

The Light company

Houston Lighting & Power P.O. Box 1700 Houston, Texas 77001 (713) 228-9211

November 29, 1983

ST-HL-AE-1027

File No: D27/G25

Mr Darrell G Eisenhut, Director
Division Of Licensing
Office Of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SOUTH TEXAS PROJECT
DOCKET NOS. STN-50-498; STN-50-499
ENGINEERING ASSURANCE PROGRAM

Dear Mr Eisenhut:

This letter confirms our discussions with members of the NRC staff on September 17, 1983, and responds to your letter of October 21, 1983, which commented favorably on the Houston Lighting & Power Company (HL&P) Engineering Assurance Program and indicated that it would be appropriate to submit documentation describing our program for formal NRC review and approval.

Enclosed for your review are various documents (Attachments 1-3) describing our Engineering Assurance Program and its implementation. Also enclosed are the reports of the first two Engineering Assurance reviews (Attachments 4 and 5). Particularly in light of the complete review of the design of the South Texas Project that was performed by Bechtel when it assumed responsibility as Architect/Engineer, we believe that the ongoing HL&P Engineering Assurance Program can serve as the additional verification program which the NRC has found useful as a prerequisite to issuing an operating license to NTOL applicants. We would appreciate receiving NRC endorsement of the Program as fulfilling that objective.

With regard to providing NRC reports of the individual engineering assurance reviews, these reports are routinely forwarded to the NRC Resident Inspector at the South Texas Project site immediately upon issuance by HL&P, and to date we have issued the two reports enclosed with this letter. We intend to continue the practice of promptly sharing this information with the NRC.

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Houston Lighting & Power Company

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Included as attachments are: (1) HL&P Engineering Program Description; (2) The HL&P/Stone & Webster Engineering Corporation letter agreement which establishes the conditions to ensure Stone & Webster's "independent" role in the program and provide for the full disclosure of findings resulting from their participation in engineering assurance reviews; (3) the HL&P Nuclear Engineering & Construction Policy No. 201, Engineering Assurance Program; (4) Report of Independent Technical Assessment 83-1, Soil Structure Interaction Analysis and Seismic Design, along with the STP responses and the Engineering Assurance final evaluation; and (5) Report of Design Process Review 83-2, RHR/Safety-Injection System along with the STP responses and the Engineering Assurance evaluation of corrective actions taken to date.

We would appreciate your early advice as to the acceptability of our program. Should you have any questions or additional comments, please forward them to the undersigned or phone me at (713) 486-3828.

Very truly yours,



J H Goldberg, Vice-President
Nuclear Engineering and
Construction Department

MRW/aks

Attachments (5)

cc: J. T. Collins (NRC)
A. Vietti (NRC)
D. P. Tomlinson (NRC)
M. D. Schwarz (Baker & Botts)
J. R. Newman (Lowenstein, Newman, Reis, & Axelrad)
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Introduction

Houston Lighting & Power Company (HL&P) has established its engineering assurance program to provide independent technical review of the design and engineering activities for the South Texas Project. This program description summarizes the main features of the program.

Purpose

The purpose of the engineering assurance program is to provide increased confidence in the technical adequacy of the design and engineering work for the South Texas Project. To this end, the HL&P Engineering Assurance Department undertakes appropriate objective reviews of design and engineering work.

The reviews consist of thorough technical assessments of selected design features and processes. These assessments are in addition to the measures performed by Bechtel and others to satisfy design control and design verification requirements specified in the QA program.

Additional calculations or analyses are performed as part of an EA review when appropriate to confirm adequacy of design.

Using the "vertical slice" methodology, EA also reviews design control and design verification measures used by Bechtel to produce the design. This involves detailed technical examination of the design process for a selected portion of the plant, starting with the design input and tracing through the development of design to the output of each of the major disciplines.

Organization and Resources

Two equally important criteria were considered in setting up the Engineering Assurance Department, competence and independence.

Organizationally, the EA Department reports to the HL&P Vice President, Nuclear Engineering & Construction. The Manager, Engineering Assurance Department, is accountable to the VP, Nuclear Engineering & Construction, for establishing and implementing the engineering assurance program. It is, therefore, separate and independent from the South Texas Project organization, which also reports to the VP, Nuclear Engineering & Construction.

The Engineering Assurance Department consists of five engineering positions plus one manager. Emphasis in staffing the department has been placed on experience in nuclear plant design. Personnel performing in the Engineering Assurance role, whether they are HL&P or contract employees, must have had no prior involvement in design work for the South Texas Project.

To provide additional technical support, a contract has been established with the Stone & Webster Engineering Corporation. This assures that an adequate review staff of experienced engineers is available. The HL&P Manager, Engineering Assurance, reviews and approves proposed personnel assignments from Stone & Webster to ensure that our experience and independence criteria (see Attachment 2) are met.

The Chief Executive Officers of Bechtel (the architect-engineer for the South Texas Project) and Stone & Webster have both given their personal support to our engineering assurance program concept for the South Texas Project.

Types of Reviews

The two types of reviews performed are differentiated by who has responsibility for technical leadership. When the necessary technical expertise is present in the HL&P Engineering Assurance staff, HL&P assumes the leadership

role. Alternatively, Stone & Webster is assigned leadership responsibility when the HL&P staff does not possess the appropriate detailed expertise in a particular engineering area.

Subjects to be Reviewed

Table 1 lists the current subjects to be reviewed under this program. The list is periodically updated as necessary to feature review of significant industry and project problem areas. The following criteria were used in selecting subjects for review:

- Select areas that represent known technical problem areas in the industry.
- Select areas that represent unique project design features or areas of known or suspected HL&P and/or contractor difficulties.

Three to four subjects are reviewed each year. Scheduling of specific review areas is determined by project status. In general, the intent is to review a particular subject at a time when sufficient design information is available to permit a meaningful review, but early enough so that any problems uncovered can be corrected before completion of substantial engineering or construction. A typical review involves the expenditure of 3,000-4,000 man-hours of effort plus the supporting service costs.

Reporting Results

Results of reviews are documented in formal written reports to responsible management of HL&P and are provided to the NRC. These reports, which are approved by the Vice President, Nuclear Engineering & Construction,

include all concerns identified, an assessment of the significance of concerns, and specific recommendations for further assessment. Action items are tracked to completion and are ultimately closed out by the HL&P Engineering Assurance Department.

Table 1
Review Subjects

- soil-structure interaction analysis
- ASME III pipe stress analysis
- ASME III pipe support design
- design and analysis of pipe break restraints and jet impingement shields
- environmental qualification of equipment
- fuel handling
 - rapid
 - fuel elevators and transporters
- single failure criteria
 - separation of trains
 - Appendix R implications
- containment analysis (LOCAs and other high energy breaks)
- AC power supply (off-site)
- medium-voltage AC system
- design control and design verification
- feedback of industry experience
- feedback of manufacturers' bulletins on maintenance and modification requirements

MEMORANDUM OF UNDERSTANDING BETWEEN
HOUSTON LIGHTING & POWER COMPANY AND
STONE & WEBSTER ENGINEERING CORPORATION
REGARDING CONDUCT OF INDEPENDENT TECHNICAL REVIEWS
OF THE SOUTH TEXAS PROJECT

BACKGROUND

The South Texas Project is a two-unit (1250 MW each) Westinghouse pressurized water nuclear-powered electric generating station. The project is being designed by Bechtel Power Corporation, Constructed by Ebasco Services, Inc., and managed overall by Houston Lighting & Power Company (HL&P) acting as project manager for itself, the City of San Antonio, the City of Austin, and Central Power & Light Company. The project schedule currently projects completion dates (fuel load) of December 1986 and December 1988 for Units 1 and 2, respectively.

HL&P as project manager maintains a project staff of engineers and constructors to provide programmatic direction and oversee the activities of its contractors, Bechtel and Ebasco. Additionally, HL&P has established an Engineering Assurance Department staffed with experienced and qualified specialists to perform independent technical reviews of project engineering activities of both Bechtel and HL&P. HL&P's Engineering Assurance Department will from time to time supplement its resources from outside sources to conduct the independent technical reviews. Stone & Webster Engineering Corporation (SWEC) is one of the organizations that will participate in this endeavor. Independent technical reviews may consist of audits of design process; assessments of design, which will be under the direction of HL&P Engineering Assurance Department; or third-party design assessments, which shall be under SWEC direction. In some instances, SWEC may provide HL&P with personnel to work under HL&P Engineering Assurance Department supervision during the performance of a technical audit or technical assessment.

POLICY

The independent technical reviews shall be conducted by personnel not previously involved with the design or engineering activities of the South Texas Project.

The independent technical review teams will be staffed predominantly with engineers having prior proven records of related industry experience who are able to provide an objective, dispassionate technical review and make judgements on the basis of technical merit.

When selecting any SWEC individual for the independent technical review, the following shall be considered:

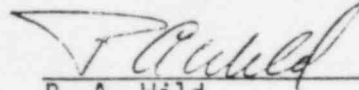
- 1) The individual shall not have participated in design or engineering activity for the South Texas Project.
- 2) The individual shall not control or own a significant amount of Houston Industries stock.

- 3) The individual shall not have a relative employed by Houston Industries in a senior management capacity or other position that could lead to a direct conflict of interest.

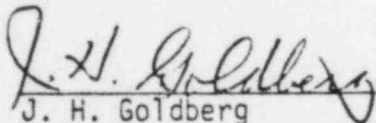
SWEC's obligation to fulfill this requirement shall be considered satisfied by its obtaining signed statement, in the format of the attachment, from each individual assigned to independent technical review.

The conclusion of all reports, including interim reports, generated by a review team that deal with safety-related matters will be shared by HL&P with the Nuclear Regulatory Commission.

When SWEC personnel work under the supervision of HL&P Engineering Assurance Department in the performance of audits of design process or assessment of design, HL&P will maintain total control and responsibility for these activities. In all cases, SWEC, consistent with its technical views and independent role, shall report such conclusions as its personnel may develop during the course of their work, including instances in which such views may differ from those of HL&P.



P. A. Wild
Senior Vice President
Director of Engineering
Stone & Webster Engineering Corporation



J. H. Goldberg
Vice President, Nuclear Engineering &
Construction
Houston Lighting & Power Company

INDEPENDENT
TECHNICAL REVIEW
SOUTH TEXAS PROJECT
HOUSTON LIGHTING & POWER COMPANY

Statement Regarding Potential or Apparent
Conflicts of Interest

T0: Stone & Webster Engineering Corporation

Whereas, the undersigned employee ("Employee") understands that he or she is assigned as a participant to provide services to Houston Lighting & Power Company with respect to Independent Technical Review of the South Texas Project; and

Whereas, Employee understands that it is necessary that the participants be screened for any potential or apparent conflicts of interest with respect to this assignment;

Therefore, for the above stated purposes Employee makes the following representations to Stone & Webster Engineering Corporation:

- 1) The Employee has not participated in design or engineering activity for the South Texas Project.
- 2) The Employee does not control or own significant amount of Houston Industries stock.
- 3) The Employee does not have a relative employed by Houston Industries in a senior management capacity or other position that could lead to a direct conflict of interest.

Dated _____

Signature _____

Print Name _____