

The Light company

Houston Lighting & Power

South Texas Project Electric Generating Station P. O. Box 289 Wadsworth, Texas 77483

ST-HL-AE-4827
File No. G03.08
10CFR50.54(f)
June 28, 1994

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

South Texas Electric Generating Station
Units 1 & 2

Docket Nos. STN 50-498, STN 50-499

Response to Generic Letter 89-10

"Safety-Related Motor-Operated Valve Testing and Surveillance"

The South Texas Project has directed substantial resources to meet an aggressive schedule for implementation of Generic Letter No. 89-10 "Safety-Related Motor-Operated Valve Testing and Surveillance" since it was issued five years ago. The primary goal has been to ensure that motor-operated valves are designed and maintained to support design basis operation for the life of the plant. This letter provides formal notification of completion of the requirements of Generic Letter (GL) 89-10, pursuant to item "m" of the Generic Letter.

Attachment 1 provides a summary level discussion of the South Texas Project GL 89-10 Motor-Operated Valve Program. It describes the Program scope, design basis review effort, testing, tracking and trending, periodic test program and program overviews.

South Texas Project is an active participant in Industry Motor Operated Valve Groups and has actively responded to emerging issues as technology and requirements have evolved. Additionally, this letter marks the completion of the baseline effort and the beginning of long-term maintenance of the enhanced level of Motor Operated Valve performance which resulted from the Generic Letter Program.

The Motor Operated Valve Program has been subject to numerous Nuclear Regulatory Commission and internal audits and self-assessments over the life of the program. These oversight activities have provided valuable input that was incorporated into the Motor Operated Valve Program. The South Texas Project, therefore, has confidence that the requirements of the Generic Letter have been appropriately addressed and implemented.

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Project Manager on Behalf of the Participants in the South Texas Project

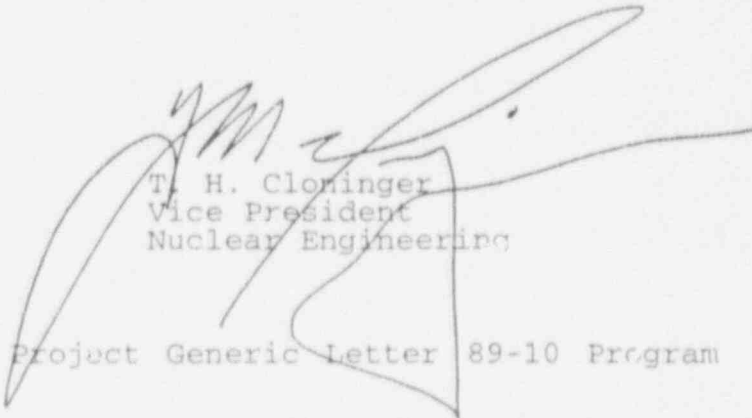
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If you have any questions, please contact Mr. Scott Head at (512) 972-7136 or myself at (512) 972-8787.



T. H. Cloninger
Vice President
Nuclear Engineering

CJS/km

Attachment: South Texas Project Generic Letter 89-10 Program
Summary

Houston Lighting & Power Company
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

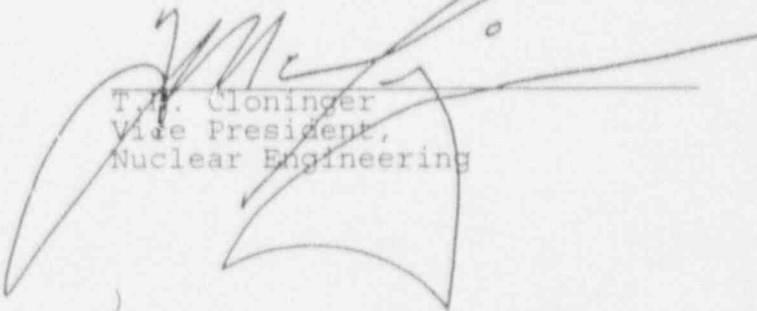
Houston Lighting & Power
Company, et al.,

South Texas Project
Units 1 and 2

Docket Nos. 50-498
50-499

AFFIDAVIT

I, T. H. Cloninger, being duly sworn, hereby depose and say that I am Vice President, Nuclear Engineering, of Houston Lighting & Power Company; that I am duly authorized to sign and file with the Nuclear Regulatory Commission the attached response to NRC Generic Letter 89-10 "Safety-Related Motor Operated Valve Testing and Surveillance"; that I am familiar with the content thereof; and that the matters set forth therein are true and correct to the best of my knowledge and belief.


T. H. Cloninger
Vice President,
Nuclear Engineering

STATE OF TEXAS

COUNTY OF MATAGORDA

Subscribed and sworn to before me, a Notary Public in and for the State of Texas, this 28th day of June, 1994.




Notary Public in and for the
State of Texas

South Texas Project Generic Letter 89-10 PROGRAM SUMMARY

PROGRAM SCOPE

The purpose of this document is to describe the South Texas Project Motor-Operated Valve Program which addresses Generic Letter (GL) 89-10 "Safety Related Motor-Operated Valve Testing and Surveillance". It outlines actions taken to comply with the GL 89-10 and its supplements, and how the Program requirements will be maintained.

Motor-operated valves have been a source of concern in the nuclear industry for several years. These concerns led to regulatory requirements for licensees to implement a comprehensive Motor Operated Valve Program to ensure valve operability for design basis conditions. The objective of the Program has been to ensure that Motor Operated Valves were designed and maintained in such a manner that they will perform their design basis function for the life of the plant.

The South Texas Project has responded aggressively to GL 89-10 since it was issued in June 1989. The Program has changed with the industry as technology has evolved. The primary benefit has been improved motor-operated valve performance. No extensions are needed and none were requested as provided for in Supplement 6 to GL 89-10.

Station Procedure OPGP03-ZE-0037 Generic Letter 89-10 Motor-Operated Valve Program describes the South Texas Project Motor Operated Valve Program. It provides a systematic approach and auditable program plan for addressing and resolving issues and concerns identified in GL 89-10. In addition, it defines interdepartmental responsibilities for implementation of the Program. Engineering and maintenance procedures provide detailed instruction for program implementation.

A review of the South Texas Project motor-operated valves was performed to define the scope of the Program. This review found 302 valves equally divided between the two units. Valves selected were safety-related or position-changeable as defined in the Generic Letter and Supplement 1. OPGP03-ZE-0037 Addendum 1 contains the list of valves in the Program. Valves in the scope of the program are of various size, type, and manufacture. All actuators were manufactured by Limitorque Corporation.

DESIGN BASIS REVIEW

A system-level design review, that defined functional requirements and the design basis for Motor Operated Valve operation, was performed for each valve in the program. This review included considerations for both normal and off-normal operation and for design basis events. From this review the worst-case postulated operating scenario was identified for each valve and the maximum expected differential pressure for operation in this condition determined. The maximum expected differential pressure was used in the analytical determination of the required stem thrust and actuator torque.

A component-level design review was performed for each valve at its worst-case operating condition. This review consisted of the following elements:

- Maximum Allowable Thrust/Torque
- Maximum Available Thrust/Torque
- Minimum Required Thrust/Torque

A functional assessment of minimum required values vs maximum allowable and maximum available values was performed to verify the actuator would not be required to operate outside its design limits. This review considered control switch and test equipment error consistent with Supplement 5 of GL 89-10. In addition, if the operator was required to operate at degraded voltage conditions, the maximum thrust/torque available at the degraded voltage condition was calculated consistent with item "e" of GL 89-10. Design requirements are documented in the Design Basis Review for each valve.

TESTING

Diagnostic testing was performed for each valve in the Program. This testing was conducted to establish switch settings and to confirm the ability of the valve to operate under its design basis condition. Testing was performed using the MOVATS 3000 and 3500 test equipment. Where possible, Teledyne direct mounted stem strain gauges were installed to provide direct measurement of actuator thrust/torque. Test equipment errors were accounted for utilizing guidelines contained in MOVATS, Teledyne, and Limitorque Engineering Reports and were consistent with the GL 89-10 Supplement 5.

Diagnostic testing under static conditions was performed for each valve in the Program. This verified valve operability under "no pressure" or "no flow" conditions and established a static baseline.

Diagnostic testing under dynamic conditions was performed for each valve in the Program, unless plant conditions or system design limitations precluded such testing or sufficient dynamic testing had been performed on a specific type of valve. This approach is consistent with items "c" and "f" of GL 89-10 and Supplement 6. Test results from valves tested at maximum expected differential pressure conditions were reconciled with design calculations to confirm acceptability. Resolution of test results are documented in the Design Basis Review for each valve.

TRACKING AND TRENDING

The Motor Operated Valve tracking and trending program evaluates valve performance and ensures appropriate corrective action is implemented for valve failures. A database containing test data and work history has been established and is reviewed periodically to identify trends that could lead to degraded valve performance. This trend capability is consistent with item "h" of GL 89-10.

PERIODIC TEST PROGRAM

The purpose of the periodic test program is to verify valve performance on a periodic basis. Diagnostic testing under static conditions will be the basis for confirming valve performance. The test intervals are consistent with items "d" and "j" of GL 89-10.

PROGRAM OVERVIEWS

The GL 89-10 Program has been subject to numerous audits and self-assessments over the life of the Program. The most recent self-assessment was conducted in January 1994.

Nuclear Regulatory Commission Motor Operated Valve Phase I and Phase II Inspections have been completed and all Inspector Followup Items have been closed except two. These issues relate to the potential for pressure locking/thermal binding and the methodology of extrapolation of test results.