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

In the Matter of ()
()
HOUSTON LIGHTING AND (Docket Nos. 50-498 OL
POWER COMPANY, ET AL.) 50-499 OL
(South Texas Project, ()
Units 1 and 2))

CITIZENS CONCERNED ABOUT NUCLEAR POWER, INC.
MOTION TO REOPEN THE PHASE II RECORD: IV; FOR DISCOVERY
AND TO SUSPEND FURTHER ACTIVITY IN PHASE III

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I. INTRODUCTION AND BACKGROUND

On October 16, 1985, Citizens Concerned About Nuclear Power, Inc. (CCANP) filed its Motion to Reopen the Phase II Record: II ("Motion II"). In Motion II, CCANP brought four documents to the attention of the Board. These documents were the notes of various STNP Management Committee meetings during which a third party engineering review of B&R was discussed. This review was ultimately conducted by the Quadrex Corporation.

In Motion II, CCANP contended that the four documents contained evidence that Applicants made material false statements and omissions in their prefiled testimony for Phase II and gave intentionally false or misleading testimony during the Phase II hearings. Motion II at 2-5. CCANP further contended that these documents demonstrated "that there was a direct link in the minds of HL&P senior management between the commissioning of the Quadrex Report, the Phase I operating license hearings, and the ultimate licensability of the plant." Id. at 5-6 (emphasis in original).

In response to CCANP's motion, the Applicants contended that

CCANP's allegations were "totally without merit and ... supported only by [CCANP's] mischaracterization of the Phase II record and of the four documents in question". Applicants' Response in Opposition to "CCANP Motion to Reopen Phase II Record: II" dated October 31, 1985 at 3. The Applicants further characterized the CCANP allegations as "nothing more than a collection of stray impressions forged together by CCANP's imagination." Id., note 5. In their response, Applicants did admit that the record supported the fact that the purpose of the Quadrex review included providing information to the ASLB, should engineering questions arise, Id. at 4, 5-6, but contended that the Report was not prepared "solely, or in substantial part" for the Phase I hearings. Id. at 4. Applicants concluded that the CCANP motion should be denied.

The NRC Staff viewed the documents as ambiguous and as "susceptible to many interpretations." NRC Staff Response to CCANP Motions to Reopen the Phase II Record: II & III dated November 5, 1985 at 4. In the view of the Staff, the "admission of the documents standing alone would provide the Board with no evidence of probative value" and, therefore, would not be likely to affect the Board's decision on the issues, i.e. one of the criteria for reopening had not been met. Id.

On November 14, 1985, the ASLB reopened the Phase II record to admit three of the four documents in Motion II. Memorandum and Order (CCANP Motions II and III to Reopen Record), LBP-85-45, dated November 14, 1985. The Board also decided to take testimony on the meaning of the entries in the notes admitted to the reopened record. Id. at 10.

On December 5 and 6, 1985, the Board convened the reopened Phase II hearings. See Tr. 15399 - 15710.

On December 12 and 13, 1985, the parties filed their proposed findings.

In its proposed findings, CCANP argued that the notes in the three documents admitted to the reopened record as Applicants' Exhibits 79, 80, and 81, should be accepted as accurate evidence that the purpose of the Quadrex review was to prepare for the Phase I hearings and, therefore, as evidence of a lack of candor in Phase I of this proceeding, false testimony in the initial Phase II hearings, and false or misleading testimony in the reopened Phase II hearings. See Citizens Concerned About Nuclear Power, Inc. Proposed Findings of Fact and Conclusions of Law in the Form of a Partial Initial Decision for Reopened Phase II Hearings dated December 12, 1985.

In their proposed findings, the Applicants stated: "Every witness in the reopened hearings testified that preparation for dealing with the issues to be heard in the Phase II [sic] hearings was not a purpose of the Quadrex Review." Applicants' Proposed Findings of Fact for Reopened Phase II Hearings, FOF 7. Indeed the testimony of Applicants' witnesses was consistent on this point. Applicants' position was that the only relationship between the Quadrex review and the Phase I hearings was an incidental benefit of Applicants being able to answer questions about engineering should such questions arise. App. FOFs 10, 14. Applicants stated that from the inception of the Quadrex review, there was no relationship between the review and the Phase I issues. App. FOFs 18, 19.

In their proposed findings, the NRC Staff concluded that the notes - Applicants' Exhibits 79 through 81 - were ambiguous and did not represent a complete picture of the discussions of the Management Committee. NRC Staff's Proposed Findings of Fact and Conclusions of Law on the Reopened Phase II Hearing Record with Regard to Contention 10, FOF C.8. After recounting the testimony of Applicants' witnesses, the Staff concluded that there was "inadequate support to conclude that the independent third party engineering review (Quadrex) was commissioned by HL&P in expectation or in preparation for the Phase I hearings." Staff FOF F.1.

Clearly, the differences in the three proposed findings of fact hinge on the meaning to be given to the notes and the credibility of Applicants' testimony as to that meaning. Any decision on the issues raised by Motion II will similarly turn on the Board's conclusions as to the meaning of the notes and the credibility of Applicants' testimony.

On December 13, 1985, CCANP received portions of a transcript and a memorandum, both of which were only partially identified. CCANP initiated research to complete the identification of the documents. Subsequently, on January 14, 1986, CCANP completed the identification of both documents to the best of its ability, absent discovery.*/

Since this new evidence goes directly to the issues in the

*/ CCANP's primary representative left Texas on December 13. The next week, after reviewing the documents, CCANP requested a cooperating Austin organization to conduct the research to complete the documents and their identification. The room containing the source material was closed over much of the holiday season, thereby delaying completion of this task.

reopened Phase II hearings, CCANP herein moves the ASLB to reopen the Phase II record to admit these documents.

Furthermore, CCANP considers these documents new and significant evidence regarding the following issues in this proceeding:

1. Applicants' failure to provide copies of the Quadrex Report to the ASLB.

2. Applicants' failure to report more than a few of the Quadrex findings to the NRC Staff or to turn over the entire report to the NRC Staff.

3. Applicants' failure to mention the Quadrex review or Quadrex Report in their prefiled or cross examination testimony in Phase I of this proceeding.

4. The credibility of Applicants' prefiled and cross examination testimony in Phase II of this proceeding.

5. The existence of a conspiracy among HL&P senior management, and perhaps others, to withhold the substance of the Quadrex Report from the ASLB and the NRC Staff.

6. Applicants' lack of character as an independent and sufficient basis for denial of the operating licenses application.

These documents also raise questions concerning the role of Applicants' counsel in this proceeding.

II. DISCUSSION

Document 1 attached hereto is an excerpt from the deposition of Mr. Eugene A. Saltarelli taken on July 18, 1984 as part of the law suit between the STNP partners and Brown and Root. The

particular excerpt attached hereto is from Volume III of said deposition. Mr. Salterelli was head of Brown and Root engineering during the period from the inception of the Quadrex review until HL&P removed Brown and Root as architect-engineer at STNP.

Document 2 is an overview of STNP engineering prepared by Mr. Saltarelli in December 1980 or January 1981. Doc. 3 at 281, L.2 - 282, L.10.* / This document formed the basis for a presentation Mr. Saltarelli made to Brown and Root senior management, including Mssrs. Rice, Pieper, Grote, Geurts, Bazor and Dr. Broom. Id at 281, L.7 - 16; 284, L.12 - 15.

A. Document 1: The Deposition

According to his deposition, Mr. Saltarelli's involvement with the Quadrex review consisted of discussions with Mr. Goldberg prior to initiation of the review, attendance at a Quadrex briefing of Brown and Root in April 1981, attendance at the joint HL&P/B&R meeting at which Quadrex presented their final report, and preparation of the B&R response to the Quadrex Report. Doc. 1 at 613, L. 9 - 615, L.5.

1. Mr. Saltarelli's initial discussions with Mr. Goldberg

In his initial discussions with Mr. Saltarelli regarding a third party review of Brown and Root's engineering to be commissioned by HL&P, Mr. Goldberg told Mr. Saltarelli that the ASLB hearings were coming up, that Mr. Goldberg would undoubtedly have to testify as to what he thought about the adequacy of the

* / Document 3 is that portion of Mr. Saltarelli's deposition in which Mr. Saltarelli identifies Document 2 and answers questions regarding portions of Document 2.

design of the plant ("not the status" */) and, given Mr. Goldberg's lack of knowledge and B&R's bias, that Mr. Goldberg had to get an outside consultant to provide this input. Id. at 615, L.6 - 24. Mr. Saltarelli presented his previous experiences with performing third party reviews to Mr. Goldberg at some length. Id. at 616, L.1 - 617. L.18.

Mr. Saltarelli further testified that:

"My understanding was -- As I said, my understanding was that Mr. Goldberg wanted an independent review, other than HL&P and Brown and Root, to give him an assessment of the adequacy of the design as done by Brown & Root so that when he got up on the witness stand to the ASLB and they started questioning him whether he was comfortable with this design, he would be in a position to say, gee, I had a third party look at it and they think it's great or they think it's got these problems. That was his explanation to me."

Id. at 620, L.4 - 13.

Mr. Saltarelli's testimony unambiguously supports CCANP's position that the Quadrex review was commissioned in preparation for the Phase I hearings and that Applicants' testimony to the contrary was both false and part of a conspiracy to mislead the ASLB regarding the Quadrex review. See Citizens Concerned About Nuclear Power, Inc. Proposed Findings of Fact and Conclusions of Law in the Form of a Partial Initial Decision for Reopened Phase II Hearings dated November 5, 1985. This conclusion receives even more support in Document 2 examined below.

*/ Mr. Saltarelli later states that the status of Brown and Root's work was part of what Mr. Goldberg wanted but uses the word status in terms of problems B&R was still trying to resolve rather than as a reference to percentage completion in engineering. See Doc. 1 at 616, L.1 - 617, L.18. Applicants have used the word status in various ways. The main point is that Mr. Saltarelli understood the primary task of the HL&P third party reviewer to be an assessment of the adequacy of B&R engineering, which is also the purpose stated in the Quadrex Report.

2. The Quadrex Briefing of Brown and Root personnel in April 1981.

In April 1981, a meeting was set up between Quadrex reviewers and Brown and Root personnel without the presence of HL&P personnel. "[T]he HL&P licensing engineer" told Mr. Salterelli that HL&P personnel would be deliberately absent in case potentially reportable findings were discussed. Doc. 1 at 613, L.14 - 614, L.8. Apparently the concern was that HL&P would have to report such findings before all the information regarding said findings was available. Id. at 614, L. 1 - 7.

This testimony strengthens the position taken by CCANP on that part of Contention 9 which deals with whether HL&P was aware of potentially reportable findings prior to receipt of the final Quadrex Report. See CCANP FOFs II.9 - 14; III.17 - 22. Discovery will be necessary to determine the nature and weight of this evidence.

3. Dr. Sumpter's Role in the Quadrex Review.

Halfway through the Quadrex review, Mr. Saltarelli requested a meeting with Mr. Goldberg to discuss the fact that Dr. Sumpter had involved himself deeply in the review contrary to the idea of an independent third party review. At the meeting, Mr. Goldberg gave Dr. Sumpter instructions to limit his role to coordination. Id. at 618, L.3 - 4, L.17. This extensive involvement by Dr. Sumpter initially contradicts the testimony of Applicants that from the inception of the review the Quadrex Corporation had complete independence. Discovery will be necessary to determine the nature and weight of this evidence.

4. Mr. Saltarelli's view of the Quadrex Report.

Mr. Saltarelli testified that, in the mid-April report from Quadrex to Brown and Root, the findings were not of major concern to him. Id. at 614, L.8 - 13; 621, L.6 - 24. The final report, however, was viewed by B&R as highly critical. The most significant difference was the addition to the final report of the generic findings. Id. at 622, L.1 - 13. While the specific discipline findings seemed manageable, the generic findings questioned the licensability of the plant making "everything sitting out there in Bay City suspect." Id. at 622, L.14 - 623, L.14.

Reflecting on the generic findings, Mr. Saltarelli testified that:

"a smart intervenor could take those generic findings as written and he could give you one hell of a time in the licensing arena to try to write those off. They've been written off to a degree by Bechtel and by us, using the same type of approach where you attack them, but if I'm put in the position to prove that my methodology hasn't put something up in the South Texas Project that is not -- that can't withstand a test of safety because my design process is poor, I don't know how you prove that. I might go out there and chip a hole in the concrete and say, yeah, it really is all right or what do I do?

So it's the generic issues in the Quadrex Report that are the real issue. Those other issues, you can write them off, as I said, on the basis of even if they were all true, which they aren't, you can correct those. You can correct a drawing, you can correct whatever else they talk about. Who does my reviews or they don't like the color of my concrete or whatever, I can fix those. I cannot write those generic findings off the same way, and I don't think either HL&P, the NRC, or anybody else is focussed on the significance of that finding."

Id. at 623, L. 17 - 624, L.14 */

*/ CCANP notes that whereas HL&P had extensive involvement in reviewing and commenting on the Quadrex assessments, see CCANP FOF III.21, the generic findings are exclusively the work of Mr. Lauren Stanley, i.e. independent of HL&P. See CCANP FOF III.37.

Further, Mr. Saltarelli testified that:

"If we have no indication of any systems integration, that indicates that you don't know -- the mechanical engineer doesn't know what the electrical engineer is doing and what the I&C guy[']s doing and what the civil/structural guy's doing, what's that building doing out in Bay City? I mean, how was that put together? And how do I prove that when it was put together that, yeah, in fact we did have integration? How do I answer that? You see what I mean? How can I answer that charge? We've published a lot of paper on the subject and so has HL&P and so has the NRC, but I stand on the record that charge was not answered."

Id. at 628, L.10 - 21.

This testimony provides a graphic explanation for the withholding of the Quadrex Report from both the Board and the Intervenors. Brown and Root could not adequately answer findings which called into question all engineering and safety-related construction work up to that point on the Project. There was no satisfactory way to "disclose & explain" such findings. See App. Exh. 80 at 81037.

This testimony also supports CCANP's position regarding the seriousness of the generic findings and the need to report these findings to the NRC. CCANP FOF II.18 - 19; III.35 - 55.*/
*/

The adverse implications for Applicants' character are also clear. The decision not to report the generic findings to the NRC rested on the inability of the Applicants to satisfactorily

*/ The excerpt from Mr. Saltarelli's deposition contains various criticisms of the Quadrex Report. For example, he states that he did not believe the generic findings could be correct because he did not believe it was possible for Quadrex to reach such conclusions in the period of time spent on the review. Doc. 1 at 624, L.14 - 19. See also Letter from Jack R. Newman to the Board dated September 28, 1981 at 2. Similarly, Mr. Saltarelli objected to the ranking system definitions used by Quadrex. Id. at 624, L.4 - 626, L.7. These criticisms of the Quadrex Report are not, however, relevant to the reasons Quadrex was hired.

explain away the findings. In other words, the Quadrex findings would create doubts about the adequacy of the entire engineering effort up to that time at STNP, and Applicants had no defense which Applicants considered convincing. The withholding of the findings was, therefore, a deliberate effort to prevent what Applicants expected to be adverse regulatory action by the NRC.

B. Document 2: The Memorandum

This document is Mr. Saltarelli's overview of STNP engineering work up to 1981 and a plan of action for addressing both the known engineering problems and the licensing hearings. Among other things, Mr. Saltarelli's memorandum helps explain the notes admitted as Applicants' Exhibits 79 through 81 in the reopened hearings.

In his memorandum, Mr. Saltarelli discusses the organization of the STNP engineering effort, problems with that organization, and his actions to resolve those problems. Doc. 2 at 1 - 3, item II.A. He then turns his attention to the Design Assurance and Systems Review issues.

Mr. Saltarelli's memorandum notes that it is the architect-engineer's responsibility "to justify the design to the NRC in the Operating License Hearings." Doc. 2 at 3, item II.B.3.b.

He also notes that the STNP design was being conducted on a discipline basis, with each discipline responsible for their own work. *Id.* at 3, item II.B.4. In the absence of assigned systems engineers, the designers relied on the System Design Descriptions (SDDs) and P&IDs to document that requirements were being met and to establish the safety-related basis of the design. *Id.* at 4,

items II.B.5 and 6.

As of the date of the memorandum, there were problems in that the SDDs had not been updated for years for budgetary reasons, the P&IDs were not necessarily current, and, without a Systems Design concept, there was a possibility that "all bases" had not been covered. Id. at 4, item II.B.7; see also Doc. 3 at 287, L.3 - 290, L.13.

To address these problems, Brown and Root pursued a "transition course of action with the intent of verifying" what had been done previously in engineering. Id. at 4, item II.B.8.

Applicants' Exhibit 79 contains the entry:

"Hancock - re Goldberg's Nov report on 'going slow' in engineering?
-reverification?"

App. Exh. 79 at 2052. The plan described by Mr. Saltarelli would explain the reverification issue raised by Mr. Hancock. The acknowledged absence of systems engineers and the fact that this reverification was just beginning in late 1980 would also explain why the Quadrex Corporation findings on systems engineering would not be countered by the existence of the Brown and Root System Design Assurance Group.

The transitional reverification had two aspects - "namely: Discipline Design Assurance and Systems Design Review necessary to insure proper defense of the design to the Operating License hearings." Id. at 4, item II.B.9.

The Systems Design Review involved NUS and Brown and Root personnel. Id. at 5, item II.B.10.a.

Mr. Saltarelli wrote that:

"When we get to the operating license hearings, there will be a great advantage to have an outside agency testify that the design meets the regulations with respect to safety. NUS did the conceptual design on many of these interface systems; B&R did the detailed design - so the strategy is to have NUS testify that they reviewed the detailed design and it meets requirements."

Id. at 5, item II.B.10.e.

Mr. Saltarelli further wrote:

"HL&P will also have to testify accordingly. Jerry Goldberg plans to start this review early in 1981 using outside people also. I have discussed this with him and we are pretty much together on the approach."

Id. at 5, item II.B.10.f.

Applicants' Exhibit 79 contains the entry:

"Goldberg - thinks constr errors will raise engr. Qs.
(need overview by more exper. engr. - then
can provide strong test at OL hearings)"

App. Exh. 79 at 2052.

From the Saltarelli memorandum, it is clear that both Brown and Root and HL&P believed they would have to defend the engineering at STNP in the Operating License hearings. The strategy agreed upon was to have third parties conduct engineering reviews for each of them. These third parties would then provide testimony in the Phase I hearings, testimony that would be more credible to the Board than the testimony of either HL&P or Brown and Root because Mr. Goldberg was new to the Project and Brown and Root would not be considered an unbiased source. This explanation coincides with the notes in Applicants' Exhibit 80 which state:

"Gold - in hearing, board won't believe contractor
" " " utility
They will believe people we've hired"

App. Exh. 80 at 81037; See also Doc. 1 at 615, L.12 - 24.

In response to Motion II, the Board denied admission to the reopened record of Document 4 attached to said motion because the Board viewed the document as only a hypothetical discussion of possible outcomes of the Quadrex review and because evidence on the seriousness of the Quadrex Report would be cumulative. Memorandum and Order (CCANP Motions II and III to Reopen Record) dated November 14, 1985 at 4 and 11.

In light of the new evidence presented in the instant motion, CCANP urges the Board to now admit Document 4 attached to Motion II as illuminating the reasoning which would have led the Applicants not to provide the Quadrex Report to the Board. While the Saltarelli documents demonstrate how a favorable Quadrex Report was intended for use in the Phase I hearings, Document 4 demonstrates why a seriously unfavorable report would not be used in the Phase I hearings. Since Applicants have consistently denied there was any decision not to use the Quadrex Report in Phase I, Document 4 is the only documentary evidence, other than the Saltarelli documents, as to why such a decision would in fact have been made.

II. MOTION TO REOPEN

Taken together, the deposition, the memorandum, and Document 4 attached to Motion II provide significant evidence that:

1. the Quadrex Corporation was hired specifically to prepare for the Phase I hearings;
2. the hiring of the Quadrex Corporation was part of an overall litigation strategy agreed upon by HL&P and Brown and Root;

3. the failure to provide the Quadrex Report to the ASLB and present witnesses from the Quadrex Corporation in the Phase I hearings represented a change in litigation strategy prompted by the nature of the Quadrex Report, particularly the generic findings;

4. all testimony and pleadings in this proceeding to the contrary are deliberate misrepresentations of the truth made to the Board and parties; and

5. the Board's findings on character in its Partial Initial Decision (Phase I), which were specifically subject to change based on information regarding the substance and handling of the Quadrex Report, should in fact be changed because said findings relied on Applicants' honesty and candor.

Furthermore, the highly critical nature of the Quadrex Report represented a threat to the overall Project. In Mr. Saltarelli's view, STNP was "damn lucky this whole job was not shut down by the NRC," the "'Show Cause' was a minimal action" based on what he had seen at other jobs, and the Project had a "second chance" which he believed was the "last chance." Doc. 2 at 9, items II.C.4.f and g; see also Doc.3 at 282, L. 17 - 285, L.1.

This view on the part of Mr. Saltarelli strengthens CCANP's contention that relying on Brown and Root for reportability determinations on Quadrex findings represented a deliberate attempt to minimize the number of findings reported. CCANP FOF II.22 - 23; III.100 - 130. Numerous 50.55(e) reports on the same day would likely have led to inquiries by the NRC or Intervenors as to the source for so many reports and, therefore, to release

of the Quadrex Report.

Release of the Quadrex Report to the NRC and/or Intervenors might in fact have eliminated the second chance Mr. Saltarelli saw for the Project. Applicants might well have been forced to remove Brown and Root as architect-engineer in the face of unanswerable criticisms from Quadrex. Surely all engineering work would have been suspended for a lengthy evaluation of past work, an evaluation which might well have corroborated the Quadrex findings. Given the trouble Brown and Root was already in as a result of the Order to Show Cause, Mr. Saltarelli's view of the Quadrex findings, and the probable results of releasing the Quadrex Report to the NRC and/or Intervenors, asking Brown and Root to be the primary evaluator of potentially reportable findings in the Quadrex Report was the most likely way to minimize the number of findings found to be potentially reportable.

Overall, these documents confirm the CCANP interpretation of the documents admitted to the reopened hearings as Applicants' Exhibits 79, 80, and 81. The confirmation provided by Documents 1 and 2 comes from a source completely separate from the Management Committee and, therefore, is independent corroboration of CCANP's interpretation.

Furthermore, these documents support the CCANP allegation of a continuing conspiracy on the part of Applicants to mislead the NRC and parties to this proceeding regarding the investigation conducted by the Quadrex Corporation and the Quadrex Report.

Given the significance of these documents and the gravity of the issues to which these documents are material and relevant,

reopening the Phase II record to admit these documents is crucial to any decision to be reached by the Board in Phase II of this proceeding.

IV. LEGAL STANDARDS FOR REOPENING

The standards for reopening have been consistently stated in this proceeding, most recently in the Board's Memorandum and Order (CCANP Motion II and III to Reopen Record), LBP-85-45, dated November 14, 1985. In essence, three criteria must be satisfied:

1. The motion must be timely filed;
2. It must address a significant issue; and
3. It must demonstrate that the information sought to be added to the record might potentially alter the result the Board would reach in its absence. Id. at 5.

There is also precedent for reopening the record where the matter presented is of such gravity that lack of timeliness is outweighed by the need to render a fair and meaningful decision. Id. at 5 - 11.

Given the gravity of the issues raised by this motion, the timeliness criteria is of little significance. Furthermore, a decision on the timeliness of this motion would turn on the Board's judgment as to whether CCANP would likely have taken Mr. Saltarelli's deposition on the issue of the purpose for the Quadrex review and whether CCANP would have sought Mr. Salterelli's documentation regarding the purpose of the Quadrex review as preparation for the Phase II hearings.

Once CCANP learned of Documents 1 and 2 and concluded the

research to complete and identify said documents, CCANP moved quickly to bring them to the attention of the Board.

Rather than even argue the timeliness of this motion, CCANP contends the gravity of the issues raised and the significance of the evidence offered outweighs any timeliness objection. Besides the significance of the new documents already argued above, these documents are less ambiguous and more comprehensive than the notes taken by Mr. Thrash which previously led the Board to reopen the Phase II hearings.

In addition, the Applicants presented a seamless web of testimony in the reopened Phase II hearings which is directly contradicted by the Saltarelli documents.

As to the significance of the issues raised, the honesty, credibility, and candor of the Applicants is a fundamental character issue. Partial Initial Decision (Phase I) at 23. Proof of perjury is obviously grounds for license denial. Proof of a conspiracy to obstruct the NRC is perhaps the gravest of regulatory violations. The same rationale for reopening the record found in the Board's Order of November 14, 1985 clearly applies to the instant motion.

As to whether the new documents could alter the result the Board would reach in Phase II, that would depend on whether the Board believed the witnesses presented by Applicants in the reopened hearings or accepted the CCANP proposed findings of fact.

If the Board has already concluded that Applicants' testimony in the reopened hearings was false, that the Quadrex Corporation review was commissioned for the Phase I hearings,

and that there was a conspiracy to mislead the Board regarding the Quadrex investigation, then perhaps reopening the record is unnecessary, except to bolster the record support for such findings. Since the Board did reopen the Phase II record and convene hearings because the Board perceived the Thrash notes as somewhat ambiguous, the Board may well wish to complete the record with the Saltarelli documents and Document 4 to strengthen the evidentiary support for such conclusions.

If the Board has not yet reached the conclusion argued by CCANP, then reopening is essential in order to complete the record prior to the Board reaching an opinion in Phase II.

V. MOTION FOR DISCOVERY

Based on the new documents, CCANP moves the Board to grant discovery on this entire matter, including but not limited to:

1. all aspects of Mr. Saltarelli's involvement with the Quadrex investigation and Report.

2. records of all participants in the STP Management Committee meetings between October 1, 1980 and September 28, 1981 as such records may reflect discussions of:

- a. engineering at STP

- b. engineering reviews to be conducted, in progress, or completed at STNP

- c. the Operating License hearings.

3. Any additional documentation, including later depositions, which reflect discussions of:

- a. engineering reviews at STNP during the October 1, 1980 through September 28, 1981 period

b. the Operating License hearings during the October 1, 1980 through September 28, 1981 period.

CCANP moves the Board to grant a ninety day discovery period after which hearings would commence. Given that there is a very significant evidence that the Applicants have given false testimony, CCANP should be granted broad discovery rights to explore any area in which such testimony may have been given. Cf. Texas Utilities Electric Co. (Comanche Peak Steam Electric Station, Units 1 and 2), Memorandum and Order (Reopening Discovery; Misleading Statements) dated December 18, 1984 (the Licensing Board granted broad discovery rights to an Intervenor once there was substantive evidence of possible false testimony by Applicants.

VI. THE ROLE OF APPLICANTS' COUNSEL

Based on Documents 1 and 2 attached hereto, particularly Document 2, items II.B.10.e and f questions are raised regarding the role of Applicants' counsel. CCANP is sensitive to its past errors in making allegations regarding Applicants' counsel and deliberately took steps to remove a series of findings from its Phase II proposed findings of fact regarding Applicants' counsel in order to reduce the level of antagonism which had arisen on both sides. These new documents, however, raise an issue which simply cannot be avoided.

While in Motion II, CCANP alleged that the Thrash notes demonstrated that there was "a direct link in the minds of HL&P senior management between the commissioning of the Quadrex Report, the Phase I operating license hearings, and the ultimate

licensability of the plant," Motion II at 5 - 6 (emphasis in original), Mr. Saltarelli's deposition and his memorandum demonstrate that said commissioning was part of an agreed upon and coordinated litigation strategy between Applicants and Brown and Root specifically for the Operating License hearings. It is almost inconceivable that Mr. Goldberg would agree to and pursue such a strategy without discussing said strategy with Applicants' licensing counsel. CCANP will seek to explore this matter in discovery and in reopened hearings, should the Board grant the motions made herein.*/

VII. MOTION FOR REOPENED HEARINGS

Following the close of the discovery requested herein, CCANP moves the Board to convene evidentiary hearings at which Applicants will be ordered to produce at least the following witnesses:

- a. Mr. Eugene A. Saltarelli
- b. Mr. Lauren Stanley
- c. Mr. Jack Newman

The testimony of Mr. Salterelli is obviously called for, if more than just the documents CCANP seeks to admit to the reopened record are necessary to conclude this matter.

Mr. Stanley should be called because he was not questioned in the reopened hearings and his affidavit raises the possibility

*/ Of course, it is not necessary for the Board to find there was a coordinated litigation strategy in order to find Applicants' witnesses lied regarding the purpose of the Quadrex study. Nor is disqualification on character grounds for perjury dependent on the existence of such a coordinated strategy or the complicity of counsel. But the integrity of the regulatory process, and this proceeding in particular, is a separate and important matter for this Board to address.

that he, too, is guilty of perjury. See Affidavit of Loren Stanley dated December 12, 1985 attached to Alvin H. Gutterman letter to ASLB dated December 17, 1985.

Mr. Newman should be called at this time because Applicant witnesses' prior testimony is that the licensing attorneys were only peripherally aware of the Quadrex study. The Saltarelli documents demonstrate that there was an agreed upon and coordinated litigation strategy which included the commissioning of the Quadrex Report and that said strategy changed once the findings of the Quadrex Report were known. It is time to have Mr. Newman cross examined regarding precisely what the attorneys knew and did not know about the Quadrex study, when they had such knowledge, the role of the Quadrex study in the litigation strategy and change of strategy for Phase I, and the representations made by Applicants' licensing attorneys to this Board and the parties regarding the Quadrex investigation and Report.

Since all of Applicants senior management have already testified on these subjects and since their testimony is now called into serious question, the licensing attorneys remain as the only source of information to get at the truth.

While litigation strategy would normally be protected by attorney-client privilege, CCANP es that Applicants have already waived that privilege by testifying that the Quadrex investigation was not part of their litigation strategy, testimony that the Saltarelli documents show to be false.

In addition, Applicants's counsel has a separate and distinct obligation under the McGuire rule. Counsel's unsworn and

untested representations as to why counsel failed to meet that obligation should now be subject to the closer scrutiny provided by sworn testimony subject to cross examination. CCANP recognizes that the usual position of the Board would be to "accept the representations of attorneys before us." Consumers Power Co. (Midland Plant, Units 1 and 2), LBP-83-53, 18 NRC 282, 285. But in this instance, those specific representations are called into question. The issue would be whether counsel's failure to provide the Quadrex Report to the Board was a deliberate violation of their obligations under the McGuire rule.

VIII. SUSPENSION OF PHASE III ACTIVITIES

Should the Board grant CCANP's motion for reopening the Phase II record to admit the documents addressed herein, to grant additional discovery, and/or to reopen the Phase II hearings, CCANP should not also be burdened with pursuing and responding to discovery in Phase III. CCANP, therefore, moves the Board to suspend all formal activity related to Phase III, particularly the pursuit of discovery.

There is also a matter which CCANP intends to pursue in Phase III regarding the Operations Group at STNP which may or may not be found to relate to the issues as already set forth for Phase III. Should this matter not fall within the existing issues, CCANP would seek a new contention. CCANP moves the Board to suspend the pursuit of this matter as well, such that any timeliness objections would be limited to the period prior to CCANP requesting the relief sought herein.

IV. CONCLUSION

Reviewing the entire record in this proceeding in the light of the new documents offered herein, an explanation of the handling of the Quadrex Report emerges that the Applicants' false testimony and misrepresentations to the Board and parties had hidden until now.

Faced with explaining the failures documented in the Order to Show Cause and with the challenge of regaining the confidence of the NRC in their character and competence, Applicants took various steps to prepare for the Phase I licensing hearings.

First, to overcome the lack of nuclear credentials in their senior management, HL&P hired Jerome H. Goldberg to be Vice President for Nuclear Construction and Engineering. Mr. Goldberg's expertise would be a key remedial measure to present to the ASLB. See e.g. Jordan, ff. Tr. 1223 at 8, L.8 - 27; Tr. 1273, L.19 - 1274, L.9.

Second, the Applicants hired numerous outside consultants to address the specific issues in the Order to Show Cause, such as backfill, concrete, and alternative QA/QC organizational structures. These consultants had the task of presenting credible, independent testimony to the ASLB regarding the quality of existing work at STNP and/or the adequacy of remedial measures taken to correct known deficiencies.

Third, since questions on engineering were expected to arise during the Phase I hearing, Applicants developed a plan to assure the ASLB that the past engineering was adequate.

Because Mr. Goldberg was new to the Project, Applicants decided they could not rely on his testimony regarding the

adequacy of past engineering. Since Brown and Root was badly discredited by the Order to Show Cause and since they were the architect-engineer, Applicants could not rely on the testimony of Brown and Root either. Following the strategy used in such areas as backfill and concrete, an outside party was to be brought in to provide the necessary assurances to the Licensing Board.

Brown and Root would bring in NUS, while HL&P would hire their own third party reviewer. The task for the HL&P reviewer would be a quick overview providing a basis for the third party to testify that they had confidence in the past engineering practices of Brown and Root. Their testimony would, in turn, provide Applicants with a basis for expressing their confidence in Brown and Root's engineering work.

Applicants hired the Quadrex Corporation to provide their third party review and subsequent testimony. Applicants sought a two to three week study with the intent of buying a quick endorsement of Brown and Root's engineering work.

But the Quadrex Corporation set out to conduct a far more comprehensive investigation of the Brown and Root engineering practices than HL&P originally envisioned. As that investigation progressed, the reports to HL&P became more and more critical. Numerous items potentially reportable under 50.55(e) came up. The final report, rather than providing a basis for the Quadrex personnel to testify as to their confidence in the adequacy of Brown and Root's engineering, in fact turned out to be a no confidence assessment, particularly in the generic findings. Mr. Stanley, backed by the executive leadership of the Quadrex Corporation, delivered an indictment of the entire Brown and Root

design and engineering program.

The honesty of the Quadrex Report is a rare commodity in the nuclear business. Given the limited nature of the contracts available in a collapsing industry, Quadrex and Mr. Stanley could hardly afford to gain a "bad" reputation, i.e. a reputation for not giving the client what the client is paying for, like Dr. Bernstein and Mr. Lopez did in the Phase II hearings. Nonetheless, the Quadrex Report stands as one of the most forthright criticisms of a nuclear architect-engineer ever produced. The bluntness of the Quadrex Report is a clear measure of how seriously deficient the Quadrex Corporation viewed the Brown and Root design and engineering program.

The Quadrex findings, in turn, reflected very badly on HL&P's exercise of its responsibilities as manager of the Brown and Root effort, amounting in fact to an abdication of responsibility. Since the Commission had already identified HL&P's abdication of responsibility as one possible ground for denying the operating licenses for STNP, the Quadrex Report represented the proverbial "smoking gun" on a disqualifying issue (similar to the Saltarelli documents on the issue of perjury).

The honesty of the Quadrex Report was more than the South Texas Nuclear Project could stand. Faced with the highly critical findings of the Quadrex investigation, Applicants abandoned their original strategy for convincing the ASLB to have confidence in the engineering on the Project based on third party testimony. They also made a concerted and successful attempt not to mention the existence of the Quadrex Report during the Phase I hearings.

Rather than rely on outside experts, they decided to rely on Mr. Goldberg's experience as a basis for Mr. Goldberg to render an opinion that HL&P was adequately exercising its responsibility to oversee B&R's design and engineering. See Goldberg, ff. Tr. 906.

The purpose of this particular testimony by Mr. Goldberg was "to describe how HL&P is currently managing the engineering, design, and construction of STP, and to explain the bases of [Mr. Goldberg's] opinion that HL&P [was] fulfilling its management responsibilities in full compliance with applicable requirements and standards of professional competence." Id. at 5, A.4. While the initial portion of the testimony described the entire organizational framework for HL&P's management, the great bulk of the testimony was in fact devoted to engineering and design. See Id. at 8 - 14.

Mr. Goldberg described the qualifications of HL&P's Engineering group for STP, Id. at 8, A.10. He also described the function of that group, Id. at 10, A.11. Highlighted in the functional description were reviews of B&R design conducted by HL&P personnel, "reviews ... designed to ensure that B&R had considered the applicable industry codes and standards, regulatory requirements, and HL&P's preferences," Id., a description that could well be applied to the Quadrex review. See also Tr. 1145, L.7 - 19; 1149, L.3 - 24; 2390, L. 20 - 2393, L.4. According to Mr. Goldberg, these reviews were the tools HL&P Engineering used "to ensure that B&R's engineering team [was] properly addressing the Project design requirements." Goldberg, ff. Tr. 906 at 10, A.11.

When asked to describe some specific examples of action HL&P had recently taken as part of its direction of Brown and Root's construction and design efforts, Mr. Goldberg made no mention of the Quadrex investigation. Id. at 11 - 12, A.13. But, of course, in the time between October 1980, when Mr. Goldberg joined HL&P, and the time of this testimony before the ASLB, the single most significant action taken by HL&P in the area of Brown and Root's design work was the commissioning of the Quadrex Report.

Mr. Goldberg then expressed his opinion, based on his 26 years of experience, regarding the HL&P management structure and competence and found HL&P to be adequately providing oversight and fulfilling its responsibilities. Id. at 12, A.14 - 14, A.16. The testimony carefully avoided any assessment of the adequacy of Brown and Root's engineering work to date.

Applicants obviously considered the subject matter of Brown and Root's engineering to be relevant to the hearings or such testimony would not have been prepared. Furthermore, the preparation of prefiled testimony on this subject, as opposed to waiting for questions to arise during the hearings, demonstrates that this relevance was not considered tangential or incidental. In light of the Saltarelli documents, Mr. Goldberg's testimony cited above can now be understood as a replacement for the planned testimony by the NUS and Quadrex Corporations.*/

*/ CCANP notes that Applicants' counsel introduced Mr. Goldberg's testimony as a "panel" with Mr. Frazer, although their testimony appeared unrelated. See Tr. 1062, L.1 - 1067, L.3. Mr. Frazer's testimony addressed the Quality Assurance program and its implementation, a matter clearly of great importance. The presentation of Mr. Goldberg on engineering at the same time served to detract from the attention which the parties and the Board would devote to examining the issue of engineering.

The Applicants argued early in the hearings that the scope of the hearings was very broad, "given the very general nature of the Commission's charge to the Board to inquire into the area of competence by Houston Lighting and Power." Tr. 1219, L.1 - 4 (Newman).*/

Subsequently, when the Quadrex Report surfaced, the Applicants contended that the Report was simply a routine consultant's study, that the Applicants had never perceived any substantive connection between the commissioning of the Quadrex Report and the Phase I hearings, and that Applicants never considered engineering as a subject relevant to the issues in the Phase I hearings.

The false nature of these representations and the motivation for manufacturing such a story are now clear. To admit that the Quadrex investigation was intended for Phase I but not presented because of its vigorous criticisms would be to admit to deliberately withholding information from the ASLB which the Applicants knew should be provided under the McGuire rule. To cover up their deliberate withholding, Applicants lied about the purpose of the Quadrex investigation, misrepresented how they viewed the Quadrex findings, and concocted a phony position regarding how they perceived the issues in Phase I.

A great deal of time and significant private and public

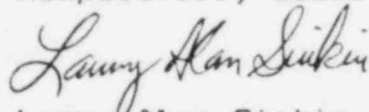
*/ Applicants were attempting to prevent the striking of prefiled testimony on the provision of electrical service by HL&P to the Houston area. In Applicants view, the provision of such service was proof of competence. See also Tr. 1291, L.22 - 1292, L.23. It is hardly credible that Applicants would consider said testimony, which had nothing to do with the nuclear project, relevant to the Phase I competence issue but not consider the Quadrex investigation or Report relevant to the same issue.

resources have been expended in this proceeding on what we now can see was a charade. While this motion does request hearings, CCANP contends the ASLB would be justified in simply admitting the new documents and issuing its Phase II decision disqualifying Applicants' senior management from any further involvement in the construction or operation of this plant, without holding any further hearings. See CCANP FOF II.69.

Based on the significance of the information contained in Documents 1 and 2 attached hereto and the gravity of the issues raised by said documents, CCANP moves the Board to:

1. Reopen the Phase II record to admit Documents 1 and 2 attached hereto and Document 4 attached to Motion II.
2. Grant CCANP broad discovery on matters related to the purpose, conduct, and use of the Quadrex investigation.
3. Schedule hearings at the conclusion of discovery and order Applicants to produce, at a minimum, the witnesses identified herein.
4. Suspend all Phase III activities, including the filing of motions for new contentions, pending completion of the reopened hearings sought herein and the filing of proposed findings by all parties.

Respectfully submitted,


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Dated: January 17, 1986
Washington, D.C.

NO. 81-H-0686-C

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HOUSTON LIGHTING & POWER	§	
COMPANY, INDIVIDUALLY AND	§	
AS PROJECT MANAGER UNDER	§	
THE SOUTH TEXAS PROJECT	§	
PARTICIPATION AGREEMENT	§	
BETWEEN THE CITY OF SAN	§	IN THE DISTRICT COURT OF
ANTONIO, TEXAS, CENTRAL	§	
POWER AND LIGHT COMPANY,	§	MATAGORDA COUNTY, TEXAS
HOUSTON LIGHTING & POWER	§	
COMPANY AND THE CITY OF	§	130TH JUDICIAL DISTRICT
AUSTIN, TEXAS, EXECUTED	§	
AS OF JULY 1, 1973, AS	§	
AMENDED, ET AL.	§	
	§	
VS.	§	
	§	
BROWN & ROOT, INC., ET AL.	§	

ORAL DEPOSITION OF

Eugene A. Saltarelli

Volume III

July 18, 1984, Morning & Afternoon Sessions

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1 as you can tell?

2 A As far as I can tell, this is a correct copy.

3 Q And does Exhibit 45 also outline for Mr.
4 Barker some of the history leading up to the decision to
5 prepare and submit Plan B?

6 A Yes, I think it does. Yes, it does.

7 Q And does Exhibit 45 accurately describe those
8 facts?

9 A Yes, it does.

10 Q For example, does Exhibit B correctly identify
11 the Brown & Root-- I'm sorry, does Exhibit 45 correctly
12 identify those Brown & Root officers who were involved
13 in the decision to go to Plan B?

14 A Yes.

15 Q All right, sir. All right, sir, I want to go
16 on to a different topic altogether, one which has been
17 mentioned in your testimony, but not gone into in any
18 detail, and that is the Quadrex report.

19 A Yes, sir.

20 Q Can you tell us when-- What are the dates at
21 which the Quadrex investigation, whatever you want to
22 call that, was actually conducted?

23 A Specific dates, I can't give you the specific
24 dates, but it--

25 Q Well, approximately.

1 A ...But it occurred sometime in, oh, like about
2 in February, March or April of 1981. Between February,
3 is that right, and the first part of '81. I believe
4 they issued their report in May of 1981.

5 MR. COTELLESSE: I'll have the court reporter
6 mark this.

7 (Saltarelli Deposition Exhibit No. 46 marked
8 for identification.)

9 Q (By Mr. Cotellesse) Mr. Saltarelli, I'm going
10 to hand you what the court reporter has marked as
11 Saltarelli Exhibit 46. It's a loose collection of
12 papers which, I believe, is a copy of the Quadrex
13 report, and the front sheet has your name printed on it.
14 I think this is a copy of the report that was copied out
15 of your files and I'm going to ask you if you can review
16 that and identify it as such?

17 A Yes, I believe this is the report. Is there a
18 date on here? I don't see a date. It might be blanked
19 off the cover.

20 May, 1981, I'm sorry. So, that's what I
21 thought, it was issued in May of 1978@.

22 Q All right, sir. Unfortunately, that's the only
23 copy I have.

24 As I recall, the format of the Quadrex report
25 was-- In addition to the introduction and some

1 description of the methodology, there were a series of
2 findings which were called generic findings.

3 A That's correct.

4 Q And then a series of findings which were
5 called technical discipline adequacy assessment and
6 there are findings in each of the disciplines and in
7 certain other technical areas.

8 A Yes.

9 Q All right, sir. You testified yesterday that
10 the Quadrex assessment took up a certain amount of time
11 on your part and the part of your most experienced
12 engineers; is that correct?

13 A That's correct.

14 Q What was your direct involvement in it, sir?

15 A My direct involvement with Quadrex?

16 Q Yes, sir.

17 A I did not-- Let me put it this way, I did not
18 participate in any of the detailed meetings. My only
19 involvement was that I had some initial discussions with
20 Mr. Goldberg about it at the beginning of the
21 assessment. I listened to the initial presentation made
22 by Quadrex prior to the preparation of this report.
23 They came to Brown & Root in--I believe it was in April
24 before this report was issued, and talked to Brown &
25 Root alone, without HL&P people being present. And the

1 reason that occurred was that the HL&P licensing
2 engineer felt that HL&P should not be present in the
3 event that if there were any findings that were
4 reportable, they would be under the obligation to go
5 report them within twenty-four hours and they wouldn't
6 have had all the information out, or he gave some story
7 like that which I didn't understand. And, so, he didn't
8 show up and so they gave us a preliminary finding. As a
9 result of that meeting and that presentation, I was
10 quite-- I felt that the report was quite favorable. I
11 found nothing-- In fact, I specifically remember
12 reporting to Mr. Pieper that I hadn't heard anything
13 that I was concerned about. And then, subsequent to
14 that they said they had finished the report and they had
15 a joint meeting at HL&P in which I was in attendance,
16 together with several of my key people, and Mr. Goldberg
17 and Mr. Oprea, I believe, was there and some of their
18 key people, and that was when they presented,
19 essentially, a summary of this particular report which
20 was significantly different from what I had heard a
21 month before.

22 And then my involvement in Quadrex after that
23 was I had a very strong involvement in the response--in
24 the preparation of the response to this report from the
25 point of view of a Brown & Root response. I worked with

1 my people, I reviewed our report in detail, I had
2 several meetings with my technical people on the issues
3 and some of the conclusions they had drawn, and I got
4 personally involved and spent a tremendous amount of
5 time in preparation of the Brown & Root report.

6 Q All right, sir. I'd like to ask you first
7 about these initial discussions you had with Mr.
8 Goldberg concerning the Quadrex assessment.

9 A Yes.

10 Q When did those discussions occur, sir?

11 A Well, I think it had to occur somewhere in
12 December of '80 or January of '81. In the discussion I
13 was having with Mr. Goldberg, Mr. Goldberg pointed out
14 to me that the ASLB hearings were coming up and he felt
15 that, since he was in his current position, that he
16 undoubtedly would have to testify as to what he thought
17 about the status of the design of the plant--not the
18 status, but the adequacy of the design of the plant.
19 And, so, he felt that, well, obviously it had to be
20 somebody other than-- He wasn't on the job long enough
21 to know, himself, to draw conclusions. He couldn't use
22 Brown & Root input, since we were the A/E, and that was
23 prejudiced and, therefore, he'd have to go to a third
24 party; and I agreed with that. I said that I thought
25 that was a good idea and I said that, you know, I

1 concurred with it. The only thing at that time, I
2 cautioned him that it was a mistake to go to a single
3 consulting organization because, unfortunately, a
4 consulting organization per se when they conduct this
5 kind of design review, there's a certain amount of, oh,
6 I don't know, for a lack of better word there's some
7 selling involved. They're always looking for some
8 future work and so you've got to be a little careful
9 about that. And having worked for NUS for a long time
10 and knowing about the way those things go, I think you
11 got to be a little concerned about that.

12 And, so, I gave him the benefit of some
13 experience I had had where I had done a similar type
14 thing when I was at NUS. We conducted a very extensive
15 assessment of the Susquehanna power plant for
16 Pennsylvania Power & Light following the TMI accident to
17 determine the adequacy of that plant to withstand a
18 similar type accident. And, so, when I was-- When I
19 was selected as the chairman of that technical committee
20 to run that operation, I did not use NUS people, I went
21 to the outside and I got consultants for competitors,
22 direct competitors, people I knew over the years. And I
23 also involved a contractor who was General Electric and
24 the architect engineer that was Bechtel and I said that
25 would make up the committee. As a result of that, we

1 conducted a nine-month-- It took nine months and we
2 went through that design stem to stern. We spent a lot
3 of time talking to the people, we talked to the
4 contractor in his office, the NSS supplier in his
5 office. The result of that whole assessment, we came
6 out with a fairly independent review in the sense that
7 we were speaking as individuals, based on our
8 experience, and we wrote a final report. And, so, I
9 told him, you know, I says, I think you ought to do this
10 the same way.

11 Q What did he say to that?

12 A He didn't-- He didn't really respond. He
13 just listened, you know, he said fine and that was it.
14 And I just never had any real feedback. And then the
15 next thing I know is that we were told that Quadrex had
16 been contracted to conduct this review and then they
17 announced the schedule on which they would be coming
18 into our offices. And I can't remember that specific
19 date except that, as I stated yesterday, I remembered it
20 was the day we implemented the 1981 schedule, integrated
21 construction and engineering schedule for doing our work
22 and now we were going to take all the key engineering
23 guys and they were going to be involved in this, but I
24 can't remember that specific date. But I think they
25 had-- If I'm not mistaken, they had some maybe six to

1 eight weeks maximum to really do the technical work. It
2 was on that order of magnitude.

3 And the further involvement I had in the
4 course of this, the Quad-- The way we set it up in
5 Brown & Root, Mr. Signorelli, from NUS, who was working
6 for me at that time, he acted as the Brown & Root
7 coordinator to bring in the proper people and respond to
8 what Quadrex was looking for to set up all the meetings
9 and so forth. And he came to me about halfway through
10 the investigation and he complained that he didn't think
11 it was going as well as it should have, in the sense
12 that he was concerned over whether it was really an
13 independent review. And, specifically, the person that
14 coordinated it for HL&P was Dr. Sumpter, and I did not
15 participate in these meetings, but Mr. Signorelli said
16 that the Quadrex people would be asking questions about
17 the design from the Brown & Root engineers and they
18 would appear to be finished and then Mr. Sumpter would
19 jump in and he would ask a series of questions or he
20 would direct the discussion to another direction. And
21 Mr. Signorelli's concern was that this was supposed to
22 be an independent third-party review and he didn't see
23 how it could be independent with Dr. Sumpter's
24 participation in that degree.

25 So, with that, Mr. Signorelli drafted a letter

1 for my signature to go to Mr. Goldberg and I said, well,
2 I didn't want to do that, it was--I'd just as soon-- I
3 felt I could deal with Mr. Goldberg and I just called
4 Mr. Goldberg up, told him I had a problem, I wanted to
5 come over and talk to him about Quadrex. And, so, Mr.
6 Signorelli and I went over to The Light Tower and sat
7 down with Mr. Goldberg and Dr. Sumpter and we laid it
8 out on the table and told him that, you know, we had
9 this report that things were not progressing as we had
10 initially intended and told him what the situation was
11 at that point. At that point Mr. Goldberg redirected
12 Dr. Sumpter and told him, look, this is not what you're
13 supposed to do and you are expected to conduct this role
14 as strictly a coordinator and all that business, and he
15 took him through what his intentions were and he
16 reiterated the purpose and how he expected him to handle
17 it.

18 And with that we left and the interviews
19 continued and that was the last of my participation
20 until I saw this report and had the presentation that
21 went with it.

22 Q Was it your understanding, based on your
23 various conversations with Mr. Goldberg on the subject,
24 that what Quadrex was supposed to do was conduct an
25 independent design review of the same nature as what you

1 subcontracted NUS to do or was it-- Is this a different
2 animal? I'm just talking about what your understanding
3 was.

4 A My understanding was-- As I said, my
5 understanding was that Mr. Goldberg wanted an
6 independent review, other than HL&P and Brown & Root, to
7 give him an assessment of the adequacy of the design as
8 done by Brown & Root so that when he got up on the
9 witness stand to the ASLB and they started questioning
10 him whether he was comfortable with this design, he
11 would be in a position to say, gee, I had a third party
12 look at it and they think it's great or they think it's
13 got these problems. That was his explanation to me.

14 Q All right, sir. After this second meeting
15 with Mr. Goldberg and Mr. Sumpter--Dr. Sumpter, as far
16 as you know did Dr. Sumpter then do what Goldberg told
17 him to do which was act as a coordinator, or did you
18 have any input?

19 A Well, no, Signorelli said, yeah, that had some
20 influence on him and he--and he more or less was not as
21 aggressive as he had been up to that point. And he
22 said-- You know, there was a decided change in his
23 behavior in the meeting. But he-- Mr. Signorelli felt
24 like he was a more active participant than, say, Mr.
25 Signorelli was, on his side. Mr. Signorelli got the

1 right people in the meeting. He did not get involved in
2 the technical issues. And that was what he told me
3 verbally. Now, as far as behavior in the meeting, I
4 believe that, as I recall, he said that that had greatly
5 improved.

6 Q All right, sir. Now, when you had this
7 meeting with Quadrex people, alone, without the HL&P
8 people, I believe you said that occurred in April of
9 1981?

10 A Yes, approximately then.

11 Q Did the Quadrex people, at that time, give you
12 any kind of a written report or was it strictly oral?

13 A No, sir, it was an oral report. As I recall,
14 they showed a few slides and they discussed it and it
15 was in the tone of, well, how shall I characterize it?
16 In terms of saying, yeah, you know, there are some basic
17 difficulties here, but I can't remember the specifics of
18 how they presented it. But anyway, I walked out of the
19 meeting based on my understanding of what they were
20 saying and what the concerns are, because you'll always
21 find concerns in some audit like that, but I felt we had
22 no major problems. And I so reported to Mr. Pieper and
23 I'm not in the habit of giving the senior executive
24 vice-president bum dope. That doesn't set too well.

25 Q At least not intentionally?

1 A Not intentionally. In fact, he-- When this
2 result came out, he said to me, I don't understand. I
3 thought you told me you thought this was all right. So,
4 I had one of two choices, I had to tell him I was
5 stupid, or I had to tell him I didn't understand what I
6 was hearing. I don't know. But anyway, it didn't come
7 out too good.

8 Q All right. Can you, in a general way, help me
9 understand what the difference was between the oral
10 report that you got in April and the written report
11 which was submitted to you in May?

12 A Well, I think the most significant difference
13 is the generic findings, okay?

14 Q Let me ask you a question about that. Is the
15 difference that there were no generic findings in April,
16 or are the findings different?

17 A I can't--I cannot--I cannot specifically
18 recall that, but they were not presented-- I can assure
19 you this, they were not presented in this format. And
20 I'll tell you why I'm positive of that. My assessment
21 of the Quadrex report is the three hundred and whatever
22 items there don't bother me at all. In a sense they
23 bother me, but this was later set straight. A lot of
24 those are part of the iteration of the design or certain
25 things. Yeah, there might be some mistakes in there or

1 whatever, but that doesn't bother me. In the sense
2 that--

3 Q You're now referring to the specific findings
4 as opposed to the generic findings?

5 A Yes, I'm saying in those specific findings
6 those are all things that do not have a serious impact
7 in terms of the licensability of the plant. If I read
8 these generic findings, and we've been talking about
9 reading to the letter of the law, that questions the
10 licensability of the plant because it casts a whole seed
11 of doubt on methodology, the design practices and
12 everything else that's being used. And when you have
13 generic issues like that, that makes everything sitting
14 out there in Bay City suspect. And what really has
15 occurred to me when I sit back and reflect on all the
16 hoops we ran through on the Quadrex issues is that I
17 think that a smart intervenor could take those generic
18 findings as written and he could give you one hell of a
19 time in the licensing arena to try to write those off.
20 They've been written off to a degree by Bechtel and by
21 us, using the same type of approach of where you attack
22 them, but if I'm put in the position to prove that my
23 methodology hasn't put something up in the South Texas
24 Project that is not--that can't withstand a test of
25 safety because my design process is poor, I don't know

1 how you prove that. I might go out there and chip a
2 hole in the concrete and say, yeah, it really is all
3 right or what do I do?

4 So, it's the generic issues in the Quadrex
5 report that are the real issue. Those other issues, you
6 can write those off, as I said, on the basis of even if
7 they were all true, which they aren't, you can correct
8 those. You can correct a drawing, you can correct
9 whatever else they talk about. Who does my reviews or
10 they don't like the color of my concrete or whatever, I
11 can fix those. I cannot write those generic findings
12 off the same way, and I don't think either HL&P, the NRC
13 or anybody else is focused on the significance of that
14 finding. They're not only-- And the sad part, as long
15 as I'm on this soap box, is they're totally ill-founded,
16 because there's no engineer smart enough and capable
17 enough to conduct a review in six weeks and come to
18 those kinds of conclusions. There's just no way. I
19 don't think that's possible.

20 Q I'm looking at Page 3.1 which is the first
21 page of the generic findings section and on that page
22 there is, well, what's described here as a ranking
23 method and that is, Quadrex defines, I guess, what it
24 means by most serious findings--

25 A Yes.

1 Q ...and serious findings. See what I'm looking
2 at there on that page?

3 A Yes, I'm familiar with that categorization.

4 Q In the April session that you had with
5 Quadrex, was there any discussion at all concerning
6 these generic findings or this method of ranking or this
7 definition of what was most serious and serious?

8 A They talk-- Excuse me, I'm sorry, I keep
9 interrupting.

10 They talked about having potential rankings,
11 but I recall nothing as a definition like most serious
12 findings are those that possess a most serious threat to
13 plant licensability because either the finding would
14 prevent the obtaining of a license and the finding could
15 produce a significant delay in getting a license, or--
16 The finding addresses a matter of serious concern of the
17 NRC at this time. And let's look at Item A, the finding
18 would prevent the obtaining of a license. Now, how you
19 make a finding-- We just got done saying we were less
20 than fifty percent done on engineering. How do you make
21 a finding in a plant that's less than fifty percent
22 complete in engineering and say that's going to prevent
23 you from getting a license which is umpteen years down
24 the road and I got more than fifty percent to go? You
25 know, I have a problem with that. I don't understand

1 that. I don't care what I got going out there in the
2 drafting room. If I'm in violation of a license, I take
3 that on like I do everything else, I either got to
4 redesign it or I got to do something. But I don't know
5 how I find out something that prevents me from licensing
6 the plant. Those are dangerous words and they're on the
7 border of irresponsibility, but that's beside the point.

8 Q I take it, if I understand the first part of
9 your answer, there was no discussion in April--

10 A Not really.

11 Q ...of these kinds of rankings?

12 A Well, no, as I said, as I recall, they talked
13 about how they were going to rank some of these things.
14 And, as I recall, they talked about some of the
15 specifics and the fact that I can't remember means that
16 I wasn't too concerned because I can remember a lot of
17 things they talked about when they gave the final report
18 in terms of detail so that to me that's the first time
19 around I couldn't have been too concerned, and, as I
20 said, I wasn't. But they did talk about ranking these
21 things.

22 Q All right, sir. And I want to ask you this.
23 If I'm following your testimony to this point, one of
24 the objections you have to the final form of the Quadrex
25 report is in this generic finding section the very

1 definition of the ranking itself, I mean, the use of the
2 word I believe you said defining something as a serious
3 threat to plant licensing ability, you object to the use
4 of that category altogether?

5 A Yes, I do.

6 Q All right, sir. And I take it your objection
7 to the extent you've told me what they are is that in
8 your judgment in six weeks Quadrex simply had no basis
9 to make those kinds of judgments?

10 A That is correct.

11 Q Do I correctly understand you?

12 A That is correct.

13 Q Do you have other objections to the--to these
14 generic findings portions that you haven't told me
15 about?

16 A No, I think that's enough.

17 Q All right, sir. Now, what follows in this
18 exhibit then are-- Is the discussion of what Quadrex'
19 generic findings were and the first one refers to Brown
20 & Root's systems level integration. In effect-- Well,
21 the first sentence says, "There is no indication that an
22 effective systems integration overview function exists
23 within the Brown & Root design process."

24 A Yes.

25 Q And then there's a bunch of discussion

1 following that. And that's listed as a most serious
2 generic finding. Now, I take it you have the two
3 objections just agreed on to that finding, that is that
4 it should never have been presented in that form and you
5 don't think Quadrex had done enough work to make that
6 kind of an assessment.

7 A Yes.

8 Q You have those two objections?

9 A That's right. And state the one that you just
10 stated. If we have no indication of any systems
11 integration, that indicates that you don't know--the
12 mechanical engineer doesn't know what the electrical
13 engineer is doing and what the I&C guys doing and what
14 the civil/structural guy's doing, what's that building
15 doing out in Bay City? I mean, how was that put
16 together? And how do I prove that when it was put
17 together that, yeah, in fact, we did have integration?
18 How do I answer that? You see what I mean? How can I
19 answer that charge? We've published a lot of paper on
20 the subject and so has HL&P and so has the NRC, but I
21 stand on the record that charge was not answered.

22 Q In your--

23 A In a true engineering sense, that charge was
24 never answered, because nobody knows how to answer it.

25 Q If I were to turn back to the specific

1 findings, there's one of the sections is--it deals with
2 HVAC.

3 A Yes.

4 Q And this morning I asked you some questions
5 about the status of HVAC.

6 A Yes.

7 Q And we talked about some of the problems that
8 Brown & Root had discovered with the HVAC design,
9 presumably before Quadrex even showed up.

10 A That's correct.

11 Q And what I want to ask you about, Mr.
12 Saltarelli, is-- It's difficult for me to put the
13 question, but I understand your objection to the--to
14 this generic findings section. What I want to ask you
15 is a question, it's pretty close to what I asked you
16 this morning. If we focus on the specific findings, I
17 mean--and using HVAC as an example-- Well, here's the
18 section, you can look at it if you want to. Based on
19 what you told me this morning, do you have a real
20 quarrel with the specific findings with respect to HVAC?

21 A I don't recall offhand because I'm sure you
22 know or I assume you know we responded to each one of
23 these individual findings as a matter of record and I
24 can't recall what we said about any of them
25 specifically. In general, there's information in here

1 that is correct and I might say that in the process of
2 interviewing the Brown & Root people, the Brown & Root
3 people called their attention to a lot of these things
4 because they got in normal discussions like, oh, Quadrex
5 would ask questions and they'd say, well, yeah, we're
6 doing this, this and this and we're having these
7 problems that we have not yet resolved. They show up
8 and here is a finding, okay? So, you kind of get--a lot
9 of these are an update of a status, you know, of what
10 Brown & Root reported. That by itself is not all bad
11 because Mr. Goldberg, that was part of what he was
12 looking for, you know, what is the status. The real
13 problem is what they did with them. Instead of saying
14 that, okay, here's the status of this design and here's
15 the things they yet have to do, they attacked
16 methodology of what was being done and combined it with
17 the status of these and essentially concluded these guys
18 are never going to get there from here. And that's a
19 little much. That's really what it boils down to.

20 But as far as answering the specifics on what
21 we agree with or not agree with, I'd have to refer you
22 to the Brown & Root official response which answers each
23 one of these individually.

24 Q Let me try to put my question this way.

25 Harping back to the testimony this morning

1 about the Westinghouse system design review of the HVAC
2 system--

3 A Yes.

4 Q ...you told me what that amounted to--

5 A Yes.

6 Q ...what changes were necessary and we talked
7 some about why that came about, your understanding of
8 why that came about and it had to do with the fact that
9 Mr. Gimail left--

10 A Yes, I believe that.

11 Q ...a new engineer came in and that there- And
12 these are my words, you can disagree with it, feel free,
13 but I think you told me in essence that that was an
14 example of where there--with this change of lead
15 engineers there was a bit of a break down in the
16 interdisciplinary coordination. The new man didn't pick
17 some of the mechanical and electrical loads that he
18 should have picked up.

19 A That's correct. He didn't have all the
20 conditions for-- He didn't have the worst conditions
21 designing the HVAC system.

22 Q Right. And I believe you told me it was his
23 responsibility to-- The way Brown & Root was organized
24 and functioning back then, it was his responsibility as
25 the lead HVAC engineer to go out and make sure he

1 coordinated with the other mechanical people and
2 electrical people and whoever else was necessary to pick
3 up this information?

4 A That's correct.

5 Q So, is it true then that that was a specific
6 example of where this interdisciplinary coordination
7 did, in fact, break down?

8 A I believe that's true.

9 Q All right, sir. Whether or not you agree with
10 anything Quadrex said about systems integration, this is
11 a specific example of where interdisciplinary
12 coordination broke down in HVAC?

13 A That's true.

14 Q Are there other examples of that that you're
15 aware of except the electrical area?

16 A No, because the reportable items that came
17 out of this thing were the HVAC and the nuclear
18 calculations which went in as reportable items. And the
19 reportability on the HVAC resulted from a communication
20 problem, very frankly. What had happened was when the
21 HVAC problem was first discovered, that was prior to
22 Quadrex coming in. It should have been reported at that
23 point, but some place in the communication chain, I
24 don't know why, I don't recall, it did not get reported.
25 When the Quadrex thing came through and they were going

1 through their review, they, I guess, raised this as
2 probably reportable and somebody said I think it was
3 reported and it turns out it wasn't, so that was
4 introduced at that point. The other reportable
5 deficiency was the verification of the nuclear codes was
6 the second item. And then I think the other part of
7 this was that Mr. Goldberg felt that the--there was a--
8 The shielding codes had not been verified and he thought
9 shielding was safety related and therefore it should be
10 reported. And I disagreed with him, I told him that
11 shielding was not safety related and that was not a
12 reportable item. Well, he submitted it anyway and then,
13 subsequently, it was withdrawn. I don't know why, if he
14 had some discussions or what.

15 So, really what you come out of this thing
16 which is in terms of licensability and reportability,
17 that's it. The rest of it falls in the category of,
18 well, I don't know, it covers all disciplines, all
19 designs and everything else and all the things they had
20 to say about that.

21 Q Uh-huh.

22 A But that's the mark to me of what the problems
23 are in terms of safety related licensability-type
24 problems. Now, how you take that and you extrapolate
25 out to a generic conclusion is that you may have a most

1 serious problem that can affect licensability of the
2 plant and leave you hanging in limbo, I don't want you
3 to do that. But that's the kind of thing I object to.

4 Q All right, sir. I guess my question is
5 intended to be a little bit different.. If, for example,
6 I were to find that in systems, other than in the HVAC
7 system, there is a pattern of the final design being
8 inadequate, for example, in the direct current battery
9 systems.

10 A Uh-huh.

11 Q The batteries being simply undersized because
12 the loads have not been kept up with. If that were the
13 case--

14 A Yes.

15 Q ...would that be another example of this
16 interdisciplinary coordination which is, presumably in
17 that case would have been the responsibility of the
18 electrical engineer responsible for that system breaking
19 down? The loads simply not being kept track of for
20 communications reasons or whatever reason and therefore
21 the design wound up being inadequate-- Would that be
22 another example of the break down in interdisciplinary
23 coordination?

24 A Well, you got to be very careful in
25 generalizing. It depends on the time sequence. There

1 are times when it's not a breakdown, but there's a
2 last-minute change, or somebody designing another system
3 finds out they have to make a change which impacts the
4 electrical load. For example, throughout the history of
5 this plant you're always worried about the loads on your
6 vital bus which you have to worry about on a loss of
7 power accident and what you pick up on your diesels and
8 how you sequence those loads and so forth. You don't
9 set that at one particular point in time, you're setting
10 that all the way down to the end because times are
11 changing. And, so, you know, that's not an
12 interdisciplinary breakdown.

13 I think the HVAC system is one and I don't
14 know where that's occurred. When I came on board and we
15 went through the systems design review and NUS reviewed
16 those systems and we started doing our internal reviews,
17 then we eventually put our own design review people in
18 place, you're going to find disconnects, I don't have
19 any problem with that. I mean, you're going to find
20 that in the process of design some guy's dropped
21 something, but they're there. And reviewing that to
22 make sure it gets picked up, and I want to differentiate
23 between that and being perfect. I don't think anybody
24 ever said-- I hope Brown & Root never said that we're
25 going to do it perfect and we're not going to have to do

1 something twice or three times or whatever. You got a
2 moving target in these requirements and things change.
3 And when you perturbate something in one part of the
4 plant due to design change, you can very much affect
5 something someplace else. That might have gone through
6 the whole mill and been perfectly all right and then
7 some guy changes something over there for a very good
8 reason, you may be forced to change the other part of
9 the plant. That's the design process. That's this
10 iteration word that you heard. That's what it's all
11 about. And there are many iterations.

12 Q Now--

13 A But to the breakdown in the process, the
14 reason I object to that is this is a specific case, this
15 is HVAC is where I know that happened and people told me
16 and that's specific. I don't know of another specific
17 case that is in this category.

18 Q All right, sir. Now, if I'm following you,
19 you are-- You seem to be saying that you would expect
20 as part of the normal design process that loads will
21 change, whether we're talking about electrical loads,
22 heat loads, whatever in the hell we're talking about.

23 A That's correct.

24 Q As the design evolves there's going to be
25 change. And if the interdisciplinary coordination

1 procedures are working, the engineers are talking to one
2 another as these loads change, the lead engineer should
3 be picking up this information, should be going out and
4 looking for it and picking it up and keeping things up
5 to date?

6 A That's correct.

7 Q That's what you would expect in the best of
8 all situations?

9 A That's correct.

10 Q You would not expect there to be no changes,
11 but you would expect the changes to be kept up with; is
12 that correct?

13 A Yes.

14 Q And I believe you're telling me that if there
15 is a last minute change that adds loads that may make
16 the final design questionable, to you that's still part
17 of the normal situation, you simply have to accommodate
18 those kinds of changes?

19 A That's correct. And there are some
20 significant ones. I mean, some that come to mind that
21 are absolutely staggering, that I'm not sure are even
22 resolved, is take Reg Guide 1.97 which came out as a
23 result of TMI on instrumentation. And where are you on
24 safety-related versus non-safety-related
25 instrumentation? It has a fantastic impact on the

1 design. There are things in that category that just
2 affect you across the board, and so, someplace in there,
3 you make a design decision on what you're going to do
4 and then you have to regroup and say, okay, guys, it's
5 changed and let's go find out what the impact is.

6 Q All right, sir.

7 A And I say that, you know, and as we've said
8 it, I think this case in the HVAC; I'm owning up to
9 that, I made a mistake. I have nothing else to say
10 about it except we screwed it up, okay? But that is
11 not-- I don't accept that that's a run of the mill
12 thing that occurs because there's been changes in load
13 tables or anything else. I say that's caused by many
14 other factors just like this could have been. This
15 could have been, but it wasn't.

16 Q All right, sir. I take it that it would be
17 your position that, again, focusing on just the normal
18 design process where you would expect to see things
19 running, not just at Brown & Root but any A/E, that you
20 would not be concerned by a practice in which early in
21 the design process engineers going out and writing
22 specs, purchasing equipment based on preliminary
23 calculations, preliminary information and adding margin?

24 A That is correct.

25 Q In fact, if you are going to get the design

1 done in an efficient manner, you have to do that, don't
2 you, Mr. Saltarelli?

3 A Yes, you do, and there's limitations to--there
4 is sometimes you can do it and sometimes you can't and
5 it depends on where you are. I think it varies with
6 disciplines. I think that one of the places you're
7 forced to do that if you're on a tight schedule is in
8 the civil/structural area. I think the tendency there
9 is to do that and put in a lot more design margins.
10 Now, as you come down the pike and you get further and
11 further into it, doing that in piping and things of that
12 nature, then that can bug you.

13 A case in point as we talked about yesterday,
14 that was done in terms of picking the seismic value on
15 the restraints. We ended up with a conservative value,
16 the NRC didn't have a number selected, they didn't have
17 their spec out, so it was agreed that we'd use this
18 higher number to get on with the design and now we have
19 resulted with restraints that are massive and
20 over-designed and which if you had waited for the NRC to
21 issue their spec and it turned out that it would have
22 been less than what we assumed, we wouldn't have such
23 massive restraints. So, now as the owner you have to
24 ask yourself did I make a good decision--or the A/E did
25 I make a good decision. I don't know. Pay your money

1 and take your chances. Do you wait until everything is
2 all nice and clean? On a nuclear plant you could do
3 that to a degree. But there are places where you're
4 limited. You can do that there-- You can do that in
5 some areas, but then there's other areas where due to
6 the constraints of arrangement or whatever, pipe loads,
7 stresses and things like that, you have to wait.

8 In an accident analysis, and we did that on
9 the-- The mass energy releases at NUS did a calculation
10 on the pressure temperature in the subcompartment, it
11 came out and wouldn't meet the spec. Okay, now what do
12 you do? You can't fly with that number. Now you got to
13 wait for the real numbers. And eventually that was
14 redone and Westinghouse did it with the numbers that
15 they should have supplied in the beginning and
16 eventually they did the job themselves and they finally
17 got it to where it was zeroed in.

18 So, you can't generalize, that's my whole
19 point. My point is you have to-- That's what
20 engineering is all about, it's not an exact science,
21 it's an applied science. You make judgments all the
22 time, but you got to know what your boundary decisions
23 are. I could go off the the next day and design a
24 nuclear power plant and say, gee, I think it ought to
25 look like this, but I may not be able to get what it

1 looks like. So, it's judgment.

2 Q Where would the electrical area fall on this
3 continuum that you're describing?

4 A It depends. There are certain things in the
5 electrical area-- I've worked on jobs where people will
6 go out and order cable with more conductors in the cable
7 than what they need. Rather than wait for the final
8 design, they figure--the owner figures, hell, I'll take
9 the redundant cable, that's cheaper. But I got a shut
10 down and I'm going to start back up again, I don't want
11 to waste any time so I'll buy the more expensive cable.
12 And if I got thirty-five redundant conductors in there,
13 that's okay with me. You go ahead and buy it and go.

14 Q What about items like batteries, transformers?

15 A It gets a little stickier. You got to have at
16 least some concept of the design.

17 Q Now, if you place orders for items of
18 equipment like batteries or transformers, you choose to
19 do it early rather than wait, would it then be very
20 important that you keep up with changes in loads and
21 what your margins were to make sure that if you do run
22 into a problem you let your vendor know?

23 A That's right.

24 Q Now, if it were true, I'm asking you to assume
25 if it were true, that in the area of batteries,

1 transformers, pieces of large electrical equipment like
2 that that the lead engineers ordered the equipment early
3 but did not keep up with the loads, would that be
4 another example of a break down in this
5 interdisciplinary coordination?

6 A No, I would suspect that's a breakdown with
7 the electrical engineer himself, because he's the guy
8 that keeps the loads on the equipment. It's got nothing
9 to do with the interdisciplinary guy, that's within the
10 discipline. The engineer, the electrical engineer that
11 designed the electrical system, he's the one that keeps
12 track of his loads. He's given some input for his
13 loads. And the engineer has a--he has a load list, he
14 knows what it is and he's responsible for that. He's
15 writing the spec, he's going out and buying equipment,
16 so he keeps track of that. Of some electrical load.

17 Q If a mechanical engineer, then, has a pump
18 that requires more electricity, who is responsible for
19 making sure that that new load is fed into the
20 electrical requirements?

21 A Well, I assume that that pump has to have some
22 kind of a motor control panel, it's got to have some
23 relays and all that, he's got to go to the electrical
24 engineer to get that anyway. He won't write that spec.
25 Who's going to order it for him?

1 Q Well, that's what I'm getting at. There has
2 to be some communication between the mechanical engineer
3 who handles this piece of equipment--

4 A Yes, sir, and that seems-- But I can't
5 visualize a guy adding a pump like that and-- I don't
6 know, I guess it can happen. I mean, we're talking
7 hypothetical cases. I find that awful hard that a
8 mechanical engineer would add a pump to a system and not
9 transmit that information to the electrical guy. But
10 that's the interdiscipline review that the discipline--
11 That's what the discipline leader takes care of. They
12 have routine meetings to discuss these things and that's
13 where those things are resolved

14 Q Now, is what you just referred to the system
15 that you imposed when you came aboard as getting the
16 discipline involved in engineering assurance?

17 A That's correct.

18 Q But that was not being done before April of
19 1980; is that correct?

20 A They did it within the project, they did not
21 do it with outside project people.

22 Q And I believe one of your findings in
23 connection with your 1979 review that you conducted for
24 Mr. Munisteri was that, on the project, the discipline
25 project engineers were spending, I believe your numbers

1 were something like 60, 70 percent of their time
2 involved in controls and other administrative matters
3 and not in technical matters?

4 A That's correct.

5 Q And I believe you further concluded that, as a
6 practical matter, the lead technical people on the
7 project were the, what I would call lead engineer or
8 area engineer, someone who was working for the
9 discipline project engineer and not the discipline
10 project engineers themselves?

11 A That is correct.

12 Q And I believe you also concluded that that
13 wasn't good enough?

14 A That's correct. As far as I was concerned, I
15 would have done it differently.

16 Q And you moved to change that?

17 A That is correct.

18 Q All right. Part of this Quadrex most serious
19 finding that we've been talking about a few minutes ago
20 refers to plant operating modes, environmental
21 conditions analysis. It says, "thorough and consistent
22 treatment of various plant operating modes and
23 environmental conditions was not evident."

24 A Yes, I guess this is one they wrote.

25 Q What does that subject refer to? Not defining

1 that subject, but what does that subject refer to?

2 A Well, as far as the design basis, you would
3 have to put down the operating conditions that the
4 equipment or system's going to see in terms of what's
5 the environmental condition, what's the accident
6 condition and things of that nature. I think this whole
7 section in here says we didn't have any-- I guess it's
8 saying we didn't have any design criteria for designing
9 the systems, we didn't have them in a written form was
10 their charge in there as I recall.

11 Q All right, sir. Is part of that the
12 suggestion that in connection with establishing the
13 design criteria, Brown & Root did not account for all of
14 the various modes of operation, accident modes and
15 whatnot?

16 A No, they're saying they're not written down.
17 They said they didn't exist. It says "No written design
18 bases are provided to guide the designer in what
19 combination of events and plant modes must be
20 considered. Consideration of degraded equipment
21 performance was not evident." What they're talking
22 about is that for each of the events that occur in the
23 plant under normal, upset, accident conditions, that
24 there was no written design basis, you know, you have a
25 case the guy grabbed it out of the air and he said that

DOCUMENT 2

STP EngineeringI. OBJECTIVE

- A. Clarify the STP Engineering organization.
 - 1. Project - discipline interface
 - 2. Responsibilities of key people
 - 3. Organizational philosophy
- B. Discuss design assurance; systems review; TMI interfaces and the significance of these items.
- C. Engineering Plans - Integration of all work assignments
- D. What we are going to do differently in 1981 based on the lessons I have learned in the last 9 months.

II. DISCUSSION

A. STP Organization

1. Philosophy

- a. Need strong administrative as well as technical capabilities to accomplish the requirements imposed on engineering.
- b. Unlike a fossil plant, the administrative load is several orders of magnitude greater due to the complexity of the design and the design control requirements imposed by QA.
- c. I have never seen the engineer successfully accomplish both functions. Invariably, a number of problems surface which have to be resolved on a task force basis and I believe that the use of a task force usually means a breakdown in the ability to manage the job.
 - 1.) You end up in a catch-up mode which defies any logical planning or control of the job.
 - 2.) There are very few technical problems on a nuclear plant that can be solved in a vacuum because of the interaction with other systems.
 - 3.) The problems have to be a routine part of the major design effort with clear cut responsibilities to cover the interfaces. A task force on individual problems cannot do this.
 - 4.) As a result, I believe that the formation of a task force is evidence that the job is not properly being managed.

-1-

**DEPOSITION
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- d. Another input that is important in STP engineering is that this job has been run for the last 7 years with a total breakdown between the project and the discipline organizations. The Project has been run as a separate entity without any definition of discipline engineering management responsibilities.
- 1.) The Engineering Project Manager was under the impression he had total technical as well as administrative responsibility for the product.
 - 2.) He reached this conclusion by osmosis. When you are in a situation where the Engineering Division management abdicates their sense of responsibility toward the Project, the EPM has to assume he has it all, or there is no logic to justify his position.
- e. Considering these facts:
- 1.) I do not believe a manager of 50-200 people on a complex technical design can adequately administer as well as technically direct the design activities
 - and
 - 2.) Changing the mode of operation in requiring that the Engineering Division Management through the discipline chiefs must be responsible for the technical product on all projects in order to establish some standard of performance for B&R engineering, I end up with the following organization chart.
2. Major Features of Organization
- a. Staff Level
1. Engineering Controls Manager - Helms - Crestpark only need replacement.
 2. R. Leonhardt - Production
 3. J. Signorelli - Technical
 - Hawks - operating licensing task force - Show Cause
 4. AEPs - all new - Peverley - exception -
McCoy - strong site interface
Wawrzeniak - Replace Witthauer
S. Dew - replace Millas
- b. Geographic split
1. Crestpark - physical design - model.
Clinton - Basic discipline engineering.
Site - Build up to allow as much technical support as possible on site. Use Houston only for more in-depth problems.

c. Discipline Project Engineers

1. Have a staff discipline man - off-project - reports to discipline chief in Alief.
2. Has strong nuclear technical background.
3. Beefed up 2 areas which were weak in DPE organization Doll and Erdos
4. Mode of Operation -
 - a. DPE has over-all responsibility for administration of the Project discipline.
 - b. Staff man is implementer of day to day technical work insuring problems are being solved and interfaces are covered.
 - c. Gets involved in helping DPE planning and makes sure that work is well coordinated.
 - d. Gets involved in technical approach to problem before manpower is utilized inefficiently.
 - e. By being close to technical problems, he helps establish priorities.
 - f. The DPE is looking at the bigger picture.
 - 1.) Manpower needs.
 - 2.) Schedules and commitment problems
 - 3.) Interface with construction to insure the emphasis is in the right place as far as priorities are concerned.
 - 4.) Evaluates productivity.
 - g. This is a team and these people must be compatible. If not, one or the other will be changed.

B. Design Assurance and System Review

1. Let me give you a little background on this subject.
2. NSSS - fixed scope of supply by Westinghouse. This is mainly the major nuclear equipment inside the containment plus some crucial safety related equipment in the auxiliary building.
3. They provide a book of functional requirements that establishes the design criteria for the so-called BOP interface systems that are designed by the AE.
 - a. For example, all the piping, electrical and I&C associated with the Emergency Safeguards Systems are designed based on these requirements.
 - b. It is the AE's responsibility to justify the design to the NRC in the Operating Licensing Hearings.
4. Like most AE's, engineering on STP is being conducted on a discipline basis. That is, the package is broken down into the four major disciplines and each does his thing in the design.

5. There is no assigned systems engineer who has the total responsibility, for example, for the low pressure core cooling system, which encompasses taking responsibility for insuring that under normal, upset and accident conditions, the piping, instrumentation and electrical equipment will operate satisfactorily when called upon to perform.
6. Designers rely upon the System Design Description in conjunction with the P&IDs as a method of documentation of all the requirements and together they establish the safety-related basis of the design.
7. We have 2 problems -
 - a. The update of SDDs were apparently cut off a few years ago because of some budget constraint.
 - b. The P&IDs are not necessarily current because changing regulations require holds in certain areas.
 - c. Without a Systems Design concept, there is the possibility that all bases are not covered.
8. This problem cannot be solved by just assigning this function to an engineer at this stage. He would be totally overwhelmed. As a result, we are pursuing a transition course of action with the intent of verifying what we have to date and then making sure it will stay up to date implementing a mechanism to keep it current which has not existed heretofore.
9. There are two aspects in this transition - namely; Discipline Design Assurance and Systems Design Review necessary to insure proper defense of the design when we get to the Operating License hearings.
 - a. Discipline Design Assurance
 - 1.) Mechanical and Civil - Structural is being conducted off-Project in Alief because of the extent of the review. This has been going on for 3 months and will continue for the entire course of the design. We will be adding more people to do this work as we can recruit.
 - 2.) The Electrical and Instrumentation & Control is being done on project because the work load is not as great. However, as it increases and we cannot provide independent reviewers on-project, we will staff up as required to do it the same way as mechanical and civil-structural.
 - 3.) The Design Assurance process involves:
 - a). A discipline by discipline review of all the design parameters and verifying they meet the design requirements.

- b.) A review to insure that all the equipment meets the environmental requirements, as well as, the code and standards established in the design requirements.
- c.) A review to insure that the calculational methods are consistent with accepted engineering practice.
- d.) An evaluation to insure that the design of piping systems, electrical systems, etc. can really perform as required.
- e.) This is a formal procedure whereby the comments are listed on a form which also includes a space for the fix. This is sent back to the appropriate DPE for fixing the design, if necessary.
- f.) Unfortunately, since this was not done in the past in this depth, we are playing catch-up. However, when we do catch-up (6 months), it will have less of an impact on any potential construction fall-outs.
- g.) This process is not to be confused with the normal second level review that takes place on the Project as required by Appendix B of 10CFR50. This is a lot more rigorous and I established it to achieve the goal of making the disciplines responsible for the product, and to provide a more systematic review away from the normal day-to-day flaps that take place on the Project.

10. Systems Design Review

- a. This is being done by a combination of NUS people and B&R people.
- b. The NUS people are in the process of laying out the program and doing a review of the nuclear interface systems. This work will be completed in the next 3 months.
- c. After this basic review, identification of specific areas requiring more in-depth analysis or changes will be carried out as required.
- d. These NUS people are well-experienced engineers in nuclear safety operation and the fundamentals of licensing. They are leading the effort and the B&R people will work with them through this phase.
- e. When we get to the operating licensing hearings, there will be a great advantage to have an outside agency testify that the design meets the regulations with respect to safety. NUS did the conceptual design on many of these interface systems; B&R did the detailed design - so the strategy is to have NUS testify they reviewed the detailed design and it meets the requirements.
- f. HL&P will also have to testify accordingly. Jerry Goldberg plans to start this review early in 1981 using outside people also. I have discussed this with him and we are pretty much together on the approach.

11. Three Mile Island

- a. Again, I believe some background information would be helpful in this discussion.
- b. The TMI effort was originally organized on the basis of HL&P taking the lead with an off-Project task force with a representative from B&R and an outsider. Turns out Joe Signorelli was the outsider.
- c. The concept was that they would come up with a fix and then give the fix to B&R for installation into the design.
- d. Since Joe Signorelli worked for me at NUS and I was aware of what was going on - namely, nothing constructive - I raised the issue on this mode of operation when I first came onboard last April.
- e. The end result was a disbanding of the task force and the dumping on B&R of a bunch of unrelated studies in the form of work authorizations which are limited in scope.
- f. As a result, the B&R progress has been minimal. The logic for this method of operation was the HL&P could better control the costs and have a track record of these costs in order to justify where the money went at the end of the Project.
- g. Unfortunately, the mode of operation is incompatible with updating the design to reflect TMI requirements.
- h. We have never been able to overcome this obstacle until last week. Jerry Goldberg got involved.
 - 1.) Package the related requirements.
 - 2.) Proceed with conceptual designs without waiting for piecemeal approvals.
 - 3.) Relook at the whole work authorizations system to allow greater flexibility.
- i. All of the requirements are spelled out in a document, NUREG0737 issued by the NRC in November 1980. I classify these requirements into 3 categories:
 - 1.) Those that will be mandatory.
 - 2.) Those that are negotiable.
 - 3.) Those that will be debated for years to come and, if implemented, will be part of a back-fit program.
- j. We have taken a position with HL&P to get on with the first category and to proceed on those which appear negotiable. We need a design to defend, however, we cannot wait for NRC to make a firm decision as HL&P was doing. Goldberg agrees with this approach.
- k. This work will now be factored into our 1981 planning and we will continue to have monthly meetings with HL&P to assess the progress.

1. Significance of TMI -

- 1.) We need to make an assessment in engineering where there is a high probability of change from the existing design and plan construction accordingly.
- 2.) We need to evaluate the workscope and brainstorm a strategy up front on what we will do to meet the design requirements, and not categorically start making changes on a verbatim compliance basis. Some of these changes are negotiable on how the requirements can be met and the design approach effect on construction can be significant. Shielding is a typical example.
- 3.) HL&P tends to be research oriented. They want to reinvent the wheel. We have taken the position to buy existing hardware that is currently in operating plants to meet TMI requirements. We have thrown back to HL&P everything we believe is in the Westinghouse scope of supply and pointed out the futility of trying to license a B&R design on a Westinghouse piece of equipment. That leads to warranty problems and licensing problems because the NRC wants to see a Westinghouse generic fix.
- 4.) I believe we are now on the right track, but we have to do a real planning job if we expect to achieve our objectives.

C. Engineering Plan

1. Engineering has never had an integrated Engineering Management Plan which encompasses;
 - a.) Production of drawings.
 - b.) Support of construction for ongoing work.
 - c.) Resolution of problems associated with deficiencies.
 - d.) Incorporation of TMI fixes.
 - e.) Implementation of other new licensing requirements as they are generated.
2. On December 4, the outline for such a plan was issued and the format established to develop an Engineering Management Plan and detailed schedules for the year 1981.
3. This plan is divided into 3 phases and we are proceeding on schedule (see plan).
4. Comments
 - a.) Needs to be closely integrated with construction to be meaningful so some iteration will be involved.
 - b.) The 1981 construction plan will be coming out at the end of the year. Engineering has input into this plan and this will be reflected into this plan because the same people participated.

- c.) The objective is to get engineering out of the reactive mode which has been going on since the inception of this Project.
- d.) If we get our planning together, we will have a better assessment of our capabilities to perform in specific areas and this plan should be an input into future construction plans as time goes on.

D. What Will We Do Differently in 1981

1. In the last 9 months, I have learned a lot about our problems. The question is how can these problems be fixed.
2. My comments in this area reflect my impressions of this project as compared to other experiences I have had. Certain things stick out which I would like to comment on.
 - a.) We have to get out of the reactive mode if we intend to make any progress. This Project is too large and too complex to handle on a crisis engineering basis.
 - b.) We fail to make the hard decisions necessary to get this Project under control.
 1. We process a lot of paperwork that ends up back in Engineering. Recognizing we are setting up a trending program, I intend to get more personally involved in the cause of the paper mill.
 2. The paper mill in engineering results from:
 - a.) Design errors
 - b.) Changes in requirements.
 - c.) Construction errors.
 3. We talk about the Quality Improvement Program but I haven't seen any meaningful results yet. From where I sit, a construction error comes out as an engineering problem because they can't process FCNs or DCNs fast enough.
 4. I am putting some senior people on this Project and I have instructed them to start evaluating this paper and not just processing it. When and if I get to the point that I feel there are an inordinate number of construction errors causing an inordinate amount of engineering manpower to fix the paper, I expect to come back to this group with the facts and will ask you to do something about it.
 5. I can appreciate the fact that I have an obligation in Engineering to minimize rework, but I would like to see a concerted effort on the part of construction to make damn sure they got the word on "doing it right the first time."
 6. I believe we are organized on the Project with a built-in conflict of interest.
 - 1.) We do not have a construction manager, per se, as I have seen on any other Project I have been associated with.

- 2.) Having a Deputy Project Manager in the same role as being responsible for construction automatically skews all problems to be the fault of Engineering or QA. To place blame is irrelevant. However, it has a serious impact on attitudes which reflect the degree of dedication people feel is warranted.
 - 3.) Project Management should be the independent driver of the Project and should not have a built-in alliance with QA, Construction, or Engineering. I do not believe we have that.
- c.) The stage of this Project is at the point where we need more and more on-site solutions to problems. I expect to continue to beef up the technical capability at the site in engineering. I believe that QA and Construction are interfacing well. This has not happened in Engineering and it is my fault because I did not have a strong Engineering Manager at the site. Now that McCoy is there, I expect that interface to improve.
- We all recognize that involvement of all three parties at the onset of a problem minimizes the number of perturbations required to reach a solution.
- d.) We are operating in a "shot-gun" mode. There is a lack of confidence between the 3 major elements of this organization so problems get solved in series at the highest levels of the organization. I am trying to put decision makers at lower levels, as I previously showed you, to offset the impact of this problem. To date, this performance has been from bad to poor and we need to take steps to correct it in all three elements of this Project.
 - e.) Finally, the client is a problem, but I think we tend to rise him as an excuse when all else fails. We will never be able to deal with the client until we get out in front of this Project. We are all suffering from trying to recover from the mistakes of the past. However, let's quit looking for excuses until we are all convinced that we have our respective areas in shape. We have a long way to go in Engineering. It bothers me to think I am alone in this category. Maybe the rest of you should take a little constructive inventory.
 - f.) I feel we are making progress and in hindsight, I believe we are damn lucky this whole job was not shut down by the NRC. The "Show Cause" was a minimal action from what I have seen on other jobs.
 - g.) We have a second chance but I believe it's our last chance and we in this room are the only guys who will determine how it comes out.

III. Conclusions

- A. I stated certain objectives at the beginning of this presentation. I hope I have achieved them. I am interested in any comments.

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HOUSTON LIGHTING & POWER \$
 COMPANY, INDIVIDUALLY AND \$
 AS PROJECT MANAGER UNDER \$
 THE SOUTH TEXAS PROJECT \$
 PARTICIPATION AGREEMENT \$ IN THE DISTRICT COURT OF
 BETWEEN THE CITY OF SAN \$ MATAGORDA COUNTY, TEXAS
 ANTONIO, TEXAS, CENTRAL \$
 POWER AND LIGHT COMPANY, \$
 HOUSTON LIGHTING & POWER \$ 130TH JUDICIAL DISTRICT
 COMPANY AND THE CITY OF \$
 AUSTIN, TEXAS, EXECUTED \$
 AS OF JULY 1, 1973, AS \$
 AMENDED, ET AL. \$
 VS. \$
 BROWN & ROOT, INC., ET AL. \$

ORAL DEPOSITION OF

Eugene A. Saltarelli

Volume II

July 17, 1984, Morning & Afternoon Sessions

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Edward T. Stockbridge, Esquire
Counsel for Defendant
Brown & Root, Inc.

ALSO PRESENT:

Ginny Stockbridge

1 A In my estimation, that is correct.

2 Q Let me ask you to look, if you will, at
3 Exhibit Number 28. Can you identify Exhibit 28?

4 A Well, it's a document with no name, date, and
5 it's entitled STP Engineering.

6 Q Did you, in fact, prepare that document?

7 A Yes, I believe that this--if I-- If this is
8 the document, I think it's the document, this is a
9 document that I prepared I would say sometime in early
10 1980 in which I was putting down my thoughts. And I
11 think this was the basis of a discussion I had with Mr.
12 Rice, Mr. Pieper, Mr. Grote, Mr. Geurts, Dr. Broom in
13 which I told them what my plans were and what we were
14 going to do in 1981 in terms of engineering changes. I
15 believe that was the basis for which I prepared this
16 document.

17 Q Did you prepare this document, Exhibit 28, at
18 the end of 1980? I believe you indicated the beginning
19 of 1980 and I--

20 A Yes, it was--it talked about-- Yes, it talked
21 about what we were going to do in 1981. In fact, it's
22 up there in item 1-D based on what I'd learned in the
23 last nine months, which would have been April through
24 December of 1980. And at that point in time we had
25 completed the work on the Show Cause and I was back to

1 working on the engineering reorganization and talking
2 about the things that I felt we needed to do.

3 Q So, to date this, this would be in December of
4 1980 or January of 1981, is that--

5 A Approximately that time I would say.

6 Q Can you be any more precise than that about
7 the time period?

8 A Not any more precise than that. It had to be
9 somewhere around I would say January of '81. I think
10 that's about as close as I can pin it down.

11 Q If that were so, then that would be some eight
12 months after Show Cause. Is that approximately correct?

13 A That's approximately correct.

14 Q Let me ask you to turn to Page 9, the last
15 page, and read the-- Read the short subparagraph F in
16 its entirety.

17 A Yeah. "I feel we are making progress and in
18 hindsight I believe we are damn lucky the whole job was
19 not shut down by the NRC. The Show Cause was a minimal
20 action from what I have seen on other jobs."

21 Q Was that your judgment at that time, some
22 eight months after Show Cause?

23 A Yes.

24 Q Would that still be your judgment today?

25 A Yes. I felt at that point and I still feel

1 now that the circumstances under which the Show Cause
2 was issued and the basis of the 79-19 and getting all
3 involved in the resolution of those items, that they
4 could have taken more drastic action and shut down the
5 whole power plant without saying you couldn't do
6 anything else with a lot more--with a lot more action
7 required on our part. And the reason I say that is
8 because when I looked back in hindsight and looked at
9 that 79-19 and we had a chance to look at some of the
10 allegations and some of the bases of the allegations and
11 the people that were involved, the 79-19 is very
12 specific. It talks about the involvement of the media,
13 it talks about the involvement of Congressmen, it talks
14 about the involvement of one individual which I have to
15 assume when you tie it with the media was Mr. Swayze.
16 And, so, you have these extraneous forces which are
17 focusing on the NRC. And the NRC, being a very
18 bureaucratic organization, they respond to things like
19 that and they take action. And the degree of the
20 severity of the action they take is a function of--in my
21 opinion of what they think is necessary to placate the
22 people that are beating them up. And I felt the Show
23 Cause was a minimal action that they would take under
24 those circumstances.

25 Q So, when you expressed the idea that Brown &

1 Root was lucky that the NRC did not shut the whole job
2 down, you weren't referring to any problems on the
3 project, is that your statement?

4 A Well, that's correct, because in the
5 evaluation of the Show Cause and the resolution of the
6 items, many of the allegations were proven to be wrong.

7 Q Let me ask you, if you will, to read the next
8 subparagraph G as well.

9 A "We have a second chance, but I believe it's
10 our last chance and we in this room are the only guys
11 who will determine how it comes out."

12 Q The people who have the second chance was who?

13 A The Power Group team, the officers that were
14 in that meeting. Mr. Rice, myself, Mr. Grote, Mr.
15 Bazor, Mr. Geurts.

16 Q Was that second chance you referred to related
17 to how the project was being run or was that in the
18 political arena or in the media or in the Congress that
19 you referred to?

20 A No, I said we have a second chance on the
21 basis that we-- What I was referring to there is I felt
22 very strongly that we had responded very favorably to
23 the Show Cause allegations and that we had that behind
24 us. We had already had the public hearing in which the
25 NRC got up before Mr. Stello and said a lot of good

1 words.

2 Q Your paper, Exhibit 28, actually covers a
3 great deal more than just the Show Cause Order, does it
4 not?

5 A Yes, it does.

6 Q It covers reflections on the engineering work
7 at STP broadly?

8 A Yes, it does.

9 Q Let me ask you about just some of those
10 reflections at the top of Page 2, a paragraph with the
11 letter D says, "Another input that is important in STP
12 engineering is that this job has been run for the last
13 seven years with a total breakdown between the project
14 and the discipline organizations. The project has been
15 run as a separate entity without any definition of
16 discipline engineering management responsibilities."
17 This was your considered judgment after being on the
18 project as senior vice-president and chief engineer for
19 some eight months, is that correct?

20 A Yes, and this is the subject I discussed
21 yesterday as a result of the October 1979 audit. And I
22 thought I clarified at that point that the involvement
23 of the discipline organizations was minimal and that was
24 by choice and I disagreed with that. This document here
25 is setting out my philosophy, I believe, that the

1 subject of these items back on Page 1 under IIA1 is
2 philosophy and I'm discussing what I think needs to be
3 done and what I'm in the process of doing.

4 So, if-- I don't want you reading this out of
5 context and say that as a result of this with this
6 breakdown between project and discipline organization
7 that the thing is floundering. I'm saying it's
8 running--the project--the next sentence says that you
9 didn't read, says "The project's been run as a separate
10 entity." And the project manager, and this is the same
11 theme of the project manager running his own
12 organization without any real tie back to the discipline
13 organization. And this is the--actually the written
14 word where I'm telling them this is all going to change,
15 I'm going to run it differently, which is more in tune
16 with what I think is the way it ought to run.

17 Q Again, this goes back to the same problem,
18 whether we call it philosophical or not, it's the same
19 matter that you had identified in the late '79 audit?

20 A That's right. It's a concept, not necessarily
21 a problem.

22 Q And it still exists as of a year later, late
23 1980?

24 A That's correct. Because at that-- In 1980 I
25 spent most of my time working on Show Cause and we

1 hadn't got around to really getting down to the
2 nitty-gritty of making all these changes.

3 Q Let me read-- I want to ask you about another
4 portion at the top of Page 4 on this same paper relating
5 to the SDD's. I'm going to read three numbered
6 paragraphs, 5, 6 and 7. "There is no assigned systems
7 engineer who has the total responsibility, for example,
8 for the low pressure core cooling system which
9 encompasses taking responsibility for insuring that
10 under normal upset and accident conditions, the piping
11 instrumentation and electrical equipment will operate
12 satisfactorily when called upon to perform."

13 Number 6, "Designers rely upon the system
14 design description in conjunction with the P&ID's as a
15 method of documentation for all the requirements--"

16 MR. SNODGRASS: It says "of all the
17 requirements."

18 Q (By Mr. Dykes) "...of all the requirements
19 and together they establish the safety-related basis of
20 design."

21 Number 7, "We have two problems - A, the
22 update of SDD's were apparently cut off a few years ago
23 because of some budget constraint. B, the P&ID's are
24 not necessarily current because changing regulations
25 require holds in certain areas. C, without a systems

1 design concept, there is a possibility-- There is the
2 possibility that all bases are not covered." And
3 that's the conclusion of the part that I've read.

4 These SDD's are the same documents that were
5 referred to in the late '79 audit, weren't they?

6 A Yes, they are.

7 Q The audit that you performed while you were
8 with NUS?

9 A Yes, they are.

10 Q And I take it that in late 1980 at the time
11 you wrote this paper, or early 1981, the SDD's still had
12 not been updated; is that correct?

13 A That is correct.

14 Q And the importance of these SDD's again or one
15 of the significant importances is the interface between
16 engineering disciplines, wasn't it?

17 A That's correct, but I'm not sure you're
18 focused on what the real message here is.

19 Q Well, let me ask you about the real message of
20 this last subparagraph C, "Without the systems design
21 concept, there's a possibility that all bases are not
22 covered." What is the message there?

23 A That's the real message of the three
24 paragraphs you just read. Architect engineers
25 traditionally do not operate under a systems concept.

1 What they do is they divide their organization into
2 disciplines and they pick a lead discipline leader who
3 does the coordination of the interface between
4 disciplines. And I have seen that in many, many
5 architect engineer organizations. The people who
6 traditionally operate on a so-called systems basis are
7 the NSS type vendors. And having grown up in that
8 business, that's what I'm used to. And that's where you
9 assign a specific engineer, as I talk about in paragraph
10 5 where I'm using the example, who has the total
11 responsibility for making sure all these interfaces are
12 covered.

13 So, the systems concept is to have one
14 individual responsible for the total system, in this
15 case I'm talking about the low pressure core cooling
16 system. Whether it's electrical, I&C, piping,
17 civil/structural, no matter what it is, he makes sure
18 that it meets all the functional requirements for that
19 particular system. He's one man has that
20 responsibility. That's not traditionally the way the
21 A/E's are designed. As a matter of fact, the whole
22 systems concept was the one that I introduced at this
23 point as our way of making sure that we didn't leave any
24 bases uncovered. And we-- Eventually we implemented
25 that system. But what was done before, as I said, was

1 they relied on the SDD's and the P&ID's and you have
2 those problems.

3 First of all, the SDD's were not up to date.
4 The next problem was that the P&ID's are constantly
5 changing because of the regulatory changes so that you
6 have this possibility of things falling in a crack, but
7 that mode of operation is traditional in an A/E
8 structure, that's the way they normally do it. And what
9 they do is they depend upon their design documents and
10 they depend on their interdiscipline review of drawings
11 and they achieve the same end. I'm trying to put in a
12 more disciplined approach and put that responsibility
13 for each system in one individual.

14 Q Let me ask you about one portion on Page 7,
15 the major heading is C, engineering plan, and under Part
16 1 you've written, "Engineering has never had an
17 integrated engineering management plan which
18 encompasses," and then you've named several activities,
19 including production of drawing, support of construction
20 for ongoing work and so forth.

21 A Yes.

22 Q Was that again related to a judgment that you
23 made early in your association with the project in late
24 '79 and early '80?

25 A Yes. That's consistent with the judgment I

1 made in 1979.

2 Q And the fact was at the end of 1980 there
3 still was no integrated engineering management plan; is
4 that correct?

5 A That is correct. There was no integrated
6 management plan in this form. This is the form that I
7 felt that it should be in. What was being done after I
8 came on board and investigated how these things were
9 happening, they had the physical design separated from
10 the so-called basic conceptual design and they kept the
11 production people busily doing the production drawings.
12 But they didn't have the integration across the board as
13 I am talking about here. The problem they also had at
14 that time of course was that they didn't know what the
15 TMI fixes were going to be and that had not been
16 factored into the design. So, what I'm doing here is
17 I'm saying that what I want to do is take these five
18 items, integrate them all together and we developed a
19 plan on how they would all be tied together and we
20 changed the organization accordingly to match these
21 particular items.

22 Q Let me ask you lastly about a couple of
23 sentences on Page 8. Under A and B you've written, "We
24 have to get out of the reactive mode if we intend to
25 make any progress. This project is too large and too

1 complex to handle on a crisis engineering basis. We
2 fail to make the hard decisions necessary to get this
3 project under control.

4 Those were your words, weren't they?

5 A Yes.

6 Q Was it your judgment at that time that the
7 engineering management was still in a reactive mode or
8 handled on a crisis engineering basis?

9 A Yes, they very definitely were at that point
10 in time. That had not changed essentially very much in
11 the 1980 period because most of the engineering effort
12 was on the Show Cause Order and so there was very little
13 opportunity to really gain in the productivity end of
14 engineering, so they were still forced to stay in this
15 reactive mode of meeting the needs of construction at
16 that particular point in time, that is correct.

17 Q Now, I gather from your statement now and some
18 statements you made earlier that engineering progress
19 was hampered very substantially by the necessity of
20 responding to Show Cause; is that correct?

21 A Yes, it was. Yes, it was.

22 Q Would you go so far as saying that it was
23 prevented from making any meaningful progress in 1980?

24 A Well, there was progress made, but we
25 certainly couldn't meet the intent of what we had

1 originally scheduled.

2 Q How could you quantify or describe in whatever
3 way is meaningful and realistic to you, the extent to
4 which the Show Cause Order and the response to it
5 impacted engineering progress?

6 A Well, the major impact on any of these things,
7 whether it's Show Cause or several of the other ones
8 that occurred, is you tie up your key management people
9 that are on the project. And, so, they have to spend
10 many, many hours and they're diverted from their normal
11 task of working on engineering progress, so that has an
12 effect. So, what they have to do is in a very short
13 period of time on a daily basis they look at what
14 problems are brought to them, they delegate these to
15 someone else and then they go off and do these things.
16 And, so, they have a minimum amount of time that they
17 personally can put into that part of the job. It was a
18 fact of life at that time that the time required to
19 respond to Show Cause had a significant impact on that.

20 Q And that impact was continuing as of the time
21 you wrote this memorandum when engineering was still in
22 a reactive mode?

23 A Well, it had carried over. The Show Cause was
24 finished, but it had carried over into that time period
25 and it was at this point that the one-year schedule

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of ()
()
HOUSTON LIGHTING AND () Docket Nos. 50-498 DL
POWER COMPANY, ET AL. () 50-499 DL
(South Texas Project, ()
Units 1 and 2) ()

CERTIFICATE OF SERVICE

I hereby certify that copies of CITIZENS CONCERNED ABOUT NUCLEAR POWER, INC. MOTION TO REOPEN THE PHASE II RECORD: IV; FOR DISCOVERY; AND TO SUSPEND FURTHER ACTIVITY IN PHASE III were served by deposit in the U.S. Mail, first class postage paid to the following individuals and entities on the 17th day of January 1986.

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Washington, D.C. 20555

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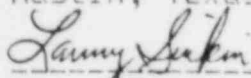
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