

SOUTH TEXAS PROJECT LITIGATION REVIEW PROGRAM

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I. INTRODUCTION

In December, 1981, the Owners of the South Texas Project (STP) filed suit against Brown & Root, Inc. (B&R) and its parent, Halliburton, Inc., based on non-performance by B&R of its contractual obligations to provide architect/engineering and construction management services and its refusal to fulfill its obligations as constructor of the STP (HL&P v. B&R). B&R was replaced by Bechtel as architect/engineer and construction manager in September, 1981. Ebasco Services took over construction in February, 1982. An agreement to settle the litigation prior to trial was reached among all parties except the City of Austin on May 30, 1985. 1/ In preparation for the trial of the lawsuit in Matagorda County, Texas, the parties pursued extensive discovery including depositions, interrogatories, document production and the preparation of a number of expert reports. With the exception of the documents furnished in response to production requests, the discovery materials were filed with the Court. All discovery materials were covered by a protective order. That order was dissolved by the Court upon execution of the settlement agreement.

Houston Lighting & Power Company (HL&P), as the co-applicant responsible for the licensing of the STP, is undertaking a review of the litigation record as reflected in the discovery materials filed with the Court to determine whether such materials identify safety-related deficiencies in the systems, structures or components of the STP or their associated design or quality documentation.

1/ The settlement is contingent on approval by the Texas Public Utilities Commission.

The review will be conducted by approximately forty experienced engineers employed by S. Levy, Inc., (SLI) who will follow detailed procedures, guidelines and criteria in screening the data. They will be assisted by a select group of HL&P engineers. The entire process will be under the surveillance of SLI and HL&P personnel and will be conducted in accordance with the SLI QA program and monitored by HL&P in accordance with its QA program.

The review will focus on the identification of potential safety-related deficiencies in construction and design work done by B&R during its tenure on the job (1972-81) which may not have been identified during the extraordinary effort between early 1980 and mid-1982 to benchmark and check the quality of safety-related construction and design work at the STP. It is important that the reader review the history of the STP (pp. 3-15); it demonstrates that no nuclear power project in the United States has received closer or more extensive inspection, testing and scrutiny than the STP. Over a period of two years virtually all safety-related construction was checked by special engineering task forces and expert consultants, and the entire design was reviewed by Bechtel under monitoring by the NRC Staff.

This program will seek to determine whether the litigation record to be reviewed in HL&P v. B&R discloses some safety-related deficiency in the design or construction of STP systems, structures or components not identified by the extraordinary reviews of design and construction conducted between 1980-82.

The program will consume about sixteen man-years of engineering effort. It will result in a completely auditable record consisting of hard copy files, a computerized database and a report to NRC on or about March 1, 1986.

II. HISTORY OF THE SOUTH TEXAS PROJECT

A. Background Information

The South Texas Project (STP or the Project) is a two unit nuclear generating station located approximately 15 miles southwest of Bay City, on the west side of the Colorado River, in Matagorda County, Texas. Each unit is a Westinghouse pressurized water reactor with a rated electrical output of 1250 megawatts. STP is owned jointly by Houston Lighting & Power Company (HL&P), Central Power & Light Company, the City of Austin and the City of San Antonio. HL&P, as the Project Manager, supervises the construction of STP and is the lead applicant in the operating license proceedings for the facility. Fuel loading at STP is scheduled to take place in December 1986 for Unit 1 and in December 1988 for Unit 2, with Unit 1 expected to begin commercial operation in June 1987.

B&R was engaged as architect/engineer and constructor for STP in 1972, and design work for the Project commenced that same year. HL&P submitted an application for construction permits for STP on May 19, 1974. A Limited Work Authorization (LWA) for site preparation activities was granted on August 12, 1975, and work within the scope of the LWA commenced in September 1975. The construction permits for both units were issued on December 22, 1975.

B&R remained the architect/engineer and constructor at STP from the commencement of work until September 1981, when it was terminated as architect/engineer by HL&P and the other Owners because of its inability to perform design and engineering work for the Project in a timely fashion. Bechtel was hired to replace B&R as architect/engineer and construction manager, and transition of Project engineering work from B&R to Bechtel began in October 1981. Although HL&P and the other Owners wished to retain B&R as

constructor for STP, B&R declined to remain in that capacity. On February 15, 1982, HL&P announced that Ebasco had been selected to replace B&R as constructor.

B&R's replacement as architect/engineer and constructor effectively shut down all work at STP for several months. Bechtel did not resume engineering work on a production scale until the end of April 1982, and design work in some areas was not resumed until several months later. Most safety-related construction had already been halted in late 1979 and early 1980 (See pp. 4-10 below). Although a limited amount of safety-related work was released for construction while B&R was still on the job, full scale safety-related construction was not resumed until August, 1982, after Bechtel and Ebasco had started work. Nonsafety-related construction resumed in June 1982.

On August 4, 1982, Bechtel issued a Project Completion Forecast based on fuel load for Unit 1 in December 1986 and for Unit 2 in December 1988. To date, engineering and construction for STP have proceeded generally in accordance with this schedule.

B. Previous Reviews of STP Engineering and Construction

The design, engineering and construction of STP have received unusually close scrutiny. In addition to normal inspections by the NRC, construction of the Project was thoroughly reviewed as an outgrowth of an NRC enforcement action and voluntary stop-work orders confirmed by the Commission Staff. The change of contractors in 1981 entailed further independent reviews of the adequacy of construction as well as design and engineering. It is fair to state that no nuclear project in the United States has been subjected to greater or more intensive review.

1) The NRC 79-19 Investigation and Related Reviews

On November 10, 1979, the NRC undertook an intensive investigation of QA/QC and related construction activities at STP. This investigation was carried out over three months by one NRC investigator and five inspectors, at least one from each of four NRC regional offices. The investigation included observations, document reviews, witnessing of tests and over 100 interviews with HL&P, B&R and subcontractor personnel working at STP.

Much of this investigation was directed at construction-related QA/QC programs at STP, especially in the areas of structural backfill, concrete placement and welding. The results of the investigation were documented in Investigation Report 79-19 which described 22 inadequacies at STP. Based on the results of the investigation, the NRC's Office of Inspection and Enforcement issued a Notice of Violation and Notice of Proposed Imposition of Civil Penalties on April 30, 1980, accompanied by an Order to Show Cause why safety-related construction at STP should not be stopped ninety days from the date of the Order. Prior to the issuance of the Show Cause Order, HL&P had voluntarily stopped work on placement of complex concrete (Dec. 28, 1979) and safety-related welding (April 14, 1980) in response to problems identified by the NRC as well as observations by HL&P and B&R QA/QC personnel. These stop work orders were confirmed by Confirmatory Action Letters from NRC Region IV. The Show Cause Order required substantial reexamination of completed construction work and improvement in the Project QA/QC program, but did not require any additional stop work orders.

Extensive corrective actions were taken by HL&P to resolve the problems noted in the NRC's investigation and concurrent HL&P and B&R QA/QC audits. In January 1980, HL&P retained Bechtel Power Corporation to conduct an in-depth

audit of the QA/QC program at STP. Other consultants were hired to review and advise management on issues related to harassment and intimidation.

Special emphasis was placed on soils, concrete and welding, which were three areas where it was thought that deficiencies might exist. At the time of the 79-19 investigation and report, structures in these three areas represented the overwhelming majority of the then-completed safety-related construction work. HL&P devised extensive review programs to determine the adequacy of the work in each area and to describe and schedule any necessary repairs.

a. Soils

HL&P and B&R initiated a soil test boring program in January 1980 to assess and verify the adequacy of the in-place Category I structural backfill at STP. This program was conducted by geotechnical engineers from Woodward-Clyde Consultants (WCC). This soils program verified the overall adequacy of the Category I backfill, but WCC recommended further confirmatory investigations in four specific locations. This program was completed in April 1980.

After the issuance of the Show Cause Order on April 30, 1980, HL&P established a special Task Force to perform a second verification of previously placed backfill. This Task Force consisted of geotechnical and QA engineers from B&R, HL&P and WCC. In order to further guarantee the accuracy of its structural backfill analysis, the Project also hired Shannon and Wilson, Inc., to establish an independent Expert Review Committee of geotechnical experts to examine Category I structural backfill construction at STP and to review the work of the special Task Force. This Expert Review Committee consisted of three recognized experts on soils, backfill and soil

compaction. 2/ Both the Task Force and the Expert Review Committee performed reviews of backfill placement at STP. These reviews included examination of the materials used for backfill, backfill placement practices, documentation reflecting how compaction of backfill was inspected and tested during placement, and the results of subsequent tests and borings. In addition, the Expert Review Committee examined the methods used and analyses performed by the Task Force. Both the Task Force and the Expert Review Committee concluded that in-place backfill at the Project met applicable Project and regulatory requirements. The NRC Staff, after reviewing the work of the Task Force and the Expert Review Committee, concurred.

b. Concrete

A similarly extensive series of reviews was performed with respect to concrete placement. At the time the Order to Show Cause was issued, HL&P was already in the midst of a concrete verification and inspection program stemming from the discovery of voids in Lifts 8 and 15 of the Unit 1 Reactor Containment Building. 3/ This verification and inspection program covered 80 percent of the reactor containment building shell walls, and consisted of visual inspections, soundings, test borings and core drillings. All significant voids discovered were mapped and filled.

2/ These experts were: 1) Dr. A.J. Hendron, Professor of Civil Engineering, University of Illinois; 2) Dr. H. Bolton Seed, Professor of Civil Engineering, University of California at Berkeley; and 3) Stanley D. Wilson, an international consultant on embankment dams and on the behavior and properties of compacted soils.

3/ The walls of each reactor containment building are constructed in circumferential rings called "lifts". Each lift is composed of a 10' deep pouring of reinforced concrete around the circumference of the RCB. Voids are created when concrete fails to completely fill the spaces into which it is poured.

Upon issuance of the Order to Show Cause, HL&P and B&R formed a Task Force to perform an assessment of the remaining safety-related concrete structures at STP. This Task Force included more than twenty full-time HL&P and B&R engineers. In addition, a special group of expert consultants was retained to ensure that the Task Force program was conducted properly. 4/

The Task Force's review covered nearly 70 percent of all safety-related concrete placed at STP. Much of the remaining 30 percent was in structures, such as the reactor containment buildings and the essential cooling water intake and discharge structure, that had already been subject to review. Within the structures reviewed, a sample of concrete placements was selected by conservative, statistically valid methods for examination. The Task Force review proceeded in four phases: 1) a review of all documentation related to each selected concrete placement; 2) a field survey to verify that the "as-built" condition of the selected structures corresponded to documentation; 3) a visual inspection of each placement; and 4) a random selection of three sample areas in each placement upon which to perform several specialized tests, including test borings, ultrasonic examination of consolidation and verification of the location of embedded steel. At the end of this review, it was concluded that the quality of safety-related concrete at STP was adequate and that the performance of concrete structures would meet design requirements. After examining the work of the Task Force and expert consultants, as well as the results of a number of other tests, inspections

4/ These included Joseph S. Artuso, President of Construction Engineering, Inc., an expert on concrete inspection and testing; Thomas J. Realing, a materials expert formerly with the U.S. Army Corps of Engineers; and Dr. Richard C. Meilenz, an expert on the application of petrography to civil engineering problems and materials and past president of the American Concrete Institute.

and repairs performed on safety-related concrete at STP, the NRC Staff agreed that no internal honeycomb or void areas remained unrepaired in the structures.

c. Welding

Safety related welding at STP was also subjected to a thorough verification program. In response to Investigation Report 79-19, HL&P and B&R formed a Task Force, similar to those for soils and concrete, to examine safety-related welding on the Project. An Independent Review Committee, consisting of three experts, was retained to review and approve the work of the welding Task Force. 5/

Initially, the welding Task Force examined randomly selected safety-related piping and structural welds made by B&R. After this initial investigation revealed a significant percentage of nonconforming welds, the Task Force recommended reexamination of safety-related welds, and where required, repair of these welds. Accessible safety-related structural (AWS Code) welds were reexamined and repaired as necessary to bring them into compliance with specifications. Furthermore, an evaluation of inaccessible structural welds demonstrated that each would perform its intended function. Radiographs of ASME welds were reviewed according to a detailed examination and repair plan approved by the NRC Staff. All welds discovered to be defective during the course of the Task Force examination were repaired, and new procedures were put in place after the issuance of the Show Cause Order to

5/ The welding Independent Review Committee consisted of: Roger F. Reedy, Chief Consultant at Nutech, an expert experienced in nuclear-related welding and a chairman of the Subcommittee on Nuclear Power of the ASME Boiler and Pressure Vessel Committee; Daniel P. Hegglin, also of Nutech, an engineer experienced in nuclear welding and procedures; and Samuel A. Wenk, an engineer at the Southwest Research Institute and a former director of both the ASNT and ASTM.

ensure that welding deficiencies would not recur. The NRC Staff, which continuously monitored the efforts of the welding Task Force, concluded that HL&P had met its commitments relative to the safety-related welding program at STP and therefore, in December 1981, closed out the welding item in the Show Cause Order.

In sum, almost two years of effort were devoted to establishing the adequacy of safety-related construction at STP. The Atomic Safety and Licensing Board conducting the STP operating license proceeding, after hearing the testimony of the Applicants, the experts who reviewed the work of the soils, concrete, and welding Task Forces, and the NRC Staff witnesses, and after examining all other aspects of the record related to the quality of construction at STP, stated: "We find that, as of the close of the Phase I record, there is reasonable assurance that the structures in place at the STP are in conformity with applicable regulatory requirements."

Houston Lighting & Power Company, et al. (South Texas Project Units 1 and 2), LBP-84-13, 19 N.R.C. 659, 702 (1984).

2) Reviews Related to the Transition of
Responsibilities from B&R to Bechtel and Ebasco

The termination of B&R and the subsequent takeover of the engineering and construction of STP by Bechtel and Ebasco, respectively, prompted review of all aspects of the engineering and construction at the Project. In both scope and level of detail, this review was unprecedented in the nuclear industry.

a. Bechtel's Review of Engineering

Under the terms of the contract between HL&P and Bechtel, Bechtel is obligated to assume design responsibility for the entire Project, including work completed by B&R. Before Bechtel could accept responsibility for the adequacy of the existing design and resume design production, the precise

status of all engineering and design work had to be ascertained. Therefore, upon assuming its role as architect/engineer for STP in the fall of 1981, Bechtel undertook an in-depth review of the entire STP design directed toward evaluating the adequacy of the existing design as well as determining what work remained to be done.

In order to accomplish this review, Bechtel with the assistance of engineering personnel from HL&P and B&R, divided the engineering and design for STP into approximately 200 individual sections called "work packages." Most work packages related to discrete physical structures or plant systems, such as particular buildings, piping or electrical systems. Other work packages covered inter-disciplinary matters such as licensing documentation, pipe break analysis and safe shutdown criteria. Again with the assistance of HL&P and B&R, Bechtel assembled all of the Project documentation pertinent to each work package. The number and type of documents in each work package varied depending on its subject matter. Typical work packages might include system design descriptions, logic diagrams, flow diagrams, piping and instrument diagrams, equipment specifications, calculations, vendor drawings, isometric drawings and other documents. Bechtel did not commence review of a work package until it was determined that sufficient documentation had been assembled to allow a complete review of the design embodied in the package.

Once a work package was assembled, Bechtel thoroughly examined all design documents in it. In doing so, depending on the nature of the work package, Bechtel evaluated the design assumptions and methods of analysis used by B&R, checked to see if applicable design criteria and technical requirements were met, assessed the adequacy of design verification, reviewed design drawings and calculations for accuracy, and checked that the latest revisions of

documents were being used by all disciplines. In its review of the work packages, Bechtel particularly considered Quadrex report 6/ findings which related to the various work packages, and collected the results of that review in a separate interdisciplinary work package.

Bechtel generated a report on each work package and solicited comments as appropriate from cognizant engineers within B&R and HL&P. Each report included discussions of any technical problems identified by Bechtel, as well as a description of work necessary to complete the design. After meetings at which the comments on each work package report were reviewed, the work package reports were revised accordingly and transmitted to HL&P.

These work package reports remain part of the Project documentation, and were the basis from which Bechtel resumed design production for STP in the spring and summer of 1982.

Bechtel's engineering review effort was overseen by the NRC. In January 1982, the NRC assigned a resident engineer to Bechtel's Houston offices to monitor on a full-time basis the transfer of engineering documents and Bechtel's review of these documents. The resident engineer performed reviews of selected work package reports, and engineers from the NRC's Office of Nuclear Reactor Regulation assigned to aid the resident engineer, reviewed additional selected work package reports. This unusual degree of scrutiny of Bechtel's work by the NRC provides significant assurance that any defects in the STP design were detected by Bechtel's review.

As a result of Bechtel's review, many changes were made in the design for STP and were fully documented in Project Records. Although some constructed

6/ The Quadrex Report was performed in the Spring of 1981. It was commissioned by HL&P in order to benchmark the status of B&R's engineering and its capability to complete the design in accordance with Project schedules. Quadrex reviewers also examined selected design products and identified several matters determined to be reportable to the NRC under 10 CFR 50.55(e).

work had to be removed (e.g. large amounts of HVAC duct work and cable tray supports), the extent of alteration of in-place components at STP was limited, because at the time Bechtel became architect/engineer in September of 1981, only about 1/3 of the construction at STP had been completed. In addition, the majority of the work in place at that time had already been thoroughly inspected and where defective was repaired or corrected as a result of the 79-19 investigation and related reviews. 7/

b. Review of In-place Construction by Bechtel and Ebasco

Bechtel's take-over of architect/engineer and construction management functions also necessitated that STP be physically examined to determine the exact status of all construction at the Project. The limited extent of safety-related construction activities between late 1979 and mid-1982 facilitated a detailed, systematic review.

Among the key aspects of Bechtel's review of plant construction was a series of "walkdowns" which collectively covered all completed construction at the plant. During these walkdowns, Bechtel and B&R personnel visually checked the installed sections of the plant against applicable design drawings. Ebasco also provided manpower to aid during the walkdowns. The drawings were marked up to reflect the extent to which construction of the items represented on the drawings had been completed. The walkdowns also assured that construction had proceeded according to the design or alternatively recorded the extent of any deviation from the design. Following each system walkdown, Bechtel audited the quality control records for completed construction on that

7/ See pp. 5-10, supra.

system to verify that these records had been properly generated and maintained. Thus, Bechtel's review not only provided for a physical check of completed work but also assured that documentation existed which provided objective evidence that work had been done properly.

In addition to the walkdowns and general document verification effort, Bechtel and Ebasco conducted special reviews of safety-related ASME welding at STP to verify that all such welds met code standards. During these reviews, all accessible safety-related welds were visually inspected, and the documents and radiographs pertaining to these welds were examined to determine whether documentation for each weld was complete. Any welds found to be defective or to lack acceptable documentation were either radiographed to verify their adequacy or were repaired.

The NRC monitored both the general transition of construction work and the special welding reviews. An NRC resident inspector was on the site full-time during this transition, and reviewed various aspects of Bechtel's and Ebasco's transition activities. In addition, select teams of NRC personnel monitored the special welding reviews. The NRC's oversight thus provided additional assurance that Bechtel and Ebasco performed their examination of in-place construction of STP in a thorough, consistent manner.

C. Summary of History of STP

STP is one of the most intensively scrutinized commercial nuclear facilities in the United States. The design, construction and associated documentation for the Project in place at the time Bechtel and Ebasco replaced B&R underwent a more far-reaching and detailed review than is customary in the nuclear power industry. The NRC has overseen all major reviews of work on the

Project, and has examined the results of these reviews. Thus, there is a high level of certainty that any defects in the design or in-place construction of STP as they existed prior to the resumption of safety-related work in 1982 have been discovered and corrected.

III. THE LITIGATION BETWEEN THE OWNERS OF STP AND BROWN & ROOT

A. Brief History of the Case

HL&P and the other STP Owners filed suit against B&R and its parent corporation, Halliburton, Inc., in December 1981, in the District Court of Matagorda County, Texas (the Court), some three months after B&R was removed as architect/engineer and about six weeks after B&R finally announced that it would not remain as constructor. Activities in the litigation continued for almost 3 1/2 years, during which the primary activities of the parties were discovery by means of depositions, interrogatories, examination of documents and the preparation of reports by experts expected to testify in the litigation. In addition, the Court held a number of pre-trial hearings, most of which related to discovery and scheduling matters.

In May 1985 a tentative settlement was reached between all the parties to the litigation with the exception of the City of Austin. 8/ The settlement, which is contingent upon approval by the Texas Public Utilities Commission (TPUC), will be reviewed by the TPUC in early 1986. One further ramification of the settlement should be noted. During the pendency of the lawsuit, the Court had imposed a protective order preventing the parties from making

8/ The City of Austin also has filed a separate lawsuit against HL&P. The suit is pending in Travis County, Texas.

available to the public information learned during the discovery process. When the parties arrived at a settlement, the Court ordered this protective order dissolved. Thus, all of the interrogatory answers, deposition transcripts and exhibits and expert reports filed in the case have become publicly available. Documents exchanged between the parties in response to requests for production are not generally available because they were not filed with the Court.

B. Issues in the Litigation

The primary issues in the litigation related to B&R's performance on the Project from its inception in 1972 until September 1981. The plaintiffs' central theory was that B&R had breached its obligation to the STP Owners by failing to perform the architect/engineering and construction for the Project in the manner contemplated by the contract. B&R had completed less than 50% of the engineering and about one-third of the construction for both units at the date of its termination. The plaintiffs particularly focused on B&R's inability to complete the engineering and design of the Project, and on certain inadequacies in those portions of B&R's design that had been completed. By and large, the performance of B&R as constructor at STP was acceptable; the Owners had in fact desired to retain B&R as constructor. They were unable to do so because of B&R's refusal to continue on the job without major modifications to its contract.

In defense of its performance, B&R contended that it had performed as well at STP as other architect/engineers and construction managers had at

other facilities being built during the same time period. B&R contended that regulatory circumstances, vendor problems, the actions of HL&P as Project Manager, and other factors prevented them from achieving Project schedules.

Many issues in the case were unrelated to plant safety or operability. For example, the Owners claimed that B&R incorrectly stated the amount of engineering completed at various points in time. While relevant to B&R's performance of its obligations to the Owners, this question is not germane to whether the plant was properly engineered and constructed. Other issues were similarly unrelated to plant safety. For example, substantial discovery was devoted to whether Halliburton, Inc., could be held liable for B&R's breach of contract and to questions concerning B&R's scheduling techniques, the amount of damages suffered by the Owners, the costs of comparable plants, and the history of the negotiations of the contract between the HL&P and B&R.

The allegations regarding deficiencies in B&R's performance were, of course, developed by HL&P and the other plaintiffs. They are identified with particularity in the plaintiffs' "Specification of Claims and Issues". B&R's position is contained in its "Specification of Claims and Defenses". Both documents were transmitted by HL&P to the NRC and the service list in the STP Operating License proceeding by letter of April 22, 1985.

C. The Parties' Major Activities in the Litigation

1) Discovery

The parties on both sides of the litigation spent most of their energies conducting discovery to establish the facts relevant to the case. This

discovery was conducted primarily by means of interrogatories, 9/ depositions, and requests for production of documents.

a. Interrogatories

Interrogatories are written questions propounded by one party to an opposing party or parties in a lawsuit. Parties to whom interrogatories are propounded are required to answer them unless they call for legally privileged information or are otherwise objectionable. All parties to the STP litigation made extensive use of interrogatories to extract information from opposing parties. The plaintiff Owners filed more than 60 sets of interrogatories, each consisting of a number of individual questions; B&R and Halliburton also made liberal use of this discovery technique. By the time the litigation was settled in May 1985, most of these interrogatories had been answered.

Many of the interrogatories addressed to the various parties concerned technical issues that could possibly relate to the safety of design or construction at STP. Particularly noteworthy in this regard were interrogatories propounded by B&R to HL&P which required HL&P to list for each Bechtel work package all of the technical deficiencies found in the B&R engineering work included in the work package. However, almost half of the interrogatories and answers in the case related only to issues having no bearing on plant safety, such as cost, scheduling, Halliburton involvement and damages.

9/ A limited number of requests for admissions were filed during the course of discovery. Requests for admissions are written requests by one party that an opposing party or parties admit or deny specified factual statements. For the purposes of this litigation review effort, all requests for admissions will be treated the same as interrogatories.

b. Depositions

Depositions were used extensively to discover information related to issues in the litigation. B&R, Halliburton and the plaintiffs took deposition testimony from more than 200 witnesses during the course of discovery, covering all of the major issues in the case. Depositions of individual witnesses ranged in length from a few hours to more than twenty-five days of testimony. Documentary exhibits were often used as a basis for much of the questioning, and these exhibits were filed in the Court with the transcripts of the oral depositions.

The depositions taken were of four types. First, there were personal depositions. To commence a personal deposition, a party would file a notice requiring a named individual to appear on a given date and answer questions. At these depositions, the witnesses could be asked questions on any subject related to the litigation.

The second type of deposition was the so-called "Rule 201" deposition. 10/ To commence a Rule 201 deposition, a party would serve another party with a notice stating that it desired to take the other party's deposition on a particular subject (e.g., pipe whip restraint design, IVC design). The other party would then provide a witness knowledgeable about that subject to testify. In Rule 201 depositions, the questions and testimony related only to the particular subject described in the notice of deposition.

The third type of deposition was the "segmented" personal deposition. The notice of deposition for a segmented deposition named a specific individual to be deposed, but, as with a Rule 201 deposition, limited the scope of the questioning to a particular subject. The deposition testimony was thus correspondingly limited to that subject.

10/ The reference is to Rule 201 of the Texas Rules of Civil Procedure, which provides for such depositions.

Finally, there were depositions upon written questions. These depositions involved questions propounded in writing and answered either orally or in writing. Depositions upon written questions were often used to obtain information from persons not parties to the litigation. For example, B&R propounded an extensive set of written deposition questions to Bechtel concerning the nature and extent of changes made to the B&R design after Bechtel took over as architect/engineer for the Project. Bechtel filed written responses to these questions with the Court.

Of the hundreds of depositions taken by the parties during the litigation, only a portion contained questions or testimony related to plant safety. As with interrogatory answers, much of the deposition testimony concerned issues that did not relate to plant safety such as cost, schedule, Halliburton involvement and damages. Many of the witnesses who gave testimony were not involved with any of the design or construction work for the plant, and did not have the background to understand technical issues related to such matters.

c. Requests For Production Of Documents

A third means of discovery employed by the parties was the request for production of documents. By serving a request for production of documents, one party could compel another to produce for inspection and copying all documents fitting a certain description or relating to a particular topic. Usually, the party requesting the documents would not copy all documents produced but would screen the documents to select those to be copied.

Extensive use of documents received in response to requests for production was made in depositions taken by the parties. In preparing for

depositions, the attorneys on both sides of the litigation, often in consultation with knowledgeable engineers, would attempt to gather documents related to issues to be addressed in the deposition and these were often incorporated as deposition exhibits.

2) Experts and Expert Reports

In preparation of their case for trial, the parties to the STP litigation retained experts to testify at trial on various issues in the lawsuit. These experts made detailed inquiries into the issues that were to be the subject of their eventual testimony had the case gone to trial. Experts that the parties planned to have testify in the lawsuit were required to prepare reports summarizing their findings on the issues they were to testify upon so that the opposing parties would have the opportunity to prepare their case on those issues.

Of the reports prepared by these experts, the one most relevant to the technical adequacy of STP engineering and construction is the Report on B&R Engineering on the South Texas Project, prepared by S. Levy, Inc. (SLI), issued on October 1, 1984. This report was the culmination of an extensive and detailed review of B&R engineering documents, engineering-related correspondence, Bechtel work packages, deposition transcripts and some Bechtel design documents, carried out by highly trained engineers experienced in the nuclear field who were aware of their obligation to report any uncorrected safety deficiencies. The SLI review covered a majority of the safety-related systems engineered by B&R and evaluated the STP design as of

the time B&R was terminated as architect/engineer. 11/ In addition, during the time it was preparing its report, SLI reviewed all but a few of the remaining Bechtel work packages in assisting HL&P prepare responses to interrogatories propounded by B&R. The SLI engineers were aware of their obligation to report any potential deficiencies having possible current ramifications to the Project; in fact, SLI notified the Project of three such items, all of which were found to have been resolved. In its Report, SLI presented its findings as to B&R's performance as architect/engineer for STP and the adequacy of its design for the Project as of September 1981. The Report included descriptions of the deficiencies found by SLI in the course of its review. However, SLI also noted in its Report that "SLI has not independently identified any deficiency reportable under NRC regulations, and has not identified any deficiency, reportable or non-reportable, not currently being addressed by Bechtel." The report was reviewed by STP licensing and engineering personnel to determine whether it reflected any safety deficiencies reportable under 10 C.F.R. § 50.55(e) which had not been previously reported to the NRC. The review did not disclose any such deficiencies.

Other expert reports, related to more limited areas of STP design and engineering, include two reports by Cygna (a B&R consultant) on QA and one by James R. Wells (a Plaintiffs' consultant) on concrete work at STP. As with SLI, the work of these consultants was directed toward evaluating work performed prior to September 1981. None of these reports revealed any deficiency not remedied by B&R, Bechtel, Ebasco, or HL&P. Finally, a number

11/ The SLI review covered systems, structures and components such as HVAC, piping, cable tray layout and supports, AC power, DC power, residual heat removal, containment spray, radiation monitoring, the mechanical electrical auxiliary building and reactor containment building.

of expert reports do not pertain at all to the safety of STP design or construction, but to issues such as project cost and schedule, impact of regulatory change, accounting, and Halliburton control of B&R.

3) Litigation Interface with Project

During the course of the litigation, the lawyers and experts preparing the plaintiffs' case were assisted by HL&P engineers familiar with various aspects of Project design. These engineers helped ensure that the lawyers and experts understood the significance of the different STP design documents and they assisted in obtaining complete documentation for experts working on technical issues. In March 1984, a formal Project Interface Team was created consisting of engineers knowledgeable about the STP design. The Project Interface Team reviewed many of the more significant technical interrogatory answers for accuracy including drafts of answers to the most detailed and extensive set of technical interrogatories filed in the lawsuit. The Team also reviewed several of the deposition transcripts on technical subjects to determine which portions of these transcripts contained significant information. These engineers, most of whom had been involved with Project engineering or QA, understood their obligations to notify the Project of any deficiencies in STP design or construction brought to light by the litigation that were not being addressed by Bechtel, Ebasco or HL&P. The involvement of these engineers in the litigation effort thus not only provided for technical accuracy in the plaintiffs' preparation of their case, but provided added assurance that any hitherto undiscovered deficiencies brought out in preparing for the litigation would be identified to the Project and resolved. No such deficiencies were identified.

IV. THE STP LITIGATION REVIEW PROGRAM

A. Overview

The issues and discovery process in the litigation between the STP Owners, B&R and Halliburton were focused on activities and events which occurred prior to September, 1981. To that date, only about one-half of the design and 30% of the total construction for the plant had been completed. Accordingly, work performed prior to September, 1981 has only limited relevance to the Project today. As discussed above, the STP design and construction in existence at the time B&R was terminated underwent intensive scrutiny prior to and during the transition of responsibilities from B&R to Bechtel and Ebasco. STP design has also been substantially modified since Bechtel assumed responsibility as architect/engineer. Thus, it is not likely that deficiencies in design or construction during B&R's term on the job have gone undetected.

Nonetheless, a substantial record was generated during the litigation, portions of which are concerned with the technical adequacy of STP systems, structures and components as designed and constructed by B&R. In order to assure that the materials prepared for the litigation do not disclose any safety-related deficiencies which have not already been identified by HL&P or Bechtel, HL&P will review such materials in the manner described below.

B. The Litigation Record

The litigation record in HL&P v. B&R consists of several types of documents which have widely differing levels of relevance to the technical aspects of STP design and construction. Each type is described below.

1) Complaints, Counterclaims and Answers

Perhaps the most basic documents in the litigation record are the plaintiffs' complaints and the defendants' counterclaims and answers. ^{12/} These documents contain general, broadbrush descriptions of the various claims and defenses made by the parties to the litigation. They are probably best viewed as an index or broad summary of the parties' legal and factual positions. While the complaints, counterclaims and answers may contain a degree of information related to asserted deficiencies in STP systems, structures and components, the style and level of detail in which they are written does not lend itself to meaningful technical review. Furthermore, the claims made in the complaints, counterclaims and answers are reiterated in far more detail in interrogatory answers, deposition transcripts, and expert reports filed by the parties.

2) Motions

A second group of documents in the record consists of the various motions and responses thereto filed by the parties. These motions deal with such matters as scheduling discovery, setting a trial date, regulating the scope of the lawsuit and compelling parties to produce documents or answer interrogatories. In general, they relate to the legal theories and positions of the parties and not to the facts underlying the lawsuit. They do not contain testimony and were not filed for the purpose of providing information about facts related to issues in the lawsuit; in those rare instances where such facts are provided, the motion or response thereto almost invariably references a deposition transcript, interrogatory answer, or expert report as the source of these facts.

^{12/} Each of these documents underwent several revisions.

3) Court Hearing Transcripts

During the course of the litigation, the Court held a number of hearings to consider motions filed by the parties and matters related to readying the case for trial. Most hearings were open to the public. These hearings typically concerned such matters as the schedule for discovery, setting of a trial date, narrowing the issues in contention and compelling parties to produce documents, answer interrogatories or produce witnesses. Because the case never got to trial, the Court made no findings of fact, with the sole exception of the Court's finding that the proposed settlement of the lawsuit is satisfactory.

4) Interrogatory Answers

Interrogatories were used by all parties to the STP litigation to discover the facts behind the various claims and defenses made by the parties. The answers to these interrogatories usually provided factual information, although at varying levels of detail.

Many interrogatories sought no information related to the design or construction of STP; accordingly, the answers are not relevant to this review. Other interrogatories, however, sought information on STP design or construction, and the answers therefore provided such information, often in considerable detail.

5) Deposition Transcripts

Transcripts of the deposition testimony of a large number of witnesses were made and filed with the Court. Many of the persons deposed, because of their position (e.g., accountant, financial executive, attorney), had no knowledge of the technical aspects of STP design or construction. Other

depositions are not of interest because STP design and construction was outside their scope. ^{13/} However, the testimony of some deponents, most notably those of engineering personnel who had worked on STP, contains substantial relevant information on design and construction.

6) Expert Reports

Experts expected to testify on various subjects in the litigation prepared reports describing their findings on the issues that were to be the subject of their testimony. Many expert reports dealt with issues such as plant cost and schedule, financial constraints, personnel turnover and Halliburton control of B&R, which had no bearing on the adequacy of STP design and construction. A few of the expert reports, especially the report on B&R engineering prepared by S. Levy, Inc., are focused on various aspects of STP design and construction.

7) Requests for Production of Documents

Parties to the STP litigation filed requests for production of documents to compel opposing parties to produce documents on various issues for inspection and copying. Usually, a formal response to a request for production of documents would be filed with the Court. This formal response would include any objections to the request and would state the extent to which the party would comply with the request. However, the actual documents requested were not filed with the Court, but were simply made available to the party that requested them for inspection and copying. The requests for production and the formal responses thereto contained no assertions related to the adequacy of STP design or construction.

^{13/} Such depositions would be among the Rule 201 and segmented personal depositions; see p. 19, supra.

C. Scope of the Litigation Review Program

HL&P will review documents in the following categories that were generated for purposes of the litigation and were in the custody of the Court 14/ prior to dissolution of the protective order: 1) interrogatory answers; 2) deposition transcripts; and 3) expert reports. Based on the preliminary screening, it is estimated that there are approximately 100,000 pages of documents to be reviewed on a line-by-line basis. Because they contain new documents created during the course of the litigation which convey substantive factual information, these are the categories of documents most likely to contain new information or insights, if any, with respect to potential safety-related deficiencies in STP systems, structures or components.

Review of the remaining litigation materials would serve no constructive purpose. For the reasons discussed above, neither the complaints nor the counterclaims, answers or motions will be reviewed; to the extent they advert to design or construction issues, the relevant details are disclosed in the interrogatory answers, depositions, and expert reports which will be reviewed. 15/ The transcripts of Court hearings deal with the mechanics of the discovery process, rather than substantive technical matters; accordingly, they will not be reviewed. Neither the requests for production of documents nor the responses contain factual information themselves. Documents furnished in response to such requests (with the exception of expert work papers) were not

14/ Because the litigation was tentatively settled prior to trial, some documents that ordinarily would have been filed with the Court, including certain deposition transcripts, had not yet been signed and filed with the Court as of the settlement date. However, such documents are treated for purposes of this review as having been in the custody of the Court and, as such, will be reviewed.

15/ HL&P will prepare an index to the complaints, counterclaims and answers to assist the NRC and other reviewers in understanding the relationship of the materials to be reviewed to the issues in the litigation.

prepared for purposes of the litigation and, therefore, will generally not be reviewed. Many such documents, however, formed the basis for questions posed in depositions and became exhibits to those depositions. Exhibits will be reviewed to the extent necessary to understand the dispositions. Although expert work papers will not be reviewed, the salient information contained in them is reflected in the expert reports themselves which are to be reviewed.

D. Methodology of the Litigation Review Program

The review of the litigation record will be a two-stage process. First, the interrogatories, deposition transcripts and expert reports will be screened to determine which of them are likely to contain technical information on STP design, construction or QA/QC. Those which are not screened out will be reviewed line-by-line to identify any assertions of deficiencies in STP systems, structures or components or their associated design or quality documents. Each assertion identified will then be further examined to determine:

- 1) whether the substance of the assertion is safety-related; or
- 2) if the assertion is determined to be safety-related, whether the Project has already resolved the matter covered by the assertion or identified it for resolution; or
- 3) whether the assertion is factually erroneous.

If the assertion is determined to be safety-related, but has not been resolved or identified for resolution by the Project, and cannot be shown to be factually erroneous, a Deficiency Evaluation Form covering the substance of the assertion will be prepared and transmitted to HL&P's STP Project Engineering for consideration in accordance with the applicable Project procedure (PLP-02) pursuant to 10 CFR 50.55(e). (A flow chart showing the basic organization of the overall review process appears in Attachment 1).

1) Stage One: Screening

The screening process will determine which interrogatory answers, deposition transcripts and expert reports must undergo detailed line-by-line review. A preliminary screening to identify the relevant deposition transcripts and expert reports for review has been performed. However, a formal screening of interrogatories, depositions, and expert reports will be performed in accordance with the Criteria and Methodology guidelines appended as Attachments 2, 3 and 4, respectively. Screening will be performed by a team of one attorney and one engineer familiar with the STP design and issues in the STP litigation. Applying the appropriate Criteria and Methodology guideline to each interrogatory, deposition, or expert report, the attorney and the engineer will determine whether it should be included for detailed review. For each interrogatory answer, deposition transcript, or expert report that the attorney and the engineer determine should be excluded from detailed review, a short, signed statement will be prepared explaining why detailed review is unnecessary. In addition, master lists of all screened documents included and excluded from detailed review will be generated. Another attorney/engineer team(s) will independently verify the judgment of the initial screening team, applying the same Criteria.

2) Stage Two: Detailed Review of Selected Litigation Documents

a. Purpose of the Detailed Litigation Review

Those parts of the litigation record selected for detailed review by the screening process described in 1) above will be reviewed in their entirety to determine whether they contain information about any previously unidentified safety-related deficiencies in the design or construction of STP

systems, structures, or components. A "deficiency" for the purposes of this review is a defect that will or may impair the ability of a system, structure or component (SSC) to perform its intended function. Deficiencies may exist in the SSC itself or in its associated design documents (e.g., design drawings, calculations or specifications) or in documents establishing the quality of the SSC (e.g., QA/QC documentation).

b. The Litigation Review Team

The review of the litigation record will be conducted by a select group of about 40 engineers. The review team will consist of a Team Leader, Reviewers, Discipline Specialists, Overview Specialists and various administrative and clerical employees.

The litigation review team will consist of employees or subcontractors of S. Levy, Inc. (SLI). The Reviewers will be engineers with a minimum of three years of engineering experience in their respective disciplines. The Discipline Specialists must have at least seven years of experience working in their respective disciplines on nuclear plant engineering, design or construction. The Overview Specialists must have at least ten years of experience doing multi-disciplinary engineering work or overseeing engineering work in different disciplines on nuclear power plants. The Team Leader and anyone the Team Leader designates to perform tasks assigned to the Team Leader must have a minimum of ten years of technical management experience related to nuclear plant engineering, design or construction.

HL&P engineers will participate in the review effort by monitoring the work as well as providing assistance to the SLI engineers in obtaining necessary information from the Project.

c. Litigation Review Procedures

A complete list of all depositions, expert reports, and interrogatory answers to be reviewed will be prepared based on the results of the screening described in 1) above. The review Team Leader will assign groups of review material from this list to individual Reviewers according to the subject matter of the material and the Reviewer's education and experience.

Each Reviewer will read every line of his assigned review material. As he reads, he will make notations in the margin as to the subject matter of the material he is reading. For each assertion of deficiency in the design or construction of an STP SSC that is contained in the review material, the Reviewer will complete an Assertion Form, including the exact location of the assertion of deficiency in the reviewed document and a description of the assertion. The criteria the Reviewers will use to identify assertions of deficiency are specified in Attachment 5. The Reviewers will also record the location of every substantive reference to NRC competence or performance. Listings of these substantive references will be provided to the NRC for their information and use.

The Assertion Forms will be collected by the Team Leader and sorted according to discipline category for assignment to the various Discipline Specialists. The Discipline Specialist will first group the assertions so that identical assertions from different sources can be identified for treatment together. For each different assertion, the Discipline Specialist will determine whether the substance of the assertion is safety-related. Assertions of deficiency that are not safety-related need not be reviewed further by the Discipline Specialists. Specific criteria to be used by the Discipline Specialist in determining whether an item is safety-related are specified in Attachment 6.

For assertions of deficiency that are determined to be safety-related, the Discipline Specialist will establish whether the Project has previously identified that item for resolution by referencing the appropriate Project documentation evidencing that fact. The types of Project documentation that may be referenced for this purpose will be identified in a letter from HL&P's Manager of Nuclear Licensing to S. Levy, Inc. Assertions of deficiency that are addressed in Project documentation will be considered closed for purposes of this review of the litigation record. The criteria that will be used by the Discipline Specialist to make this determination are listed in Attachment 7.

Finally, the Discipline Specialist will review any assertions of deficiency not disposed of in the manner described above to determine whether the assertion is factually erroneous. In making this determination, the Discipline Specialist will apply the decision criteria in Attachment 8.

Discipline Specialists will be encouraged to communicate with one another, as well as with the Overview Specialists and the Team Leader (and his designees) to resolve potential interdisciplinary concerns.

The Discipline Specialist will record the disposition of each assertion of deficiency on a Disposition Form.

Any assertions of deficiency that are safety-related, are not identified for resolution in Project documentation, and are not shown to be factually erroneous will be documented on an HL&P Deficiency Evaluation Form. All Deficiency Evaluation Forms will be sent to the HL&P Project Engineering for evaluation in accordance with existing Project procedures.

Each assertion found not to be safety-related by a Discipline Specialist will be subject to a second level of review by an Overview Specialist. Using the criteria in Attachment 9, the Overview Specialist will determine whether

the assertion presents concerns arising from systems interaction or from the possibility that the substance of the assertion crosses discipline lines. Where such concerns are determined to be present, the Overview Specialist further examines the substance of the assertion to determine whether, taking such concerns into account, an assertion found by the Discipline Specialist not to be safety-related should be treated otherwise.

The Overview Specialists will perform further analyses of each assertion they have determined to be safety-related, to determine whether the substance of the assertion has already been identified by the Project or whether it is factually erroneous, using the criteria in Attachments 7 and 8.

The Overview Specialists are encouraged to consult with other Overview Specialists, Discipline Specialists or the Team Leader to maintain awareness of the various types of asserted deficiencies being examined during the review process. Any assertions that are determined to be safety-related, but are not referenced in Project documentation and are not shown to be factually erroneous will be documented on a Deficiency Evaluation Form and sent to the HL&P Project Engineering for evaluation in accordance with existing STP procedures. 16/

The Litigation Review Procedures that govern the work of the Reviewers, Discipline Specialists and Overview Specialists are summarized in the Litigation Review Flow Chart in Attachment 10.

The work of the participants in the STP litigation review will be reviewed on a sample basis by supervisory level personnel in accordance with written procedures. The Team Leader will appoint designees who will be

16/ Assertions determined not to be safety-related but which nevertheless may affect plant availability and/or reliability will be referred to the STP Engineering Manager.

assigned samples of the work of each of the Reviewers, Discipline Specialists and Overview Specialists and will conduct an independent review of these samples. It is estimated that an average of 10% of the work of each Reviewer, Discipline Specialist and Overview Specialist will be reviewed by the Team Leader or one of his designees for procedural compliance and substantive correctness. Documentation of these supervisory level reviews and records of the disposition of items discovered during these reviews will be retained.

The Team Leader will assign assertions to the Discipline Specialists and Overview Specialists based on the type of deficiency asserted and the background and experience of the Specialists. The Team Leader will distribute these assignments so that types of assertions that have the potential for raising interaction questions and those that may cross inter-disciplinary lines are examined by personnel capable of recognizing and addressing such concerns. The Team Leader will have the authority to reassign documents or assertions to other members of the review team, to require further reviews of assertions disposed of, and to halt any ongoing review work as he deems appropriate. The Team Leader will review all Deficiency Evaluation Forms prior to their being transmitted to the Project to ensure that they are correctly prepared and to be cognizant of the types of potential deficiencies being identified to the Project.

The Team Leader (and his designees), through the review of Assertion and Disposition Forms and meetings with the Discipline and Overview Specialists and Reviewers, will monitor the review process to assure that combinations of assertions (safety-related or not) which may suggest deficiencies in SSCs not otherwise disclosed in the review, are identified and dispositioned in accordance with Project procedures. The Senior Advisory Panel will monitor the Team Leader's work in this regard.

During preparation of the final report, the Team Leader and the other review team members will also consider whether the dispositions of assertions arrived at during the review indicate any further, previously unrecognized deficiency in any STP SSCs.

d. Documentation

S. Levy, Inc., will issue procedures describing the methods and criteria for conducting the litigation record review. The procedures will describe the steps the Reviewers, Discipline Specialists and Overview Specialists must follow in performing their assigned tasks. Directions for completion and use of the Assertion and Disposition Forms and Deficiency Evaluation Forms will also be included. Each procedure will be issued with a revision designation and reviewed and approved by the Team Leader at SLI, the HL&P Manager of Nuclear Licensing, and a representative from HL&P's Nuclear Assurance Department. Any subsequent revisions to the procedures will be issued with a new revision designation to identify the currently applicable revision to the procedure. All procedures and revisions to procedures must be approved by HL&P.

The forms, data and reports developed during the litigation record review will provide an auditable record of the entire review process for the use of both HL&P and NRC reviewers and auditors. The SLI Librarian will maintain copies of each deposition transcript, expert report, and interrogatory answer that has been reviewed and marked by a Reviewer, along with the Assertion and Disposition Forms, and reference documents pertaining to each disposition.

Data from the Assertion and Disposition Forms will be entered into a special computerized data base for litigation review information. In

addition, entries will be made to the data base indicating those assertions of deficiency for which the review team completed Deficiency Evaluation Forms. The data base will have the capability to generate current listings of assertions and their dispositions during the course of the litigation review.

Monthly progress reports will be sent to HL&P's Manager of Nuclear Licensing. These reports will document the progress of the review work against the projected schedule. If problems arise in the conduct of the review, they will be orally reported to HL&P's Manager of Nuclear Licensing and documented in the monthly progress report.

A final report documenting the results of the entire review will be generated after completion of all reviews. This report will contain listings of all material reviewed, listings of all assertions of deficiency and their resolutions, and the documentation on assertions of deficiency referred to the Project for resolution.

E. Training Program

Prior to beginning any detailed review work, each member of the litigation review team will attend an orientation and training session. The orientation and training sessions will be conducted by the SLI Team Leader and his designees, members of HL&P's Nuclear Licensing Department and HL&P's Nuclear Assurance Department and HL&P's legal counsel for the review. Topics covered in the training sessions include a detailed review of the SLI Litigation Review Procedures, including the criteria to be applied during the course of the review work, the HL&P procedure for completion of Deficiency Evaluation Forms and detailed working guidelines and examples developed by the Team Leader.

In addition to the orientation and training session, each litigation review team member will receive a training manual containing Litigation Review Procedures, Litigation Review Guidelines and general STP information. Each litigation review team member will keep his training manual up to date by inserting current revisions to the procedures and guidelines as they are issued. The litigation review team members will refer to their training manuals for guidance during the course of their review work.

F. Management Oversight of Litigation Review/Senior
Advisory Panel

HL&P management will oversee the litigation review program. The HL&P manager who will be primarily responsible for the litigation review is the Manager of the Nuclear Licensing Department. He will have a designated representative who will closely monitor the progress of the review work as it is conducted. In addition, the Manager of the Nuclear Assurance Department and the Group Vice President for Nuclear will be kept informed of the progress and results of the litigation review program.

HL&P will select a Senior Advisory Panel, each member of which will be knowledgeable about the design and construction of STP, and have over twenty years of nuclear power plant experience. The Panel will meet periodically to monitor the progress of the litigation review and ensure that the procedures are followed and the objectives achieved. This will be done through discussions with Reviewers, Discipline Specialists, Overview Specialists and the Team Leader. All documentation generated during the litigation review, including the Final Report, will be available for the Panel's oversight. During the course of the review, the Senior Advisory Panel may also provide suggestions to HL&P Management and the Team Leader whenever appropriate to

ensure the effectiveness of the review in achieving its objectives. After the conclusion of the litigation review and issuance of the Final Report, the Senior Advisory Panel will prepare a statement containing its conclusions as to whether the objectives of the review have been achieved and any other relevant observations.

G. Quality Assurance

The detailed review program will be conducted in accordance with the SLI Quality Assurance Program Manual. Therefore, the SLI Corporate Quality Assurance (QA) Manager will be responsible for assuring that the detailed review program is conducted in accordance with SLI QA Program requirements and Litigation Review Procedures. The primary method SLI QA will use to perform its work will be continuous substantive surveillance of the litigation review work on a sample basis. All QA surveillance will be conducted by personnel who have experience in performing QA work and who are not responsible for any of the litigation review work. SLI QA will assure compliance with all provisions and criteria of the Litigation Review Procedures. In addition, SLI QA surveillance will assure the consistency and completeness of the review team participants' work. Areas that will be checked in the course of the surveillance include the selection and qualification of personnel, the processing and control of program documents, and records collection and storage. Furthermore, SLI QA will conduct or arrange appropriate auditing of the litigation review program to provide additional assurance that the continuous surveillance effort has not failed to identify any deviations from programmatic requirements.

HL&P's Nuclear Assurance Department will assign at least one full-time representative to the SLI offices to conduct continuous surveillance of the

litigation review work being done by the litigation review team. The HL&P representative will structure his surveillance to cover every type of litigation review document generated, as well as every documented decision point in the review process. By this means, compliance with the procedures and review criteria will be assured and any problems in performing the review work will be identified as they occur. All records of surveillances performed and deficiencies identified will be maintained in accordance with HL&P STP QA procedures. Any deficiencies identified by the surveillance effort will be resolved in accordance with HL&P STP QA procedures. The HL&P representative will submit a monthly report to the HL&P Manager of Nuclear Assurance reporting the surveillance effort results to date and providing an assessment of the quality of the review program. Any deficiencies which require immediate corrective action will be discussed immediately with SLI management.

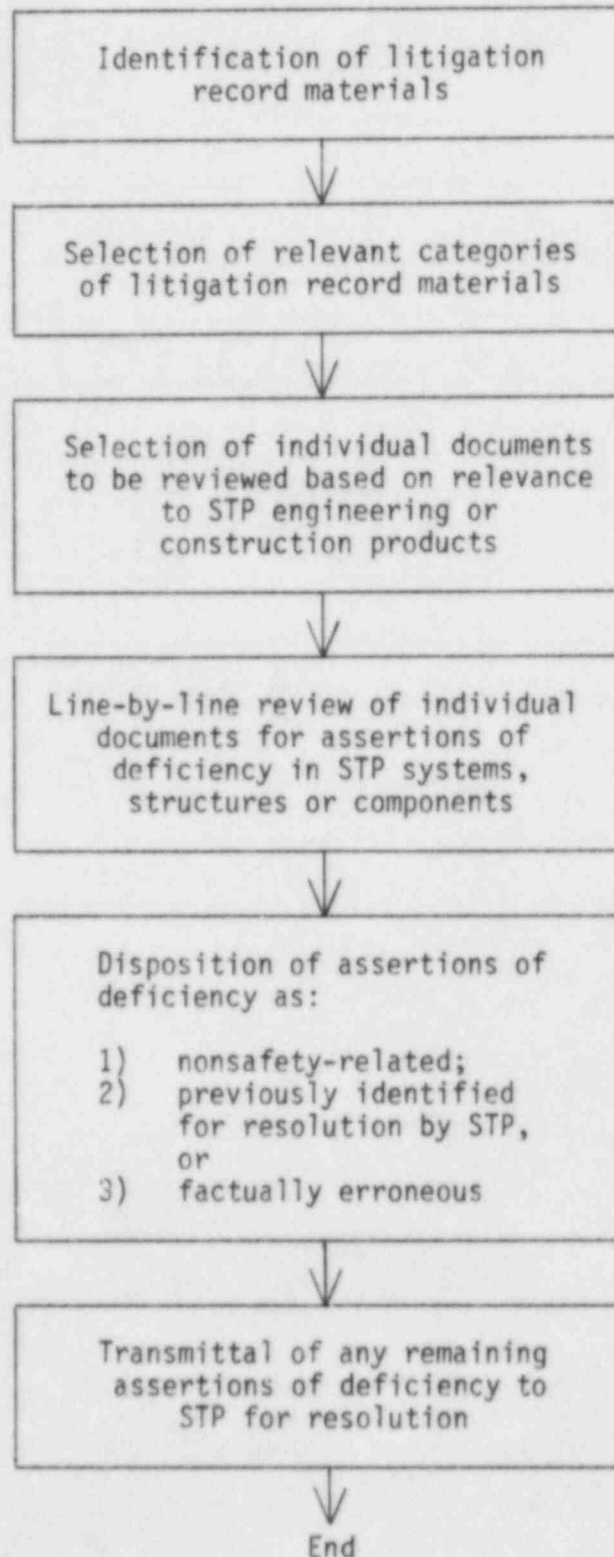
The documentation generated during the course of the litigation review will be an auditable record available for NRC inspection and review on either a continual or periodic basis. If periodic off-site review is necessary, listings from the litigation review data base can be generated and provided to the NRC as required. The final report of the litigation review will also be provided to the NRC for review.

H. Manpower and Schedule

Based on the scope of the litigation review program as described, approximately 26,000 manhours of effort will be required of the litigation review team from September, 1985 through March, 1986. This estimate includes the work of the SLI review team members and is exclusive of the HL&P review, assistance, surveillance and oversight activities.

The Reviewers' and Specialists' work is scheduled for completion by December, 1985. During January of 1986, the review team will generate a draft of the final report. HL&P intends to file the final report with the NRC by March 1, 1986.

FLOW CHART
SUMMARIZING ENTIRE LITIGATION
REVIEW PROCESS



CRITERIA AND METHODOLOGY FOR SELECTION OF
INTERROGATORY ANSWERS FOR REVIEW

This document sets forth the guidelines to be followed to ensure that all interrogatory answers possibly containing information related to the design or construction of STP systems, structures, or components are reviewed.

I. Criteria

- A. When there is any reasonable doubt as to whether an interrogatory or set of interrogatories should be included, it should remain on the list of interrogatories to be reviewed.
- B. If an interrogatory requests information on the following subjects, that interrogatory must be included for review:
 - 1. Engineering for STP, including engineering analysis and the design of any systems, structures, or components for the Project;
 - 2. Construction work at STP;
 - 3. QA or QC activities or programs for STP;
 - 4. Reviews or reports on engineering or construction for STP.
- C. If an interrogatory or entire set of interrogatories requests information only about the following subjects, the interrogatory or set of interrogatories may be excluded from review unless the reviewers are aware that the answers or set of answers contains information relating to the design or construction of STP systems, structures, or components. 1/
 - 1. Halliburton control over Brown & Root;
 - 2. Accounting, economics, and the financial ability of the Owners to complete the Project;
 - 3. Brown & Root personnel qualifications, turnover, and staffing levels;
 - 4. Project schedule and the percentage of engineering or construction work completed;
 - 5. Allen's Creek Nuclear Generating Station;

1/ If an interrogatory or a set of interrogatories requests information on these topics and on any of the topics listed in B. above, the answers corresponding to those interrogatories must be reviewed.

6. Brown & Root's history and experience as an architect/engineer outside its performance on STP;
7. HL&P's or the other Owners' experience in design and construction of facilities other than STP;
8. Brown & Root's and Halliburton's affiliation with NUS, Ebasco, or other Halliburton subsidiaries.

II. Methodology

A. Persons conducting the screening.

The initial screening to identify the interrogatory answers to be reviewed will be performed by a team of one attorney and one engineer familiar with the design of STP and with issues in the litigation.

B. Steps in screening.

Each set of interrogatories will be examined under the criteria set forth in I above. If any interrogatory within a set is determined to be reviewable, that set will be put aside for a second level of review. For each entire set of answers determined not to be reviewable, a short statement will be prepared explaining the reasons why that set should not be reviewed, signed by the engineer and the attorney.

Sets of interrogatories that include questions requesting information potentially related to the design or construction of STP systems, structures, or components will be further examined to identify the particular questions that request such relevant information. Each question will be examined under the criteria set forth in I, above. All questions whose answers require review will be marked as such and recorded. For each question determined not to require review, a short statement explaining why no review is required will be prepared and signed by the engineer and attorney. For questions containing multiple subparts, if any subpart merits review, the entire answer to the question will be reviewed.

The screening team will prepare a list of all interrogatories that will be reviewed. In addition, the screening team will prepare a list of all interrogatories and sets of interrogatories that will not be reviewed and attach to that list the signed short statements explaining the reasons why each listed interrogatory or set of interrogatories will not be reviewed.

CRITERIA AND METHODOLOGY FOR THE
SELECTION OF DEPOSITION TRANSCRIPTS FOR REVIEW

This document sets forth the guidelines to be followed to ensure that all deposition transcripts possibly containing information related to the design or construction of STP systems, structures or components are reviewed.

I. Criteria

A. When there is any reasonable doubt as to whether a deposition should be reviewed, it must remain on the list of depositions to be reviewed.

B. If the witness held any of the following positions on STP, the deposition must be included for review:

Engineer, Designer, Draftsman or any Engineering Management position;

Quality Assurance Inspector, Supervisor or Manager;

Quality Control Inspector, Supervisor or Manager;

Construction Manager, Laborer or Craft Worker;

Licensing Engineer, Supervisor or Manager;

Purchasing/Procurement Personnel.

C. Depositions of witnesses in the following categories can be excluded from detailed review, unless the screener knows that any of the deposition testimony related to the technical adequacy of STP design or construction:

Department of Justice employees and former employees;

Persons deposed solely because of their involvement in DOJ v. Halliburton;

Halliburton Board Directors and Executive Officers;

Nuclear Regulatory Commission employees and former employees;

Scheduling and project controls witnesses;

Accounting, economics and financial witnesses;

Brown & Root Board Directors and Executive Officers;

CP&L Board Directors and Executive Officers;

HL&P Board Directors and Executive Officers;

City of Austin officials;

City Public Service Board of San Antonio officials.

- D. If the deposition is a Rule 201 deposition or a segmented personal deposition, it can be excluded from detailed review if the subject of the deposition is one of the following, unless the deponent held one of the positions listed in B. above, or unless the screener knows that any of the deposition testimony related to the technical adequacy of STP design or construction:

Halliburton control of Brown & Root;

Halliburton, Brown & Root, or HL&P accounting;

Financial constraints on completion of the Project;

Brown & Root Personnel qualifications, turnover, and staffing levels;

Project Control (tracking progress of work on STP against published schedule);

Negotiations and Terms for the contract between the STP Owners and Brown & Root;

Brown & Root's and Halliburton's affiliation with NUS;

Administrative matters concerning document collection and production in the litigation;

Project Cost Estimates;

The Department of Justice v. Halliburton antitrust suit;

Public Relations and Marketing;

Site Access for Construction.

- E. Rule 201 or personal segmented depositions may not be excluded from detailed review if the subject of the deposition concerns any of the following:

Any STP system, structure, or component;

QA/QC activities or documentation which relate to any STP system, structure or component;

Reports or reviews concerning the quality of STP engineering, construction or QA/QC of any STP system, structure or component.

II. Methodology

A. Persons conducting the screening.

The screening to identify the depositions to be reviewed will be performed by a team of one attorney and one engineer familiar with the design of STP and with issues in the litigation.

B. Each deposition will be examined under the criteria set forth in I. above. For each deposition determined not to be reviewable, a short statement will be prepared explaining the reasons why that set should not be reviewed, signed by the engineer and the attorney.

The screening team will prepare a list of all depositions that will be reviewed. In addition, the screening team will prepare a list of all depositions that will not be reviewed and attach to that list the signed short statement explaining the reasons why each listed deposition will not be reviewed.

CRITERIA AND METHODOLOGY FOR SELECTION
OF EXPERT REPORTS FOR REVIEW

This document sets forth the guidelines to be followed to ensure that all expert reports possibly containing information related to the design or construction of STP systems, structures, or components are reviewed.

I. Criteria

- A. When there is any reasonable doubt as to whether an expert report should be included, it should remain on the list of documents to be reviewed.
- B. If an expert report contains information on the following subjects, that expert report must be included for review:
 - 1. Engineering for STP, including engineering analysis and the design of any systems, structures, or components for the Project;
 - 2. Construction work at STP;
 - 3. QA or QC findings that indicate deficiencies in STP engineering or construction products;
- C. If an expert report requests information only about the following subjects, the expert report may be excluded from review unless the reviewers are aware that the expert report contains information relating to the design or construction of STP systems, structures, or components. 1/
 - 1. Halliburton relationship with Brown & Root;
 - 2. Accounting, economics, cost estimates, and damages quantification;
 - 3. Brown & Root personnel qualifications, turnover, and staffing levels;
 - 4. Evaluation of processes or procedures such as procurement or deficiency trend analyses;
 - 5. General nuclear industry information not specifically related to the STP.

1/ If an expert report contains information on these topics and on any of the topics listed in B. above, the expert report must be reviewed.

II. Methodology

A. Persons conducting the screening.

The screening to identify the expert reports to be reviewed will be performed by a team of one lawyer and one engineer familiar with the design of STP and with issues in the litigation.

B. Steps in screening.

Each expert report will be examined under the criteria set forth in I. above. All expert reports that require review will be marked as such and recorded. For each expert report determined not to require review, a short statement explaining why no review is required will be prepared and signed by the engineer and lawyer.

The screening team will prepare a list of all expert reports that will be reviewed. In addition, the screening team will prepare a list of all expert reports that will not be reviewed and attach to that list the signed short statements explaining the reasons why each listed expert report will not be reviewed.

CRITERIA FOR IDENTIFICATION OF ASSERTIONS OF DEFICIENCY

In order to be recorded, an assertion must satisfy each of the following criteria:

1. The assertion must pertain to at least one of the following or to their associated design or quality control documents:
 - 1.1 STP systems, structures, or components (SSC).
 - 1.2 Classes of STP SSC (such as valves, reinforced concrete walls, electric systems).
 - 1.3 Processes relating to specific STP SSCs (such as welding, coatings).
 - 1.4 The overall STP site (data or studies on meteorology, seismology, demographics, etc.).
2. The assertion must either:
 - (a) describe a deficiency. A deficiency is a defect which will or may impair the ability of an SSC to perform its intended function; or
 - (b) If the assertion does not include any specific deficiency, as defined under (a), it must pertain to documents providing objective evidence of the quality of design or construction for specific SSCs at STP. (Absence of calculations for system X, lack of verification documents for component Y, incomplete Q/C records for weld N, etc.)
3. The assertion must satisfy one of the following criteria:
 - 4.1 It was made by a witness in a deposition.
 - 4.2 It was confirmed by a witness accepting a statement by a lawyer.
 - 4.3 It was included in an expert report.
 - 4.4 It was made by a party in an interrogatory answer.

CRITERIA FOR SAFETY DETERMINATION

1. An assertion of deficiency that involves system(s), structure(s) or component(s) which have been classified by the South Texas Project as one of the following is a safety-related assertion:
 - Safety Class 1
 - Safety Class 2
 - Safety Class 3
 - Class 1E
 - Seismic Category 1
2. An assertion of deficiency that involves systems(s), structure(s) or component(s) that are listed in the STP FSAR Section 3.2 or in the Bechtel Energy Corporation Design Criteria for the South Texas Project as safety-related items is a safety-related assertion.
3. An assertion of deficiency that involves a system(s), structure(s) or component(s) with a Total Plant Numbering System (TPNS) number that designates a safety-related item (1, 2, 3, 4 or 5) is a safety-related assertion.

CRITERIA FOR DEMONSTRATING PROJECT IDENTIFICATION

1. The STP documents cited by the Specialist as evidence of prior identification of the substance of an assertion by the Project must completely cover the specific assertion of deficiency.
2. The STP documents cited by the Specialist must show:
 - a. That the deficiency asserted has been corrected; or
 - b. That the deficiency asserted is in the process of being corrected; or
 - c. That the deficiency asserted has been identified for resolution.
3. Documents cited as reflecting corrective action or identification for resolution of the asserted deficiency must appear on the list of documents approved for reference on Disposition Forms.
4. The reasons why Project documentation shows adequate identification or corrective action must be clearly stated by the Specialist.

CRITERIA FOR DETERMINATION ON FACTUAL BASIS

1. Project documentation must provide positive evidence showing the assertion to be factually erroneous. Unless Project documentation provides such positive evidence, the Specialist may not classify the assertion as factually erroneous.
2. The referenced Project documentation must describe the system, structure, or component as designed or constructed at or after the time the deficiency is asserted to have existed.
3. The reasons why the documentation shows the assertion to be factually erroneous must be clearly articulated by the Specialist.

CRITERIA FOR INTERDISCIPLINARY and
SYSTEMS INTERACTION DETERMINATION

1. An assertion of deficiency that involves disciplines other than that of the Discipline Specialist who initially determined that the substance of the assertion is not safety-related must be reviewed by the Overview Specialist to determine whether it is safety-related.
2. An assertion of deficiency that involves system(s), structure(s) or components (SSC) other than those considered by the Discipline Specialist in his initial disposition of the assertion as not safety-related must be reviewed by the Overview Specialist to determine whether it is safety-related.
3. If the SSC considered by the Discipline Specialist shares a component or a process or has physical supporting connections to another SSC, the assertion must be reviewed by the Overview Specialist to determine whether it is safety-related.
4. If the functional or physical failure of the SSC considered by the Discipline Specialist in dispositioning an assertion could propagate to other SSCs the assertion must be reviewed by the Overview Specialist to determine whether it is safety-related.

LITIGATION REVIEW FLOW CHART

