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USNRC

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

Applicants' Answers and Objections to  
State of Texas's First Set of Interrogatories to  
Applicants on Quadrex

Pursuant to 10 CFR §§ 2.740 and 2.740b Applicants hereby provide their answers and objections to the State of Texas's first set of interrogatories to Applicants on Quadrex.

I. General

For many of the interrogatories Applicants have provided answers and at the same time objected on the grounds that the interrogatories seek information that is neither relevant to the Phase II issues nor reasonably calculated to lead to the discovery of admissible evidence, or are otherwise objectionable. While Applicants have provided answers which they believe to be responsive to these interrogatories, Applicants nevertheless wish to point out and preserve their objections to such interrogatories.

Since service of these interrogatories, there have been several discussions between the counsel for the State of Texas and counsel for Applicants regarding the information

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sought by the State of Texas. These discussions have resulted in a better understanding of the information sought by the interrogatories and the elimination of some unnecessary effort to provide answers responsive to the intent of the interrogatories.

In its interrogatories, Texas requests that an affidavit be supplied from each individual participating in development of an answer. Applicants object to that request and have not complied with it, because it is not consistent with the NRC rules (see 10 CFR § 2.740b(a)) and would be unduly burdensome in view of the fact that for a number of the answers, various individuals contributed to the response, and may have consulted with others to assure that the answers are accurate.

## II. Specific Answers and Objections

Interrogatory 1: Please list the date and identification number of all B&R management audits of the Corporate QA program.

Objection: Applicants object to this interrogatory on the grounds that the information sought is neither relevant nor reasonably calculated to lead to the discovery of admissible evidence. Brown & Root (B&R) management audits of the B&R Corporate QA program addressed the South Texas Project (STP) activities only as one major component of a program that had responsibilities on several B&R projects. Although the broad scope of these audits addressed design activities as

one of the numerous activities controlled by B&R quality assurance, they did not address the technical adequacy of the STP design, which was the subject of the Quadrex Report.

Answer: Applicants are aware of the dates of the following B&R Corporate QA program management audit reports. The dates of other such audits, if any, are not presently known to Applicants.

<u>Number</u>	<u>Date</u>
QAMRB-1	June 25, 1976
QAMRB-2	June 3, 1977
QAMRB-3	July 17, 1978
QAMRB-4	(conducted during the weeks of June 4, 11 and 18, 1979)

Interrogatory 2: a. Did B&R develop a readily recognizable release stamp for all design documents in response to MAC audit dated June 3, 1977 at 0107074?

b. When?

c. Please provide a sample showing what this stamp looked like.

Objection: Applicants object to this interrogatory on the grounds that the information sought is neither relevant nor reasonably calculated to lead to the discovery of admissible evidence. The issues in this proceeding concern the Quadrex report, its handling by Applicants, and the resolution of the Quadrex findings, as well as CCANP contention 4 regarding the adequacy of the STP design to withstand

hurricane winds. The Quadrex report does not address the 1977 audit in which MAC participated, it does not address the issue of how design documents are marked to show status and it does not address the response of B&R to audits. The relationship of this interrogatory to contention 4 is even more remote.

Answer: The B&R procedure ST-DC-002 contains requirements for designating the status of design documents. A copy of ST-DC-002 was given to counsel for the State of Texas at a meeting on August 11, 1983. ST-DC-002 required that the status of design documents be designated on the document and provided specific forms for such designation. A sample of a design drawing with the status so designated was given to counsel for the State of Texas at the August 11 meeting.

Interrogatory 3: a. Were the MAC audits dated June 25, 1976 and June 3, 1977 given to HL&P by B&R?

b. If so, on what dates?

c. Please provide copies of transmittal correspondence or other transmittal record.

Objection: Applicants object to this interrogatory on the grounds that the information sought is neither relevant nor reasonably calculated to lead to the discovery of admissible evidence. B&R management audits of the B&R Corporate QA program were not limited in scope to STP activities. Although the broad scope of these audits addressed design

activities as one of the numerous activities controlled by B&R quality assurance, they did not address the technical adequacy of the STP design, which was the subject of the Quadrex Report. Moreover, this interrogatory refers only to audits in 1976 and 1977, four to five years prior to the Quadrex review.

Answer: (a) Yes; (b) Applicants have been unable to identify the date these reports were received; (c) Applicants have not been able to locate any transmittal correspondence or record.

Interrogatory 4: a. Please produce any audit of design calculations and complete<sup>\*/</sup> code verification done by the B&R Audit Group in response to the MAC audit dated July 17, 1978, Audit Recommendation 11 (last page).

b. Please produce a copy of the review performed by the Project Quality Engineer referred to in the same recommendation.

Objection: Applicants object to this interrogatory on the grounds that the information sought is neither relevant nor reasonably calculated to lead to the discovery of admissible evidence. B&R management audits of the B&R Corporate QA programs (such as the MAC audit referenced in interrogatory 4) were not limited in scope to STP activities.

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\*/ In a phone call on August 9, 1983 counsel for the State of Texas advised that the word "complete" should read "computer."

Although the broad scope of these audits addressed design activities as one of the numerous activities controlled by B&R quality assurance, they did not address the technical adequacy of the STP design, which was the subject of the Quadrex Report. Moreover, this interrogatory refers only to matters in 1978, three years prior to the Quadrex review.

Answer: (a) On June 28, 1983, HL&P produced for inspection and copying by counsel for the State of Texas copies of the B&R audits of design activities in HL&P's possession. If the requested document is in HL&P's possession, it was produced at that time. (b) Neither the interrogatory nor the referenced audit report provides sufficient information to identify the requested document, nor to determine how the review in question may have been documented. Accordingly, Applicants are unable to identify the requested document.

Interrogatory 5: Audit BR-8 differs from previous audits in the BR series in that the audit categories are revised to eliminate the "upgrading" category. Please explain this deletion and provide all records related to this change.

Objection: Applicants object on the grounds that the information sought is neither relevant nor reasonably calculated to lead to the discovery of admissible evidence. The Quadrex Report does not address the categories used to designate deficiencies identified in audit reports, nor does

it refer to audit BR-8. Moreover, BR-8 was conducted in 1975, six years prior to the Quadrex review.

Answer: The term "upgrading" defined in HL&P audit BR-7 is not a separate category of deficiency; rather, it refers to situations in which a deficiency identified in a previous audit has not been corrected and the auditors decide to reclassify the prior deficiency into a category of greater significance. "Upgrading" would not be such a category. Although HL&P did not define "upgrading" in BR-8, HL&P did continue its practice of reassessing its treatment of open audit findings in light of B&R's actions to correct the deficiencies.

Interrogatory 6. Please provide definitions of the following terms as used in the design and engineering process on STNP.

- a. backup design calculations
- b. review and approve
- c. verify
- d. design input
- e. design output
- f. preliminary data
- g. aperture card file

Answer: Except for (d) design input, and possibly for (c) verify, none of the terms listed have a specified definition in the Brown & Root Glossary. The terms are generally used by engineering personnel, but the relationship between a generalized definition and the particular

meaning with regard to a particular Brown & Root procedure can only be determined when considered in context. A general description of the use of each term follows:

a. backup design calculations - This term is used in the sense that each design calculation will substantiate a portion of the plant design, thus it "backs up" the design.

b. review and approve - For each procedure which controls a portion of the design process, this term will have a particular meaning, in that review can be for accuracy, completeness, etc., with approval being given by different people either within or outside an engineering discipline.

In general, the term is used to denote a process by which a document is provided to an individual or group to be evaluated against a set of criteria or personal experiences/judgment in order to determine its acceptance for further use. The approval is typically documented by a signature, which indicates that the review has been accomplished, and that the document may be used.

c. verify - This term is used in the sense of confirming information. In the design process, the term design verification is as used in ANSI N45.2.11. As defined in the Brown & Root Glossary, design verification is the total process of reviewing, confirming, or substantiating a design by one or more methods to provide assurance that the design meets its specified intent.



d. design input - As defined in the Brown & Root Glossary: "Any design requirement or design parameter whose characteristics affect either the safety function of that item or any structures, system, or component."

e. design output - This term is a general nomenclature for documents and information that result from the design process, including design documents, criteria, specifications, drawings, calculations, calculation packages, calculated values, etc.

f. preliminary data - Data which is based on assumed values or is in itself an assumed value, and which will be confirmed later.

g. aperture card file - Any file containing aperture cards. An aperture card is a film transparency of a document that is mounted on a standard computer card frame for use in either direct viewing or making copies.

Interrogatory 7: Please trace the process (step by step) at STNP during 1975-1981 by which a design proceeded from initial calculations or drawing to a final design for:

- a. internally generated designs (HL&P/B&R)
- b. subcontracted designs
- c. all other designs (if any)

Answer: In a meeting with counsel for the State of Texas on August 11, 1983, Applicants' representatives described the B&R design process, informally answered all of the questions regarding the design process posed by counsel for the State of Texas, permitted said counsel to review the B&R

design procedures, and gave him copies of the document control procedure and a list of the other design procedures. Based on conversations with counsel for the State of Texas, Applicants understand that no further information is required by the State in response to this interrogatory.

Interrogatory 8: Please provide a copy of

- a. the Engineering Design Deficiency (EDD) log
- b. any predecessor logs
- c. ADR logs

Objection: Applicants object on the grounds that the information requested is neither relevant nor reasonably calculated to lead to the discovery of admissible evidence. Moreover, this is not an interrogatory, but rather a request for production of documents which was filed out of time. The EDD log and the ADR log are not addressed in the Quadrex Report, nor does the Quadrex Report express any concern regarding the manner in which the Project kept track of such matters. The EDD log is not currently used on the Project and is not part of the process for resolving Quadrex concerns. The ADR log tracks the resolution of QA Audit Deficiency Reports and has no direct relation to the Quadrex issues.

The discovery period established by the Atomic Safety and Licensing Board required all responses to discovery requests to be due prior to the expiration of the discovery period. Memorandum (June 24, 1982) at 3. The discovery period was extended for the State of Texas for 90 (ninety) days from service of the Board's May 18, 1983 Memorandum and

Order. Therefore, considering the time permitted by 10 CFR § 2.710, discovery ended on August 22. These interrogatories were served on August 5, 1983. Under 10 CFR § 2.741 a response to a request for production of documents would be due 30 (thirty) days after service, or September 5, 1983. Accordingly, the request is not timely.

Interrogatory 9: a. Please identify all design items which have produced 50.55(e) reports by HL&P to the NRC.

b. Is it HL&P's position that each of these reports represented a final design released for construction?

Answer: (a) In a telephone conversation between counsel for the State of Texas and counsel for Applicants on August 9, 1983, it was agreed that this interrogatory could be satisfied by production of the latest written report pursuant to 10 CFR § 50.55(e) for each item HL&P has reported to NRC. Applicants will make such reports available for inspection and copying at the offices of HL&P at 611 Walker Street, Houston, Texas, during normal business hours at any time convenient to counsel for the State of Texas prior to October 1, 1983. (b) No.

Interrogatory 10: a. Please identify all design items which have produced 10 C.F.R. Part 21 reports regarding STNP to the NRC from HL&P or other source.

b. Please give the rationale for reporting these design items with citations to the clause(s) in Part 21 which led to the report being made.

Objection: Applicants object to both parts of this interrogatory to the extent they seek information about Part 21 reports filed by companies other than the organizations which were the subject of the Quadrex review (i.e., Brown & Root, EDS and NUS) or HL&P. Such information is neither relevant nor reasonably calculated to lead to the discovery of admissible evidence.

Answer: (a) Written reports concerning the items HL&P has reported pursuant to 10 CFR § 50.55(e) will be produced in response to interrogatory 9. HL&P has made no separate reports to NRC pursuant to 10 CFR Part 21. The following is a list of items which have been the subject of 10 CFR Part 21 reports involving STP from sources other than HL&P to the best of Applicants' knowledge:

Subject

1. ECW Gantry Crane Tornado Design
2. Safety Injection System Emergency  
Sump Piping Design
3. Undetectable Failure in the Engineered Safety  
Feature Actuation System
4. Rosemount Pressure Transmitter
5. Unqualified Motor Operator for  
the Turbine Driven AFW Pump
6. Containment Gas Analysis System  
Overpressurization
7. D. G. Fuel Oil Storage Tank  
Exhaust Fans

8. NPS Piping Supports
9. Motor-Pump Shaft Failure in Comsip  
Containment Hydrogen Monitoring System
10. Class 1E Electrical Equipment-Vendor  
Surveillance Breakdown regarding  
Power Conversion Products
11. HILTI Kwik-Bolt Expansion Anchors
12. S.G. Water Level Measurement System  
Errors
13. Inadequate Design of HVAC
14. Agustat Time Delay Relays
15. Cooper Energy Services - Standby D. G.  
& Lube Oil Strainer Basket
16. RHR Design
17. Limitorque Motor Operators
18. Lone Star Screw - Lack of Quality  
Documentation
19. Pacific Scientific Mechanical Snubbers
20. Errors in the APLPIPE Stress
21. W Reactor Trip Switchgear
22. NPS Industries Class 1 Supports
23. W Process Control 1& Protection System
24. Potentiometer Used in G. E. relays
25. Defect in Class 1E D. G. System
26. Volume Control Tank Level Control System

Interrogatory 11: Please identify all personnel, except clerical, and their positions in the HL&P Nuclear Licensing Administration Section as of January 1981.

Objection: Applicants object on the grounds that the information sought is neither relevant nor reasonably calculated to lead to the discovery of admissible evidence. The functions of the HL&P Nuclear Licensing Administration Section are and have been purely administrative. There are no statements about its performance in the Quadrex report.

Answer: Beverly J. Fite, Administrative Leader; and Victoria M. Quinn, Administrative Technician.

Interrogatory 12: On Purchase Order ST-49 for the Quadrex Corporation is the following notation: "NOTEL SHIPMENT BY PIGGY BACK (PLAN II 1/2) IS NOT ACCEPTABLE." What does this notation mean?

Answer: This is a standard notation used by the Purchasing Department to provide instructions to vendors as to the method by which the goods covered by the purchase order are to be shipped. This notation has no meaning when the purchase order covers services to be provided by a vendor.

Interrogatory 13: On Purchase Order ST-49 Supp. #2, the date is January 22, 1982. If this date is incorrect, please specify the correct date.

Answer: The date is correct.

Interrogatory 14: Is there in fact no contract between HL&P and the Quadrex Corporation other than the purchase orders provided on June 28, 1983?

Answer: There is no other contract concerning services related to the Design Review of the South Texas Project. There are and have been in the past contracts with Quadrex, or its predecessor Nuclear Services Company, related to other matters.

Interrogatory 15: Who approved the various purchase orders sent to the Quadrex Corporation?

Answer: J. R. Sumpter.

Interrogatory 16: During the period January 1, 1981 to October 1, 1981, please provide the positions of:

- a. D. G. Barker
- b. Cloin Robertson
- c. Joe Briskin
- d. John Blau
- e. J. R. Sumpter
- f. J. R. Geurts
- g. S. H. Grote
- h. M. E. Powell
- i. L. R. Jacobi

Answer:

- a. Project Manager
- b. Manager, Nuclear Licensing
- c. Project Manager, Houston Operations
- d. Project Engineer Manager (Acting)/Supervising  
Project Engineer
- e. Manager, Nuclear Services

f. To the best of Applicants' knowledge, this Brown & Root employee was Vice President and Project General Manager.

g. To the best of Applicants' knowledge, this Brown & Root employee was Senior Vice President, Operations.

h. Team Leader, Nuclear Licensing

i. Supervising Engineer, Nuclear Licensing

Interrogatory 17: The January 5, 1981 letter from Loren Stanley to Dr. J. R. Sumpter refers to a request by HL&P for "a brief two week engineering audit of Brown and Root covering a number of technical disciplines."

a. What purpose was to be served by the Quadrex study as originally proposed, i.e., a brief two week audit?

b. What led to the Quadrex study becoming much more extensive?

c. Please detail over the period from January 5, 1981 to May 7, 1981 the changes made in the scope of the study including but not limited to topics added, technical disciplines added, and specific concerns added.

Answer: a. The purpose of the Quadrex study as originally proposed was to perform a third party assessment of Brown & Root's engineering effort for STP.

b. The scope of the Quadrex study did not become more extensive with the exception of the addition of a review of inservice inspection and maintenance access. Scheduling considerations caused some delays; a longer time than expected for questions and answers was required; and



documents in addition to those originally anticipated were reviewed.

c. The only topic added to those originally proposed was a review of inservice inspection and maintenance access.

Interrogatory 18: a. Were all documents requested in the January 19, January 20, and February 2, 1981 letters from Loren Stanley to Dr. J. R. Sumpter in fact provided for Quadrex review?

b. If not, please identify those not provided and explain why they were not provided.

c. For each drawing supplied to Quadrex, please specify whether at the time supplied or at any time prior to May 7, 1981 that drawing had been used by construction.

Answer: a. As far as Applicants are aware, Quadrex received sufficient information to complete its review. Applicants do not know if all of the documents requested in those letters were provided. After Dr. Sumpter gave the requests to Brown & Root, documents were generally transmitted directly from Brown & Root to Quadrex without HL&P involvement.

b. See response in 18a.

c. Applicants do not have a list of drawings supplied to Quadrex. In general the documents reviewed by Quadrex were System Design Descriptions, Technical Reference Documents, one line electrical drawings, piping and instrumentation drawings, calculations and similar types of design documents that are not directly used as construction drawings.

Thus, few, if any, of the documents supplied to Quadrex were appropriate for use in field construction.

Interrogatory 19: a. Did Quadrex review design and engineering work at the site as well as at the home office of Brown and Root and HL&P?

b. If the answer to interrogatory 19a is "Yes," please specify which Quadrex findings resulted in whole or in part from reviews of design and engineering at the site.

Answer: a. No. Quadrex did not review design and engineering work at the site.

b. Not applicable.

Interrogatory 20: As of May 7, 1981, please identify the following HL&P personnel:

a. Engineering Team Leader, Nuclear Safety and Licensing

b. Engineering Coordinator

c. Supervisory<sup>\*/</sup> Project Engineer, Design Engineering

d. Manager, Licensing

e. Project QA Manager

f. Project QA Supervisor

g. Resident Reactor Inspector, NRC

Answer:

a. HL&P's Team Leader, Nuclear Licensing, was M. E. Powell.

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\*/ In a phone call on August 9, 1983 counsel for the State of Texas stated that "Supervisory" should read "Supervising."

- b. HL&P's Special Coordinator was J. G. White.
- c. HL&P's Supervising Project Engineer, Design Engineering was J. L. Blau.
- d. C. G. Robertson
- e. R. A. Frazar
- f. H. G. Overstreet
- g. H. S. Phillips

Interrogatory 21: Is the position Supervisory Project Engineer the "licensing engineer" referred to in the Revision Summary to PEP-11? See June 12, 1981 memo, Barker to Robertson, ST-HL-19394, Attachment 2.

Answer: No, the Supervising Project Engineer was not the licensing engineer.

Interrogatory 22: For each Quadrex finding, please specify the organization (HL&P, B&R, NUS, etc.) performing the item reviewed.

Objection: Applicants object on the grounds that since the information is equally available to all parties, it would be unduly burdensome to require Applicants to compile the requested information.

Answer: Applicants have not compiled the information sought by this interrogatory. As a general rule, the items or activities reviewed in the Quadrex Report were performed by Brown & Root. However, some of the Quadrex findings did address activities performed by other organizations. For example, some of the Quadrex Nuclear Analysis Discipline findings relate to analyses performed by NUS Corporation.

Quadrex Report at 4-57, 4-59-60; Quadrex findings 4.6.2.1.(b), (e). In order to determine which Quadrex findings address activities performed by organizations other than Brown & Root, one may review the specific findings set forth in volume 1 of the Quadrex Report, and the questions, responses and assessments set forth in volumes 2 and 3, which are identified in the Quadrex findings as the bases for those findings. In some instances, the affected organizations may be determined from the Quadrex finding itself, while in other cases it may be necessary to examine the supporting questions, responses and assessments. In either event, the information requested is identified in the Quadrex Report itself.

Interrogatory 23: The transmittal memo from Stanley to Sumpter dated May 5, 1981 is stamped "Received November 30, 1981 J. R. Sumpter." Please explain the date of that stamp.

Answer: Dr. Sumpter lost the original and a replacement was received on November 30, 1981.

Interrogatory 24: In the May 8, 1981 letter from Salterelli to Goldberg, Salterelli refers to a Brown and Root "Design Review."

- a. Please explain the nature of this Design Review.
- b. What were the dates this Design Review took place?

Answer: a. To the best of HL&P's knowledge, the "Design Review" that Mr. Saltarelli was referring to was conducted by the Brown & Root System Design Assurance Group, and consisted of a design assurance review of various aspects of the STP design including external and internal interfaces and hazards analyses. NUS and Westinghouse also participated in selected aspects of this review in the mechanical and electrical areas. The specific numbers of individuals involved, scope and dates are unknown to HL&P.

Interrogatory 25: a. When was STP-QCP-44 first issued?  
b. Please provide a copy of the original STP-QCP-44 and all revisions.

Objection: Applicants object on the grounds that this interrogatory seeks information which is neither relevant nor reasonably calculated to lead to the discovery of admissible evidence. In addition, Applicants object on the basis that interrogatory 25b is a request for production of documents which was filed out of time. See answer to interrogatory 8.

Answer: Applicants are unaware of an "STP-QCP-44." Applicants' records indicate that the B&R Quality Control Procedure ST-QCP-4.4-Concrete Inspection was first issued on April 1, 1976 and subsequently was superseded by other B&R procedures.

Interrogatory 26: For each Quadrex finding, please give the Applicants' position as to why there was or was not an obligation to notify the NRC of that finding.

Answer: Applicants' position on the reportability of the Quadrex findings is that HL&P fulfilled the applicable NRC reporting requirements by notifying the NRC of the three items reported pursuant to 10 CFR 50.55(e) on May 8, 1981; none of the other Quadrex findings were reportable.

The Quadrex findings were classified by Quadrex in its report under five categories: most serious, serious, noteworthy, potential problem, and other. Each of these categories is clearly defined in the Quadrex Report. HL&P understands that the "most serious" category includes all findings that were believed by Quadrex to have a potentially significant effect on the safety of operations and/or plant licensability. HL&P's review of the Quadrex Report confirmed the view that the findings in the categories other than "most serious" were not potentially reportable with several exceptions that had already been reported. The reason for this is that generally the items in these categories do not constitute a "deficiency . . . in design and construction, which, were it to have remained uncorrected, could have affected adversely the safety of operations. . . ."

The Quadrex "generic findings" may also be considered as a group. The generic findings were based entirely on the discipline findings. Quadrex Report, volume I at 3-1. The extent of the problems suggested by the generic findings may be assessed by reviewing underlying discipline findings. It is HL&P's position that none of the generic findings, when viewed in the context of the underlying discipline findings,

constituted a reportable deficiency, none alleged design deficiencies not also covered in the most serious discipline findings and none amounted to a significant breakdown in the quality assurance program.

The Quadrex most serious discipline findings, as defined in the Quadrex Report, include both matters that were viewed by Quadrex as having some probability of affecting the "plant licensing" and matters that "may deserve the attention of the Licensing Group." Applicants' position is that two of the matters covered by these "most serious" discipline findings were reportable or potentially reportable. These two matters are referenced in three Quadrex "most serious" discipline findings (see Quadrex findings 4.2.2.1(a); 4.4.2.1(a); and 4.4.2.1(b)). Although two other matters were reported as potentially reportable (classification of shielding calculations and the use of a common instrument air line between redundant safety-related dampers; see Quadrex findings 4.8.2.1(a) and 4.8.2.1(d)) it is Applicants' position that those matters are not reportable. Analysis has shown that neither of these matters constitutes "a deficiency . . . in design and construction, which, were it to have remained uncorrected, could have affected adversely the safety of operations. . . ."

Applicants' position is that none of the other matters addressed in the Quadrex findings was reportable. Under 10 CFR 50.55(e), notification of NRC is required if there exists:

- a. a deficiency in design and construction and
- b. if left uncorrected, it could have affected adversely the safety of operations . . . and
- c. the deficiency represents one or more of the following:

- (i) a significant breakdown in any portion of the Quality Assurance Program or

- (ii) a significant deficiency in final design as approved and released for construction such that the design does not conform to the criteria and bases stated in the Safety Analysis Report or construction permit; or

- (iii) a significant deficiency in construction . . . , or

- (iv) a significant deviation from performance specifications . . . .

Since construction or performance of constructed or fabricated structures, systems or components are generally not addressed in the Quadrex Report, criteria (iii) and (iv) have very limited applicability to the Quadrex findings.

Applicants' position is that the matters addressed in the Quadrex most serious discipline findings other than those discussed above and reported to NRC by HL&P on May 8, 1981 do not meet the criteria for reporting of 10 CFR 50.55(e). It is impractical to give detailed reasons for this conclusion with respect to each of the findings because in the case of most of the findings, there are several of the criteria that were not satisfied; and HL&P has not made a



rigorous analysis to identify each of the criteria not satisfied. Generally, the Quadrex findings do not allege the existence of a deficiency in design, but rather that Brown & Root was having difficulty creating the design. Many of the Quadrex findings reflected Quadrex's view of "good engineering practice," but the Brown & Root practices being discussed did not violate regulatory requirements (see, e.g., Quadrex findings 4.1.2.1(h), 4.3.2.1(c), 4.3.2.1(f), 4.3.2.1(i), 4.4.2.1(g), 4.5.2.1(b), 4.8.2.1(a) and 4.8.2.1(d)); many pertained to Brown & Root designs which were preliminary and not final (see, e.g., Quadrex findings 4.5.3.1(d); 4.5.3.1(g); 4.5.3.1(h); 4.5.3.1(i); 4.5.5.1(d); 4.6.2.1(k) and 4.7.3.1(a)); and for a number of the findings it is Applicants' position that the matter as described in the finding would not affect adversely the safety of operations (see, e.g., Quadrex findings 4.5.2.1(a); 4.5.3.1(e); 4.5.3.1(h); 4.5.3.1(j); 4.6.4.1(b); 4.7.2.1(a) and 4.7.2.1(b)).

Interrogatory 27: Please specify what obligations Applicants had on May 7, 1981 to report information to the NRC. Please provide citations to the rules, regulations, case law, or other sources for the obligations identified.

Objection: Applicants object to this interrogatory on the grounds that the subject matter is not appropriate for an interrogatory and, in view of the briefing schedule adopted by the Board, it would be unduly burdensome to require Applicants to supply the requested information prior to the time Applicants' brief on such issues would be due.

This interrogatory requests Applicants to set forth their legal opinion regarding applicable NRC reporting requirements as of May 7, 1981, and therefore calls for legal conclusions which are beyond the scope of appropriate discovery in NRC proceedings. Boston Edison Co. (Pilgrim Nuclear Generating Station, Unit 2), LBP-75-30, 1 NRC 579, 588 (1975); Consumers Power Co. (Midland plant, Units 1 and 2), LBP-74-33, 7 AEC 858, 859 (1974).

In addition, the Licensing Board has provided for the filing of briefs by the parties to this proceeding on this very subject. Memorandum and Order (June 22, 1983) at 6-7. The briefing schedule established by the Board provides that the NRC Staff shall file its brief initially, and that the other parties may respond within 30 days. Id. at 7. Applicants will provide their legal position regarding the applicable NRC reporting requirements in their response brief as authorized by the Board. The effect of this interrogatory would be not only to require Applicants to provide their legal conclusions at a date much earlier than anticipated by the Board, but also to shift the order of presentation established by the Board.

Interrogatory 28: Did the Applicants' review of the Quadrex Report on May 7-8, 1981 or subsequently include a determination of whether notification/reporting requirements other than 10 C.F.R. Section 50.55(e) had been met?

Answer: Yes.

Interrogatory 29: If the answer to interrogatory 28 is "no," why were no other determinations made of compliance with notification/reporting requirements?

Answer: Not applicable.

Interrogatory 30: If the answer to interrogatory 28 is "Yes," please detail what determinations were made and what the results of those determinations were.

Answer: Applicants concluded that the reports submitted pursuant to 10 CFR § 50.55(e) satisfied any applicable reporting requirements under NRC regulations.

Interrogatory 31: Please describe as of May 7, 1981, the general and customary HL&P procedure for determining whether to notify the NRC pursuant to 50.55(e) of a particular discovered deficiency. Include the names of particular people and/or organizations represented in the decision making process. For each person, please describe their position in the project and responsibilities in the 50.55(e) process.

Answer: The internal HL&P procedure in effect on May 7, 1981 for determining whether to notify the NRC pursuant to 50.55(e) of a particular discovered deficiency was Project Engineering Procedure (PEP)-11, "Reporting Design and Construction Deficiencies to NRC". A copy of PEP-11 was made available to counsel for the State of Texas for inspection and copying on June 28, 1983.

The people participating in the decision making process generally included the Team Leader, Nuclear Licensing (H. E. Powell); the Project QA Supervisor (H. G. Overstreet); and

the Supervising Project Engineer, Design Engineering (J. L. Blau). On occasion such individuals would designate a representative to participate in their stead. In addition, cognizant discipline personnel assisted in performance of evaluations and participated in such meetings as necessary.

The above described process utilizing PEP 11 was the general and customary HL&P procedure to handle deficiencies pursuant to 50.55(e). This procedure was used by personnel performing day-to-day functions as part of the engineering and construction activities. Other senior individuals of HL&P who become aware of defects arising out of deficiencies were responsible to make appropriate notification to NRC. For example, the Vice President, Nuclear Engineering and Construction could make a determination on his own or in consultation with others, as appropriate, that an item should be reported to NRC pursuant to 10 CFR 50.55(e). Normally, such a determination (not utilizing PEP-11) would be made known to the Team Leader, Nuclear Licensing, for purposes of NRC notification.

Interrogatory 32: On March 11, 1980 (See Staff Exhibit No. 52, I&E Report 80-04 at 10-11), the NRC Staff supplied guidance on notification/reporting requirements to HL&P.

Please

- a. list all persons receiving the NRC guidance at that time.
- b. list all persons to whom HL&P distributed the guidance subsequent to that time.

Answer: a. Applicants believe that the subject NRC guidance was received by Mr. L. R. Jacobi, Supervising Engineer.

b. The document was not a controlled document and the records of its distribution are incomplete. One available transmittal lists the following individuals:

<u>Name</u>	<u>Title</u>
W. N. Phillip	Project QA Manager
L. D. Wilson	Site QA Supervisor
J. R. Sumpter	Manager, Nuclear Services
M. E. Powell	Licensing Engineer
S. S. Rodgers	Team Leader Nuclear Licensing
T. K. Logan	Site QA
R. A. Frazar	HL&P QA Manager
R. Hensen	Operations QA Manager
R. L. Ulrey	HL&P QA
M. H. Smith	Operations QA
F. W. Stoerkel	Allens Creek QA

Applicants believe that the distribution was actually much wider. In October 1980, when HL&P received revised NRC guidance on the same subject, it was widely distributed to the various engineering disciplines and key managers.

Interrogatory 33: In Section 3.2 of NUREG-0948, the NRC discusses their classification of Quadrex findings as "safety significant." Do Applicants have any disagreements with the classification or its application to the Quadrex findings?

Answer: NUREG-0948 does not specify the criteria which the NRC used to classify certain of the Quadrex findings as "safety significant," nor does it contain a definition of the term "safety significant." Therefore, Applicants have no basis for either agreeing or disagreeing with this NRC classification of the Quadrex findings.

Interrogatory 34: Please specify the total number of hours and total cost involved in the Bechtel analysis and resolution to date of the Quadrex findings.

Objection: Applicants object on the grounds that the information sought is neither relevant nor reasonably calculated to lead to the discovery of admissible evidence.

Answer: The accounting system does not provide this level of detail.

Interrogatory 35: Please specify for the period May 7, 1981 to September 24, 1981 what study, inquiry, design reviews, design changes, or other response to the Quadrex Report took place within

- a. Brown and Root
- b. HL&P

Answer: HL&P requested Brown & Root to develop a plan of action that would prioritize, evaluate and develop resolutions to the Quadrex findings. This request was documented in the May 6, 1981 letter to E. A. Saltarelli from J. H. Goldberg, a copy of which was made available to the counsel for Texas for inspection and copying on July 28, 1983. Mr. Saltarelli responded with a plan for resolution of the

Quadrex findings in a July 16, 1981 letter to Mr. Goldberg, a copy of which will be made available to the State of Texas for inspection and copying. Generally, B&R proceeded internally with this effort, and HL&P may not be aware of every B&R action in response to the Quadrex Report. However, some of the issues addressed in the Quadrex Report were the subject of study by third party organizations. Brown & Root contracted with Energy Incorporated to review the computer program issues. In addition, for the HVAC concerns both NUS and Westinghouse were performing studies and calculations to determine the corrective actions. Because design evolution is a continuous process, many of the Quadrex findings related to matters which had already been identified as requiring further study, and no separate list of design changes is maintained for preliminary designs, it is not possible to list specific design changes as being a response to the Quadrex Report. HL&P performed the necessary review functions to assure that the Quadrex findings were being given appropriate priority by B&R.

On May 7, 1981, B&R also reviewed the "most serious" Quadrex findings for reportability pursuant to HL&P's May 6 direction, and found only one item judged to be reportable. That review is documented in a May 8, 1981 letter from E. A. Saltarelli to J. H. Goldberg. Subsequently, B&R prepared an assessment of the Quadrex Report and detailed responses to the major findings, which are documented in an April 1982 report.

Interrogatory 36: Please identify the Bechtel Power Corporation (BPC) personnel who prepared the Bechtel Assessment Report or Task Force Report on Quadrex dated March 1982. (Hereinafter these personnel are referred to as the BPC Task Force.)

Answer: Ray Ashley; Paul Speidel; Mario Alvarez; Steve Case; Rick Ellis; Orhan Gurbuz; Dave Haught; Subash Khurana; and Larry Johnson.

Interrogatory 37: For each Quadrex finding, please give the BPC Task Force position as to why there was or was not an obligation to notify the NRC of that finding.

Answer: The Bechtel Task Force analysis of each Quadrex finding is presented in the Task Force report, a copy of which was sent to the State of Texas at the same time that copies were sent to the Board and the other parties in March 1982. The Task Force has not provided additional explanation of the rationale for its judgments on reportability.

Interrogatory 38: Please specify what obligations to report information to the NRC the BPC Task Force considered potentially applicable to HL&P at the time of their preparing the TFR. Please provide citations to the rules, regulations, case law, or other source for the obligations identified.

Answer: The BPC Task Force was requested to identify any Quadrex findings which may have been potentially reportable under 10 CFR 50.55(e) (see Task Force Report at 4). They did not advise Applicants of any other reporting requirements that may have been considered.



Interrogatory 39: Did the BPC Task Force review of the Quadrex Report include a determination of whether notification/reporting requirements other than 10 C.F.R. Section 50.55(e) had been met?

Answer: The complete statement of the BPC Task Force about reporting or notification requirements is reflected in the Task Force report. The BPC Task Force was requested to identify any Quadrex findings which may have been potentially reportable under 10 CFR § 50.55(e). They did not advise Applicants of any other reporting requirements that may have been considered.

Interrogatory 40: If the answer to interrogatory 39 is "no," why were no other determinations made of compliance with notification/reporting requirements?

Answer: See answer to interrogatory 39.

Interrogatory 41: If the answer to interrogatory 39 is "yes," please detail what determinations were made and the results of those determinations.

Answer: Not applicable.

Interrogatory 42: For each of the items the BPC personnel found to be reportable pursuant to 50.55(e), please provide:

- a. the position of the BPC Task Force on why the item was reportable with reference to specific 50.55(e) clauses.
- b. an explanation of why the clause noted in answer 42a applied to that particular Quadrex finding.

Answer: The BPC Task Force analysis of each of the Quadrex findings is provided in the Task Force report. No other explanation has been provided on why the Task Force chose its categorizations. However, it should be noted that the Task Force identified certain findings as "potentially reportable" (category 1), specifically noting that ". . . this category does not imply an item is reportable, but only that it may be potentially reportable." Task Force Report at 5.

Interrogatory 43: Please detail the involvement of HL&P personnel in the preparation and editing of the Quadrex Report.

Answer: Dr. Sumpter reviewed preliminary drafts of some of the generic findings and the portion of the Quadrex Report presenting the questions, B&R responses and Quadrex assessments. HL&P lead engineers reviewed and commented on a draft portion of the report containing questions, responses and assessments. HL&P personnel also provided assistance to Quadrex in planning the review and in the Quadrex meetings with Brown & Root personnel.

Interrogatory 44: In the Quadrex Reports sent to the ASLB and parties there are passages underlined.

- a. Who did the underlining?
- b. Whose copy was used to make the copies for the ASLB and parties.

Answer: In a telephone conversation on August 13, 1983 between counsel for the State of Texas and counsel for

Applicants, it was agreed that the response to interrogatory 44 would be acceptable to the State if it indicated whether or not the underlining was done by Mr. Goldberg. HL&P has made sufficient investigation to determine that the document from which the copies were made was not Mr. Goldberg's personal copy and that the underlining was not performed by Mr. Goldberg.

Interrogatory 45: What specific HL&P questions did Quadrex not answer in the mid-April meeting between HL&P and Quadrex? (Goldberg Statement dated February 9, 1982 at 1)

Answer: At the mid-April meeting referred to in Mr. Goldberg's statement, HL&P questioned whether Quadrex would have sufficient support for some of its findings and generic conclusions. Quadrex was not prepared to address the severity or importance of these issues except to indicate those discipline areas where they believed there were a significant number of problems. While HL&P does not recall every question raised at the mid-April meeting to which it believed that an adequate response had not been provided, some of the issues about which HL&P had questions included: the need for an overall plant separation scheme in the form of a TRD; the need for a top level document setting forth a multi-disciplinary interpretation of the single failure criterion; and the need to include specific equipment reliability requirements in purchase specifications.

Interrogatory 46: Please specify which Quadrex findings HL&P challenged on May 7, 1981 and which findings HL&P considered valid. Please provide the bases for the challenges

and the considered validity.

Answer: The primary purpose of the May 7 meeting was to present the Quadrex Report to Brown & Root. At the meeting, HL&P attendees raised a number of the same questions which were raised at the mid-April meeting referred to in the answer to interrogatory 45. HL&P did not make any specific determinations regarding which findings it considered "valid."

Interrogatory 47: How many hours did Quadrex put into the study which resulted in the Quadrex Report?

Answer: During the period from January 19, 1981, through May 7, 1981, Quadrex personnel put 2637 manhours into the study.

Interrogatory 48: Please specify as of May 7, 1981, the problems for which Quadrex used the present tense which "related to activities which were recognized and corrected previously." (Robertson Statement at 3)

Answer: While there has not been an exhaustive search of the Quadrex Report to identify statements related to activities which had then been recognized as requiring improvement, several major areas are readily identified.

Quadrex made a general statement relative to lack of systems level integration. This general statement is related to a considerable number of specific findings. The process of evaluating system interactions was being addressed by the Brown & Root System Design Assurance Group.

A number of specific Quadrex findings related to ISI and ALARA concerns. Formalized programs of design review

for ISI and ALARA concerns had been previously implemented on the Project.

A number of Quadrex statements relative to environmental qualification of equipment suggested that Brown & Root had not recognized this requirement. While Brown & Root was apparently having difficulty in completing the analysis for environmental qualification, Brown & Root had recognized the need to do so.

Interrogatory 49: Please specify the "opinions of Quadrex as to the best ways of performing engineering functions which [HL&P] did not necessarily agree with." (Robertson Statement at 3)

Answer: A number of Quadrex findings suggested that methods being used by Brown & Root were either inappropriate or deficient. The following are examples of findings with which HL&P did not agree that the Brown & Root method was inconsistent with applicable requirements.

Quadrex Item 4.8.2.1(B) Lack of procedures to define minimum qualification requirements for ALARA reviewers and limited evidence that proper followup has occurred relative to ALARA specified designs.

4.5.5.3(K) Selection of valve and pump seismic design loads.

4.6.2.1(A) Use of saturation temperatures inside containment for equipment qualification.

- 4.6.2.1(E) Use of RELAP III computer code.
- 4.7.2.1(B) EDS did not review FSAR.
- 4.8.2.1(D) Work performed by NUS should be verified by Brown & Root.
- 4.3.2.1(B) TRD on separation
- 4.1.2.1(H) Use of preliminary data
- 4.2.2.1(F) Option used for computer code verification
- 4.5.2.1(A) 10° half cone angle
- 4.5.2.1(B) EDS design verification of preliminary loads
- 4.5.2.1(C) Secondary effects from pipe rupture events
- 4.5.2.1(D) Verification of super pipe stress limits
- 4.5.3.1(B) Isometric drawings do not show restraint location

Interrogatory 50: Please specify the experiences prior to May 7, 1981 in applying the notification requirement criteria of 10 C.F.R. Section 50.55(e) of:

- a. Jerome Goldberg
- b. Jim Sumpter
- c. Cloin Robertson

Answer: a. Mr. Goldberg's experience and qualifications are described at length in the Phase I record. Cf. Goldberg and Frazar, ff. Tr. 906, at 3-4. Mr. Goldberg's 26 years of nuclear engineering and management experience included 10 years at Stone & Webster, during which Mr. Goldberg was responsible as an officer or senior manager of

the architect-engineer or constructor of nuclear power plants. During his entire career, Mr. Goldberg has been responsible for, or participated in, evaluations of alternative designs, including their safety significance. His management and executive roles during this time also gave him an intimate familiarity with the processes involved in engineering, designing and constructing nuclear facilities. Thus, Mr. Goldberg's professional experience prior to May 1981 continuously involved determinations of precisely the types of questions entailed in application of 10 CFR § 50.55(e).

During most of his work with Stone & Webster, Mr. Goldberg had executive or management responsibility for advising utility clients on the applicability of 10 CFR § 50.55(e) to work performed by Stone & Webster, and, upon adoption of 10 CFR Part 21, for reporting pursuant to the latter regulation.

Upon joining HL&P as Vice President, Nuclear Engineering and Construction in October 1980, Mr. Goldberg assumed executive responsibility for HL&P's licensing group. Among his routine activities, he personally reviewed written 50.55(e) reports prior to submittal to NRC.

b. Dr. Sumpter has 13 years of professional experience in nuclear engineering, including 8-1/2 years at HL&P responsible for the nuclear department. From August 1973 to February 1975, Dr. Sumpter headed HL&P's licensing group and from February 1975 until March 1981, the HL&P

licensing group reported to Dr. Sumpter. During the latter period, he had managerial responsibility for the HL&P activities in evaluating and reporting items pursuant to 10 CFR § 50.55(e) and Part 21.

c. Mr. Robertson has 17 years of professional experience in nuclear engineering. His professional activities gave him an intimate familiarity with the process of designing and engineering nuclear power plants and the evaluation of the safety of alternative designs, precisely the considerations in determining reportability. During his four years at Stone & Webster, Mr. Robertson participated in or supervised licensing activities and safety analyses for numerous nuclear power plants. In this capacity, Mr. Robertson was responsible for insuring that any conditions coming to his attention, relating to activities covered by 10 CFR 50.55(e) and 10 CFR Part 21, were brought to the attention of the utility owner or the NRC as appropriate.

Upon joining HL&P as Manager, Licensing in March 1981, Mr. Robertson was directly responsible for management of the engineering group responsible for overall coordination of HL&P's activities in implementing 10 CFR § 50.55(e). His responsibilities included personally reviewing written reports pursuant to 10 CFR § 50.55(e) and Part 21.

Interrogatory 51: Please specify the experiences prior to May 7, 1981 in NRC licensing proceedings of:

a. Jerome Goldberg



b. Jim Sumpter

c. Cloin Robertson

Objection: Applicants object on the grounds that the interrogatory is so vague as to be incomprehensible. Moreover the information that appears to be sought is irrelevant and not reasonably calculated to lead to the discovery of admissible evidence.

Answer: To the extent that this interrogatory is interpreted to mean involvement in the preparation of evidence to be presented by an employer at an NRC licensing hearing (whether or not the evidence is presented by the individual), the answers are as follows:

a. Mr. Goldberg was involved in the preparation of evidence for the following NRC licensing hearings:

Beaver Valley 1, O.L.

Beaver Valley 2, C.P. and O.L.

North Anna 1, 2, O.L.

North Anna 3, 4, C.P.

Sun Desert 1, 2, C.P.

Surry 3, 4, C.P.

Millstone 3, C.P.

Jamesport 1, 2, C.P.

Allens Creek 1, C.P.

South Texas Project 1 & 2, O. L.

b. Dr. Sumpter was involved in the preparation of evidence for the following NRC licensing hearings:

LaSalle 1 & 2, C.P.

Zimmer 1 & 2, C.P.

Bailly 1, C.P.

South Texas Project 1 & 2, C.P.

Aliens Creek 1 & 2, C.P.

Zion 1 & 2, O.L.

South Texas Project 1 & 2, O.L.

c. Mr. Robertson was involved in the preparation of evidence for the following NRC licensing hearings:

Allens Creek 1, C.P.

South Texas 1 & 2, O.L.

Millstone 3, O.L.

Sun Desert 1 & 2, C.P.

Beaver Valley 2, O.L.

Haven 1 & 2, C.P.

New Haven 1 & 2, C.P.

Shoreham, O.L.

Nine Mile Point 2, C.P.

FitzPatrick, O.L.

North Anna 2, 3 & 4, O.L.

Green County, C.P.

Interrogatory 52: Had Mr. Goldberg, Mr. Sumpter, or Mr. Robertson ever had occasion prior to May 7, 1981 to notify an NRC licensing board of any document, report, finding, or other item of information? Please describe the occasion, the information conveyed, and the rationale for notifying the licensing board.

Objection: Applicants object on the grounds that this interrogatory calls for a level of detail that is unwarranted and unduly burdensome. All information given to an NRC Licensing Board by any one of these individuals is a matter of public record, and is available for review at the NRC public document room. The communications addressed by this interrogatory are extremely numerous; virtually all of them pertinent to STP are already in the hands of the State of Texas, the Board and the parties; and the information sought by the interrogatory about such communications is excessively detailed.

Answer: Mr. Goldberg, Dr. Sumpter and Mr. Robertson have all participated in the drafting of numerous letters, reports and other documents which have been sent to NRC licensing boards. In this proceeding, alone, hundreds of documents with which one or more of these three gentlemen was involved have been sent to the Board and the parties. Many of these documents were signed by Mr. Goldberg or sent out pursuant to his direction. Similarly a large number of such documents were sent to the Board and parties in the Allens Creek proceeding. Of course, as witnesses in licensing proceedings these gentlemen would also have provided certain information to licensing boards on the record in those proceedings.

Interrogatory 53: In their review of Brown and Root work, please specify where Bechtel has found deficiencies or potential deficiencies.

Answer: In a telephone call on August 9, 1983, counsel for the State of Texas and counsel for Applicants agreed that an acceptable response to this interrogatory would be production of the written reports on 50.55(e) items which were identified by Bechtel review of Brown & Root work. Although copies of all such written reports were sent to the State of Texas at the time of submittal, such reports will be included in the documents produced in response to interrogatory 9.

Interrogatory 54: As of January 1, 1981,

- a. how many people did HL&P have performing quality assurance for design and engineering.
- b. how many people did B&R have performing quality assurance for design and engineering.
- c. please provide the names and backgrounds of the people counted in 54a and 54b.
- d. please provide the current position of the people counted in 54a and 54b.

Answer: A number of exhibits from Phase I of this proceeding provide extensive information regarding persons performing quality assurance duties at STP as of May 1981. While the exhibits do not provide the requested information as of January 1, 1981, they do cover periods which either encompass or closely follow that date. In discussions with Applicants' counsel, counsel for the State of Texas agreed that a list of personnel as of May 1981 would be adequate for the State's purposes. The following exhibits provide the requested information:

1. Applicants' Exhibit 37 - This exhibit provides a listing of HL&P personnel assigned to the STP as of May 21, 1981, under the Vice President for Nuclear Engineering and Construction, including names, titles, degrees, years of experience and employers. This exhibit identifies, inter alia, HL&P Engineering personnel who review Brown & Root design work.
2. Applicants' Exhibit 39 - This exhibit provides a listing of HL&P QA/QC personnel assigned to either the STP or the Houston QA Group as of May 21, 1981, including names, titles, degrees, years of experience and employers. Applicants' Exhibit 39 includes the HL&P QA personnel who performed audit and/or review activities related to B&R design work.
3. Applicants' Exhibit 41 - This exhibit provides a listing of Brown & Root management personnel assigned to the STP from 1977 to June 1981, including name, period of employment and position.
4. Applicants' Exhibit 42 - This exhibit includes a diagram of Brown & Root STP Quality Assurance management personnel including name and title.

Interrogatory 55: On April 7, 1982, Mr. Goldberg sent a letter to Mr. Haggan of BPC (ST-HL-YB-0507) in which Mr. Goldberg stated: "In this connection, please note that, although it may not be evident by reading the Quadrex Report due to its lack of explicit detail, three items (Line items

1, 100 and 146) are also related to deficiencies reported to NRC prior to the Quadrex review." Please explain how each line item is related to the reported deficiency.

Answer: Line Item 1 refers to a Quadrex finding that the Brown & Root structural group does not appear to question the reasonableness of the input data regarding margin. While Quadrex did not identify it specifically, HL&P had previously reported in September 1980 to the NRC a condition of "underdesigned beam connections for Category 1 structural steel," which resulted from inadequate design input.

Line Item 100 relates to a Quadrex finding that refinement of the reactor cavity cooling pressure drop calculation appears to be necessary. HL&P had previously notified the NRC in October 1980 of a concern relative to "cooling of primary shield penetrations".

Line Item 146 related to a Quadrex finding that the AFW pump motors to be located at a low elevation in the IVC may not be qualified for the currently postulated accident environment. HL&P had previously notified the NRC in August 1980 of a concern relative to the auxiliary feedwater pump qualification.

Interrogatory 56: Please state the basis for HL&P's decision to terminate Brown and Root from

- a. design and engineering
- b. construction management

Objection: Applicants object to this interrogatory on the grounds that it is neither relevant nor reasonably

calculated to lead to discovery of admissible evidence. The circumstances surrounding HL&P's decision to terminate Brown & Root's design and construction management duties were addressed in Phase I of this proceeding.

Answer: The bases for HL&P's decision to terminate Brown & Root from design and engineering and construction management duties are described in the following testimony from Phase I:

Goldberg, Lex, Crnich ff. Tr. 10,403 at 57; Tr. 10,413-417; 10,467-469; 10,485-487; 10,492; 10,509-511; 10,518-522; 10,534-555; 10,572-573 (Goldberg).

Interrogatory 57: Please list, with the classifications for each item as safety-related or non-safety related at the time of performance, all construction items performed at STNP between May 7, 1981 and September 24, 1981. For each item provide the date that item of construction was performed.

Answer: Applicants' counsel and counsel for the State of Texas agreed that Applicants would provide the Project Monthly Progress Reports in lieu of a response to this interrogatory, and that counsel for the State of Texas would review those reports to determine if they satisfactorily responded to this interrogatory. Copies of the referenced reports have been sent.

Interrogatory 58: Please list all items reclassified as safety-related from non-safety-related since January 1, 1981.

Answer: Applicants assume that the intent of this question is related to identification of design errors involving improper classification of an item as non-safety-related, causing an upgrade from non-safety-related to safety-related. Any such design changes due to design error involving safety-related items that were released for construction are addressed in the 50.55(e) reports to be produced in response to interrogatory 9. Some changes in classification have been made to systems not yet released for construction as a result of design evolution. All items reclassified as a result of the Quadrex review are identified in Bechtel Report EN-619.

Interrogatory 59: Who was involved in preparing the Applicants' List of Consultants to HL&P and the Management Committee on Project Management, QA/QC, or Inspection of Completed Construction Work dated 5/21/81 and provided to the parties in this proceeding?

Answer: Other than counsel for Applicants, the individuals involved in preparing the list were primarily L. R. Jacobi, J. G. White, and D. G. Barker, although they did make inquiries to other departments to complete the list.



Interrogatory 60: Did any officer of HL&P, including but not limited to Mr. Jordan, Mr. Oprea or Mr. Goldberg, ever consult with an attorney regarding HL&P's obligation to turn the Quadrex report over to the NRC or to report findings to the NRC? If so, please specify the dates and persons involved in such discussions.

Answer: Prior to September 1981, no officer of HL&P consulted with an attorney regarding HL&P's obligation to turn the Quadrex Report over to the NRC or to report findings to the NRC, although Mr. Goldberg mentioned to HL&P's licensing attorneys that the Quadrex review was taking place, that preliminary information indicated that reports would be filed with the NRC under Section 50.55(e) and such reports were in fact filed. In September 1981 when HL&P's licensing attorneys were advised by counsel for the NRC Staff that the Quadrex Report would be of potential interest to the Licensing Board, HL&P's licensing attorneys recommended to Mr. Oprea that the Report be sent to the Board and the parties and this action was taken. Since that time, the subject has been mentioned in discussions between HL&P's licensing attorneys and Mr. Oprea, Mr. Goldberg and Mr. Jordan. HL&P's licensing attorneys do not recall discussing the subject with any other officer of HL&P.

Interrogatory 61: Please provide Mr. Jordan's records which reflect his involvement and knowledge regarding the Quadrex study and his involvement, if any, in the decision regarding notification of the NRC regarding Quadrex findings.

Please include the date on which Mr. Jordan first received a copy of the Quadrex Report.

Objection: Applicants object to this interrogatory on the grounds that it is a request for production of documents which was filed out of time. See answer to interrogatory 8.

Answer: Mr. Jordan does not have such records. He received an executive briefing from Mr. Goldberg concerning the Quadrex Report within a few days after it was received by HL&P.

Interrogatory 62: What is the estimated cost to the STNP partners of removing Brown & Root as architect-engineer-construction manager and the consequent delays in the project. Please include increased cost of the project, costs of maintenance for the interim period prior to resumption of construction, and costs of the Brown & Root/Bechtel transition effort.

Objection: Applicants object to this interrogatory on the grounds that the information requested is neither relevant nor reasonably calculated to lead to the discovery of admissible evidence. The replacement of B&R is not related to the issues to be addressed in Phase II.

Interrogatory 63: Please provide HL&P's description of how Mr. Herr and Mr. Phillips came to see the Quadrex Report in August 1981.

Answer: HL&P believes that HL&P personnel referred to the Quadrex Report in the course of discussions with Messrs. Herr and Phillips during their investigation into allegations

regarding the timeliness of Brown & Root access engineering (I&E Report 81-28). The Quadrex Report was subsequently made available for their review.

Interrogatory 64: Please identify the witnesses Applicants intend to call on Quadrex issues at the Phase II hearings and summarize their testimony.

Answer: Applicants currently anticipate calling Mr. J. H. Goldberg as a witness at the Phase II hearings. Mr. Goldberg's testimony will depend upon the specific issues designated by the Board for consideration at those hearings. Memorandum and Order (June 22, 1983) at 5, 7. Applicants have not yet identified other witnesses they intend to call on Quadrex issues, and will not be able to do so until the issues to be litigated in the Phase II hearings are more precisely delineated.

Interrogatory 65: Please identify and produce each document upon which the Applicants rely as support for their positions stated in their responses to this first set of interrogatories.

Answer: In responding to these interrogatories, Applicants have relied either directly or indirectly on numerous documents, many of which are identified in responses to individual interrogatories. The primary documents upon which Applicants rely, however, are:

Quadrex Report

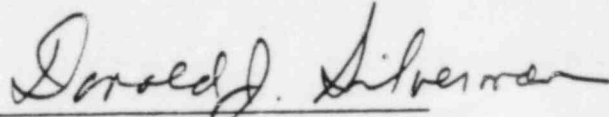
Bechtel Task Force Report

NRC I&E Report 82-12

May 8, 1981 letter, E. A. Saltarelli to J. H.

Goldberg including enclosures

Respectfully submitted,



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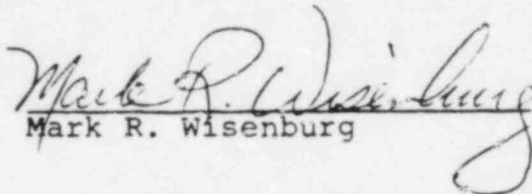
Dated: August 26, 1983

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ATTORNEYS FOR HOUSTON LIGHTING  
& POWER COMPANY, Project Manager  
of the South Texas Project acting  
herein on behalf of itself and  
the other Applicants, THE CITY OF  
SAN ANTONIO, TEXAS, acting by and  
through the City Public Service  
Board of the City of San Antonio,  
CENTRAL POWER AND LIGHT COMPANY,  
and CITY OF AUSTIN, TEXAS

BEFORE ME, the undersigned authority, on this day personally appeared Mark R. Wisenburg, Manager, Nuclear Licensing, Houston Lighting and Power Company, who upon his oath stated that the foregoing "Applicants' Answers and Objections to State of Texas's First Set of Interrogatories to Applicants on Quadrex" were prepared under his supervision and direction, and that all answers contained therein are true and correct to the best of his knowledge and belief.

  
Mark R. Wisenburg

SUBSCRIBED AND SWORN TO BEFORE ME by the said Mark R. Wisenburg on this 25<sup>th</sup> day of August, 1983.

  
Notary Public

My Commission expires:  
My Commission Expires January 1, 1988

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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 POWER ) Docket Nos. 50-498 OL  
COMPANY, ET AL. ) 50-499 OL  
 )  
(South Texas Project, Units 1 )  
and 2) )

CERTIFICATE OF SERVICE

I hereby certify that copies of "Applicants' Answers and Objections to State of Texas's First Set of Interrogatories to Applicants on Quadrex" have been served on the following individuals and entities by deposit in the United States mail, first class, postage prepaid, on this 26th day of August, 1983.

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