

December 7, 1981

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY & LICENSING BOARD

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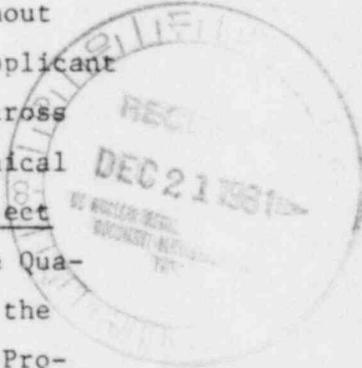
In the Matter of: )  
)  
HOUSTON LIGHTING & POWER COMPANY ) Docket No. 50-466 CP  
(Allens Creek Nuclear Generating Station )  
Unit 1) )

'81 DEC 17 P1:28

SECRETARY  
MARKETING & SERVICE  
BRANCH

INTERVENOR DOHERTY'S RENEWED MOTION FOR ADDITIONAL EVIDENCE ON TEXPIRG AD-  
DITIONAL CONTENTION - 31, (APPLICANT'S TECHNICAL QUALIFICATIONS)

On November 10, 1981, the Board in this proceeding denied without prejudice a motion by this Intervenor dated October 15, 1981, for Applicant and Staff to submit additional testimony and present witnesses for cross examination upon TexPIRG Additional Contention 31 (Applicant's Technical Qualifications) in light of a report on the South Texas Nuclear Project submitted by the Quadrex Corporation in May, 1981 to Applicant. The Quadrex report was a sampling to determine the engineering response of the Brown & Root Company, architect-engineer of the South Texas Nuclear Project (STNP). <sup>1/</sup> In its November 10th Order, the Board directed that this Intervenor might file a motion for additional evidence upon TexPIRG Additional Contention 31, but in so doing, this Intervenor must specify those portions of the Quadrx report which indicate organizational changes ought to be made in the supervision of the Allens Creek (ACNGS) construction.



This motion is filed to meet the Board requirements of the Order of November 10, 1981. In addition, and in keeping with parenthetical portions of the Board Order, this Intervenor has reviewed the Transcript of the hearing devoted to TexPIRG Additional Contention 31, and the written direct testimony and indicated in each of the 15 issues selected from the report, whether the testimony covered the issue in any way, and where it did, indicated where that testimony was inadequate to cover the selected issue.

The attached pages are the issues the Quadrex report uncovered that this Intervenor believes should be covered in order to more fully assess if Applicant indeed possesses the organizational and technical qualifications to construct the ACNGS. The issues are lettered A through O.

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<sup>1/</sup> Quadrex report, p. 1-1.

A. Section 3-1-(a) of the Quadrex report ( p. 3-1) indicates there was no no effective systems integration and overview function within the architect-engineer/contractor (aec) for the South Texas Nuclear Project (STNP) for plant design. Applicant should be required to present evidence to show how differences between its ACNGS monitoring organization and its STNP organization at the time of the Quadrex report will obviate recurrence of this problem, plus demonstrate it has the technical capability and organization to assure there is effective systems integration within its ACNGS architect-engineer's disciplines.

Testimony on this issue was not presented in definite applicable content. Applicant's witness Oprea, (Tr. 18,090, line 20) may have been referring to this problem obliquely, but it is unclear he was speaking of correcting any known problem to himself or one uncovered by the Quadrex sampling, of which he was aware. And, the testimony was exceedingly brief. The same witness adverted to some Ebasco procedures (Tr. 18,104, line 9) but this testimony did not explain how Ebasco will solve the problem, nor explain what Applicant will do.

B. Section 3-1-(a) of the Quadrex report (p. 3-2) indicates there is little interface relationship among engineering disciplines for both the STNP architect engineer/constructor and Applicant, and no systems engineering function exists within either group. As a result, the report states, internal consistency among design documents and lack of agreement on single failure criteria occurred on the Applicant-managed atomic plant site. (Quadrex report, p. 3-2) Applicant should be required to present evidence on how it will oversee its architect/engineer at the ACNGS site so there is no recurrence of this there, and explain how its organizational changes from its STNP practice will do this. Further, it should present evidence on how it is technically competent to do the tasks it proposes as a solution.

The testimony did not deal with problems with regard to lack of consistency on single failure criteria. However, with regard to design documents, Applicant's witness, Goldberg (Tr. 18,330, line 14 to Tr. 18,332, line 21) indicates the current Applicant plan with regard to design document control

control, will be "... essentially the same" (Tr. 18,332, line 21) for ACNGS as for STNP. This would indicate Applicant at the time of the testimony was satisfied with a procedure the Quadrex report indicated deficient. Testimony did not mention how Applicant would monitor the interface problem.

C. Section 3-1-(b) of the Quadrex report (p. 3-3) indicates Applicant inadequately monitored four technical groups at the STNP site to be certain they consistently reviewed input data for reasonableness prior to use, and that this included input data from Applicant, itself. This indicates Applicant was inadequately organized to monitor the architect-engineer at STNP, and that following the same organizational structure at ACNGS will produce a like result. Applicant should be required by the Board to present evidence to show it is technically qualified to determine if the architect-engineer technical groups for the ACNGS project are consistently reviewing input for reasonableness, and what organizational changes it has made that prevent recurrence of the input problem.

There was no testimony presented on Applicant's plans to assure the architect-engineer at ACNGS will review input data consistently if at all, in this proceeding.

D. Section 3-1-(b) (2) of the Quadrex report (p. 3-3) indicates the architect-engineer at STNP made calculational errors, which they reviewed and verified as correct, and that in at least one case, an "obviously erroneous result" went into the PSAR. (Quadrex report, v.iii, question N-1, "Quadrex Assessment") Applicant should be required to present evidence on how its organization will prevent such occurrences for ACNGS, and what now technically qualifies it to block such errors as part of its monitoring of the ACNGS architect-engineer. (See also, Quadrex report, v. ii, question C-16, "Quadrex Assessment")

Applicant's witnessess on TexPIRG additional contention 31 touched lightly on a conceivable aspect of this, training sessions, (Direct Testimony, p. 7, and Tr. 18,157-18,161). However, it is unclear how the organization would take care of the above Quadrex finding, if improved in this manner.

E. Section 3-1-(b)(3) of the Quadrex report, (p. 3-3) indicates Applicant's architect-engineer at STNP was:

- (a) Not sufficiently monitored to see that vendor submitted reports were consistently reviewed;
- (b) Permitted to work with no criteria for evaluating vendor reports;
- (c) Permitted to develop a policy of assuming that work performed by major subcontractors or suppliers was correct.

Applicant should be required to present evidence that it has the technical ability to monitor its architect-engineer for the ACNGS for assuring consistent monitoring of vendor submitted reports, to monitor the architect-engineer for correct criteria for evaluating vendor reports, and to develop a sound policy on work performed by major subcontractors and suppliers. It should further show how its organization will function to accomplish these tasks, and how it differs from the STNP organization it used.

Applicant's witness Goldberg, stated in response to this Intervenor's questioning (Tr. 18,132, Line 17), that the concept of vendor surveillance for ACNGS would be, "Very similar" (Ibid., Line 21) to STNP. The matter was pursued no further in these hearings, because there was no basis to assert an inadequacy since the Quadrex report was unavailable at that time. However, it was made clear by Staff witness Gilray (Tr. 18,466, Line 21) that Applicant has a vendor surveillance function with the NSSS supplier.

F. Section 3-1-(c) of the Quadrex report (p. 3-4) indicates Applicant inadequately monitored its architect-engineer at the STNP to be certain it thoroughly and consistently treated various plant operating modes and environmental conditions. In particular, it appears the System Design Descriptions (SDDs) and Technical Reference Documents (TRDs) were not updated, except for TMI concerns, for five years of the construction period, (Quadrex report, P. 3-4) and this impacted work in the Mechanical, Nuclear, and HVAC disciplines. Applicant should be required to show how it is organized differently for ACNGS than for STNP to prevent this type of occurrence, and to show how it now has the technical qualifications to monitor the ACNGS architect-engineer adequately toward thorough and consistent treatment of various plant operating modes, and environmental conditions as design inputs.

There was no testimony addressing these points save that of stressing higher salary (Tr. 18,090, line 10) and more experienced personnel (Tr. 18,098, line 16), which without reference to how these changes might impact these problems is inadequate.

G. Section 3-1-(d) of the Quadrex report, (p. 3-5), indicates the Applicant had not monitored its architect-engineer at STNP with regard to classification of design activity, specifically safety related versus non-safety related classification. For example, the architect-engineer did not consider radiation streaming analysis calculations to be safety related (Quadrex report, v.iii, question R-7, "Quadrex assessment") for shielding. This calculation deficiency was not caught in monitoring by the Applicant, and went into construction. Applicant should present evidence to show how its modifications to its organizational structure will prevent such occurrences as those listed in Quadrex report sections 3-1-(d)(1) to 3-1-(d)(7), (Quadrex report, p. 3-6) and how it now has the technical competence to accurately supervise the architect-engineer for ACNGS to properly classify equipment and perform calculations with respect to safety related versus non-safety related classification.

There was no testimony in the ACNGS proceedings on this deficiency, nor indication anyone was aware of the problem in the record.

H. Section 3-1-(d) of the Quadrex report (p. 3-6) indicates Applicant's architect-engineer: "or the STNP proceeded in its work with the belief it need only meet NRC regulations, "...whether or not those requirements are accurate, reasonable, or even meet the the intent of the regulations," and there was no planned effort to review new NRC requirements. These findings indicate Applicant should be required to present evidence on how its program of monitoring the ACNGS architect-engineer will prevent the same occurrence, and what is significant in its ACNGS monitoring for doing this, that was not present in the STNP monitoring by Applicant.

There was no testimony that indicated Applicant was aware of this problem in the ACNGS construction license proceedings, or was planning an organizational response to deal with it.

I. Section 3-1-(e) of the Quadrex report (p. 3-7) indicates that no written guidelines for failure mode and effects analysis (FMEA) and environmental conditions analysis existed for a construction site more than 50% completed, except superficial ones in the FSAR (not a design document) of the STN. Applicant should be required to present evidence on how differences in organization for monitoring the ACNGS will prevent recurrence of this. Applicant should also present evidence on how its technical staff for ACNGS will more effectively function to make sure these analyses are correctly accomplished unlike Applicant's performance at the STNP with that architect-engineer.

This was not adequately addressed in testimony although in the direct testimony of Applicant's witness Goldberg (p. 25) it may be conceived that a description of the experience of the architect-engineer for the ACNGS may aid the Applicant in preventing recurrence. But, reference to the experience of the Applicant's ACNGS architect-engineer was never in the context of these deficiencies during cross examination, as can be seen from the record.

J. Section 3-1-(e) of the Quadrex report (p. 3-7) indicates that although much equipment has been procured, no guidelines exist (and hence were applied) on what type failures should be considered for various equipment, and there is no documented evidence that single failure criteria were satisfied for equipment as well. An example of single failure criterion deficiency at STNP is that the spent fuel pool area radiation monitors are coupled to valves in a common air instrument line which does not meet the criterion in event of a postulated blockage. This would result in inability to actuate two filter trains in event of a refueling type accident. (Quadrex report, vol. iii, Question R-6, "Quadrex Assessment") Applicant should present evidence to show how differences in organization between the ACNGS and STNP will prevent the recurrence of these deficiencies and that the Applicant's ACNGS organization will provide the necessary technical competence to correctly recognize the above problems and monitor the architect-engineer in its design activities under commission regulations and PSAR commitments in the areas of failure guidelines and single failure criterion for plant equipment.

Other than testimony indicating intent to attract more capable personnel by higher salaries (Tr. 18,090, line 10) with the expectation those attracted would be more experienced (Tr. 18098, line 16), no testimony covers this Quadrex raised issue in the ACNGS record.

K. Section 3-1-(f) of the Quadrex report, (p. 3-7) indicates there was no procedure at STNP for assuring FSAR commitments were being implemented in the design, and hence many inconsistencies were noted. In addition, the STNP architect engineer personnel were not getting changes back into the FSAR, from the site. Applicant should present evidence it has the technical competence to make sure PSAR commitments for the ACNGS occur at the site, and how its organization for monitoring plant construction differs in such a way from that of STNP to assure failure to comply with PSAR commitments will not occur and that changes made at the ACNGS site are reflected in the PSAR or FSAR. There was

no testimony presented at the construction license hearing, nor any basis for a cross-examiner to raise questions on the issue of FSAR commitments, or FSAR change posting.

L. Section 3-1-(f) of the Quadrex report, (p. 3-8) indicates that, "One group conspicuous by its absence during this design review program was licensing. No evidence was found of an effective Licensing Group input to the various disciplines to assure consistency in understanding and implementation of NRC requirements," and the architect-engineer at STNP, did not "take the initiative to keep the FSAR current and accurate." (Ibid.) Applicant should present evidence on how its planned organization will function to assure that the same thing does not occur with ACNGS, and show that it has the technical capability to make sure a Licensing Group functions effectively for the architect-engineer at STNP and to recognize when the ACNGS architect-engineer's Licensing Group is not fully functioning. There was no testimony on this at the ACNGS proceedings and no cross examination on the issue, because there was no basis at that time for believing the STNP architect-engineer's Licensing Group was "conspicuous by its absence."

M. Section 3-1-(g) of the Quadrex report, (p. 3-8) states the plant design is "rooted" much in engineering judgement and not on a desirable well-thought-out and consistent basis for design. The report, (p. 3-9) then indicates several consequences of this, including, "...much of the design is based on unverified preliminary data which could cause problems if the data is later shown to be inadequate", the evident lack of a plan to develop key Technical Reference Documents (TRDs), failure to review drawing changes on a routine basis, an inconsistent design margin between disciplines, and within a single discipline, HVAC (Heating, Ventilation, and Air Conditioning) (noted in the Report, v.ii, Question H-8, "Quadrex Assessment"), the failure to require design manuals (Quadrex report, p. 3-10) and failure to "interface" (Quadrex report, p. 3-10) effectively between NSSS supplier, architect-engineer and Applicant. Applicant should be required to show how its organization for the ACNGS will prevent the recurrence of this over-use of engineering judgement with its attendant consequences, and how the difference in organization between ACNGS and STNP will bring about the desired effect. In addition, Applicant should present evidence to show its tech-

nical competence will not be exceeded too by inability to recognize when the architect-engineer is exercising engineering judgement and when the architect-engineer is using a well-thought-out and consistent basis for design.

The direct testimony of Applicant's witness Oprea (p.4) indicates Applicant will audit the activities of G. E. and Ebasco, as does the oral testimony (Tr. 18,090, line 24). However, audits were also performed at STNP, with little effect, as shown by the Quadrex report. In addition, there was little cross examination on audits or other monitoring of the STNP architect-engineer on the basis for design, because there was no information to base such questioning on at that time for TexPIRG Additional Contention 31.

N. Section 3-1-(h) of the Quadrex report (p. 3-11) indicates specifications and reliability requirements for mechanical and electrical equipment were either absent or not established in the design work on the STNP. In particular, specifications concerning spurious operation of several items, and reliability with regard to a series of postulated failures were cited as deficient. A safety system for initiation of emergency power and mode of operation (diesel generator) was noted as a particularly important item not reliability specified. (Quadrex report, vol. ii, question E-8, "Quadrex Assessment") Applicant should be required to show how its planned organization will prevent the recurrence of the above deficient or absent reliability and spurious operation specifications, what specifically it will do that differs from its STNP organization, and what technical qualifications it possesses that it did not have when monitoring the architect-engineer at STNP.

O. Section 3-1-(j) of the Quadrex report (p. 3-13) indicates that while under monitoring by Applicant the architect-engineer at STNP set up a design verification system which permitted use of preliminary data up to the fuel loading period, construction of structures to be verified after construction completion, and final verification of equipment subject to qualification after on-site delivery. Applicant should be required to demonstrate how its organization differs from the one used at STNP as related to these verification deficiencies, and how Applicant will have technical competence sufficient to identify and correct these deficiencies should they appear at ACNGS.

Applicant's witness Goldberg (Tr. 18,266, beginning at line 12) touches on the issue to indicate only the Design Review Committee would not audit

design reviews but only perform design overviews (Ibid., line 23).

In light of the Board Order of November 10, 1981, this Intervenor prays that these issues be the subject of additional evidence for the Applicant and Staff in a forthcoming hearing before the Atomic Safety & Licensing Board.

Respectfully,  
*John F. Doherty*  
John F. Doherty  
Intervenor pro se.

CERTIFICATE OF SERVICE

Copies of the above, "INTERVENOR DOHERTY'S RENEWED MOTION FOR ADDITIONAL EVIDENCE ON EXPIRING ADDITIONAL CONTENTION - 31, (APPLICANT'S TECHNICAL QUALIFICATIONS" were served via First Class U. S. Postal Service, this 7<sup>th</sup> of December 1981, from Houston, Texas, on the parties below.

Sheldon J. Wolfe, Esq., Dr. E. Leonard Cheatum, Gustave A. Linenberger, Administrative Judges.\*

Steven M. Sohinki, Esq. (Staff)\*

Robert Culp, Esq., and J. Gregory Copeland, Esq. (Applicant)\*

The Several Intervening Parties.

Docketing & Service Branch, U. S. N. R. C.

Atomic Safety Licensing & Appeal Board.

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\* Indicates served by hand at the hearing of December 7, 1981.