did not allow adequate thermal expansion. Temporary corrective measures were implemented for inadequate clearances prior to continuation of heatup and preoperational testing.

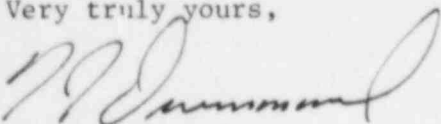
Deficiencies identified are documented in the procedure (SPO-99P-02) Test Deficiency Record. Permanent corrective measures are being implemented for piping with inadequate thermal expansions and measurements will be obtained during post-core hot functional or power ascension testing to assure the adequacy of the corrective actions.

Conclusion

The preoperational phase of results of the Thermal Expansion Testing program demonstrate that piping and component expansions are acceptable except for the deviations noted above and satisfy the requirements of Appendix A Section 1.e, "Power Conversion Systems", of USNRC Regulatory Guide 1.68 Rev. 2, "Initial Test Programs for Water-Cooled Nuclear Power Plants".

If you require additional information or wish to discuss this matter further, please advise.

Very truly yours,



F. J. Drummond
Project Support Manager - Nuclear

FJD/RWP/WAC:keh

cc: E. L. Blake, W. M. Stevenson, J. Wilson (NRC), J. T. Collins