

12/08/80

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

RECEIVED DISTRIBUTION
SERVICES UNIT

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD DEC 9 PM 2 46

In the Matter of)
)
HOUSTON LIGHTING AND POWER COMPANY,)
 ET AL.)
)
(South Texas Project, Units 1 and 2))

Docket Nos. 50-498
50-499

US NRC
DISTRIBUTION SERVICES
BRANCH

NRC STAFF ADDITIONAL RESPONSE TO CCANP
"REQUESTS FOR INFORMATION"

I. INTRODUCTION

Representatives of Citizens Concerned About Nuclear Power (CCANP) have filed two "Request[s] for Information" from the Staff in this proceeding.^{1/} For the reasons set out in a Staff filing dated November 17, 1980, the "Request[s] for Information" did not comply with the provisions of 10 C.F.R. Part 2 as regards formal discovery requests directed to the Staff.^{2/} However, Staff counsel forwarded the requests for information to the Executive Director for Operations (EDO) as if the requests had been properly made under those provisions.^{3/} The Staff also requested to and including December 8, 1980, within which to substantively respond to the requests in question. The "Request[s]" and the Staff's responses are set out below.

^{1/} "[CCANP] Request About Information From NRC Staff" filed by Ms. Barbara A. Miller on October 28, 1980, and "Request for Information From The Nuclear Regulatory Commission Staff" filed by Ms. Kim Eastman on October 24, 1980 (postmarked November 1, 1980). Both Ms. Miller and Ms. Eastman are lay representatives of CCANP. Subsequent to the filing of the requests, legal counsel entered an appearance for CCANP and appeared at the prehearing conference held in Houston on November 19, 1980.

^{2/} See Atomic Safety and Licensing Appeal Board's decision in Pennsylvania Power & Light Company, et al. (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-613, 12 NRC _____ (September 23, 1980), which summarizes, at pp. 7-8 of the slip opinion, the relevant provisions of the Commission's regulations as they relate to formal discovery requests directed to the Staff.

^{3/} See 10 C.F.R. §2.744(a).

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II. RESPONSES

1. CCAHP has requested:

* * * the names of those inspectors who supplied information about harassment at the South Texas Nuclear Project and the names of those employees who harassed and intimidated them. 4/

Response:

Pursuant to 10 C.F.R. §2.744(b), the EDO objects to producing the requested names since, as set out below, disclosure of such names is exempted under 10 C.F.P. §2.790, which provides:

* * * final NRC records and documents,^{10/} including but not limited to correspondence to and from the NRC regarding the issuance, denial, amendment, transfer, renewal, modification, suspension, revocation, or violation of a license, permit, or order, or regarding a rule making proceeding subject to this part shall not, in the absence of a compelling reason for nondisclosure after a balancing of the interests of the person or agency urging nondisclosure and the public interest in disclosure, be exempt from disclosure and will be made available for inspection and copying in the NRC Public Document Room, except for matters that are:

(7) Investigatory records compiled for law enforcement purposes, but only to the extent that the production of such records would (i) interfere with enforcement proceedings, (ii) deprive a person of a right to a fair trial or an impartial adjudication, (iii) constitute an unwarranted invasion of personal privacy, (iv) disclose the identity of a confidential source and, in the case of a record compiled by a criminal law enforcement authority in the course of a criminal investigation, or by an agency conducting a lawful national security intelligence investigation, confidential information furnished only by the confidential source, (v) disclose investigative techniques and procedures, or (vi) endanger the life or physical safety of law enforcement personnel; (emphasis added)

^{10/} Such records and documents do not include handwritten notes and drafts.

^{4/} Request filed by Ms. Miller. See fn. 1, supra. Although the request does not so specify, the Staff assumes the words "inspection" and "employees" refer to persons in the employ of Applicant and/or Brown and Root.

It has been consistently held that the names of persons providing information to a Federal agency, during the course of investigations for law enforcement purposes, need not be disclosed pursuant to a Freedom of Information Act request (5 U.S.C. 552(b)(7)), or in the course of discovery in adjudicatory proceedings. It matters not if it be a criminal, civil, or administrative proceeding. See e.g.: Scher v. United States, 305 U.S. 251 (1938); Wertz v. Robinson & Stevens, 368 F.2d 114 (5th Cir. 1966); Pope v. United States, 599 F.2d 1383 (5th Cir. 1979); OKO Corp. v. Williams, 461 F.2d 540, 553 (N.D. Tex. 1978), cf. Roviaro v. United States, 353 U.S. 53 (1957). The reasons for the non-disclosure of the names of confidential sources was aptly set out in In re United States, 565 F.2d 19, 22 (2d Cir. 1977), certiorari denied sub. nom. Bell v. Socialist Workers Party, 436 U.S. 962 (1978), where the court stated:

Courts have long recognized, therefore, that, to insure cooperation, the fear of reprisal must be removed and that "the most effective protection from retaliation is the anonymity of the informer." Wirtz v. Continental Finance & Loan Co., supra, 326 F.2d at 563-64; see also McCray v. Illinois, 386 U.S. 300, 306-09, 87 S.Ct. 1056, 18 L.Ed.2d 62 (1967); Usery v. Local 720, supra, 547 F.2d at 527. "By withholding the identity of the informer, the government profits in that the continued value of informants placed in strategic positions is protected, and other persons are encouraged to cooperate in the administration of justice." United States v. Tucker, 380 F.2d 206, 213 (2d Cir. 1967). Congress, also, has recognized the importance of this protective measure. See, e.g., United States v. Greenwood Municipal Separate School District, 406 F.2d 1086, 1089-1090 (5th Cir.), cert. denied, 395 U.S. 907, 89 S.Ct. 1749, 23 L.Ed.2d 220 (1969).

See also e.g. Evans v. Dept. of Transportation, 446 F.2d 821 (5th Cir. 1971), (pilot unsuccessfully sought from FAA name of person who alleged he might be too mentally ill to be allowed to fly as a commercial pilot); Rural Housing Alliance v. Dept. of Agriculture, 498 F.2d 73, 79-82, (D.C. Cir. 1974); and Pope v. United States, supra, (lawyer unsuccessfully sought documents (and names) from IRS concerning his alleged misconduct in practice before the agency).

The names sought by CCANP, both as to alleged harassors and harassees, were obtained by the Office of Inspection and Enforcement (OIE) during the early

stages of an investigation into alleged construction deficiencies at the South Texas site, under a blanket pledge of confidentiality. The pledge of confidentiality was given to both those who were alleged to have been harassed and those who were alleged to do the harassing in order to investigate the Houston Lighting & Power Company's conduct of construction. Further, at that time it was not clear who was harassed (at what level of employment), and who did the harassing. OIE is of the view that this pledge of confidentiality, as to voluntary disclosure, must be protected if future OIE investigations are to be a viable and effective enforcement tool.

Further, there has been no showing at this time by CCANP that disclosure of the names in question is necessary to a proper decision in this proceeding or that the information is not reasonably obtainable from another source. Before the identification of informants will be required, both these burdens must be shouldered by the one seeking the revelation of those individuals. See In re United States, supra at 23-24. The Staff is attaching, as Attachment 1, a copy of OIE Investigatory Report No. 50-498/79-19; 50-499/79-19 dated April 28, 1980, which, while it does not set forth the names requested, summarizes, inter alia, the sworn statements given to OIE by the individuals in question.^{5/} In the event CCANP is of the view that Attachment 1 does not fully provide the information they would require, assuming they had obtained the names sought, the Staff respectfully directs their attention to 10 C.F.R. §2.744(c) which sets forth the subsequent procedures to be followed as a result of the EDO's objection to producing the requested names.^{6/}

^{5/} The individuals are referred to by number.

^{6/} The Staff also notes that the Commission in Houston Lighting & Power Co. (South Texas Project, Units 1 & 2), CLI-80-32, slip opinion at pp. 13-14 stated that

2. CCANP has also requested:

* * * a copy of the closed door statement made by Victor Stello following the NRC investigation which led to the Show Cause Order; and * * * items identified by NRC investigators in this investigation which were not included in the Show Cause Order. 7/

Response:

In response to the first portion of the above request, enclosed is a copy of a transcript dated April 15, 1980, on the "Briefing on Investigation of QA/QC Problems at South Texas Nuclear Project." (Attachment 2).

As to the second part of the above request, the Staff assumes that what is principally sought by CCANP are copies of Office of Inspection and Enforcement Inspection Reports. Commission regulations make these and other NRC Staff documents that are relevant to licensing proceedings, such as the subject proceeding, routinely available in the NRC Public Document Room. 10 C.F.R.

6/ FOOTNOTE CONTINUED FROM PRECEDING PAGE

Citizens has offered a number of reasons why a hearing [on the enforcement order] should be granted as a matter of discretion. It claims that a hearing would require the NRC Staff to call as witnesses several persons who have not yet been identified, but whose interviews support the Director's order. This, in turn, would allow Citizens to learn the identities of those persons and to further question them. However, as Houston suggests, Citizens can file either interrogatories with the staff or a Freedom of Information request with the Commission in order to learn the identities of persons with knowledge about the incidents covered by the Director's order. These possibilities are a far cry from Citizens' fears that failure to have a hearing on the enforcement order would be tantamount to denying to it the "evidentiary basis for the NRC actions in the Order to Show Cause."

7/ Request filed by Ms. Eastman. See fn. 1, supra.

§2.790(a). The Local Public Document Rooms for the South Texas Project are located at the Matagorda County Courthouse, Law Library, Bay City, Texas 77414 or at the Austin-Travis County Collection, Austin Public Library, 810 Guadalupe Street, Austin, Texas 78768.

Accordingly, the category of documents, including Inspection Reports, which CCANP has requested should be available at the above listed Local Public Document Rooms.

III. CONCLUSION

For the reasons noted above, the NRC has not at this time supplied the names requested by CCANP in request number 1. However, a copy of a related investigatory report has been provided. A copy of the transcript requested in the first part of request number 2 above is also enclosed. The items requested in the second part of request number 2 should already be available in the local public document rooms.

Respectfully submitted,

Bernard M. Bordenick

Bernard M. Bordenick
Counsel for NRC Staff

Dated at Bethesda, Maryland
this 8th day of December, 1980

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF ADDITIONAL RESPONSE TO CCANP "REQUESTS FOR INFORMATION"" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class, or, as indicated by an asterisk, through deposit in the Nuclear Regulatory Commission's internal mail system, this 8th day of December, 1980:

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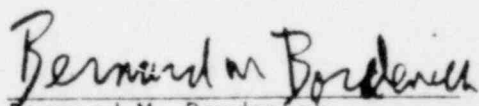
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

APR 28 1980

Docket Nos. 50-498
50-499

Houston Lighting and Power Company
ATTN: Mr. ^{G.}E. W. Oprea, Jr.
Executive Vice President
P. O. Box 1700
Houston, Texas 77001

Gentlemen:

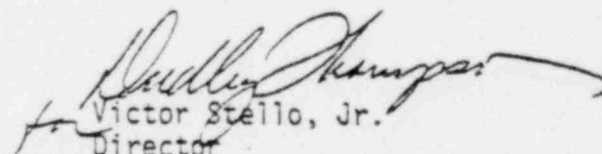
This refers to our special investigation of construction activities at the South Texas Project Units 1 and 2 which are authorized by NRC Construction Permit Nos. CPPR-128 and CPPR-129. Our investigation was separated into two parts:

- (1) Investigation of current allegations relative to harassment, intimidation, and lack of support of quality control inspectors by QC management, and
- (2) Assessment of the effectiveness of the QA/QC program for ongoing activities.

This letter and the attached report address the results of our investigation which was conducted between November 10, 1979 and February 7, 1980.

As you are aware, the enforcement actions available to the Commission in the exercise of its regulatory responsibilities include administrative actions in the form of written notices of violation, civil monetary penalties, and orders pertaining to the modification, suspension or revocation of a license. You will be notified in writing of any such enforcement action.

Sincerely,


Victor Stello, Jr.
Director
Office of Inspection
and Enforcement

Enclosure:
IE Investigation Report
50-498/79-19; 50-499/79-19

ATTACHMENT 1

U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

HEADQUARTERS
DIVISION OF REACTOR CONSTRUCTION INSPECTION

Report No. 50-498/79-19; 50-499/79-19

Docket No. 50-498; 50-499 Category A2

Licensed: Houston Lighting and Power Company
Post Office Box 1700
Houston, Texas 77001

Facility Name: South Texas Project, Units 1 and 2

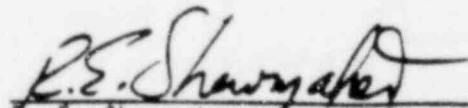
Investigation At: South Texas Project, Matagorda County, Texas

Investigation Conducted: Between November 10, 1979 and February 7, 1980

Inspectors:	<u><i>B. W. Hayes</i></u> B. W. Hayes, Chief, Engineering Support Section I, Region III	<u>4-4-80</u> Date
	<u><i>R. Herr</i></u> R. Herr, Investigator, Region IV	<u>2-29-80</u> Date
	<u><i>H. S. Phillips</i></u> H. S. Phillips, Resident Reactor Inspector, Region IV	<u>3-29-80</u> Date
	<u>E. P. Jernigan,*</u> Reactor Inspector Region I	<u> </u> Date
	<u><i>R. M. Compton</i></u> R. M. Compton, Civil Engineer Region II	<u>4-15-80</u> Date
	<u><i>R. B. Landsman</i></u> R. B. Landsman, Reactor Inspector, Region III	<u>4-3-80</u> Date

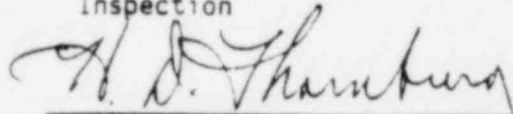
*Mr. Jernigan is recovering from a heart attack and has not been asked to review the final report.

Reviewed:


R. E. Shewmaker, Senior Structural
Engineer, Division of Reactor Construction
Inspection

4/18/80
Date

Approved:


H. D. Thornburg, Director, Division
Reactor Construction Inspection

4/22/80
Date

Investigation Summary:

Investigation November 10, 1979 through February 7, 1980 (Report No. 50-498/79-19; 50-499/79-19).

Areas Investigated: Special investigation of allegations concerning lack of QC management support, intimidation and harassment of quality control inspectors and the assessment of the effectiveness of the quality assurance/quality control program at the South Texas Project. The investigation involved 1113 inspector-hours by one investigator and five NRC inspectors.

Results: Nine of the initial 12 and 10 of the 19 additional allegations were substantiated. One of the initial 12 allegations was partially substantiated. Eight of the additional allegations require further investigation and are considered unresolved. A total of 3 allegations were unsubstantiated. Twenty-two items of noncompliance were identified:

The quality control inspection function lacked support and organizational freedom, paragraph E.1.d; failure to complete the special process of back-filling in accordance with the qualified procedure, paragraph E.3.a; failure to take prompt corrective action on nonconforming test equipment, paragraph E.3.c; failure to establish procedures for sampling as part of a systematic testing program, paragraph E.3.a; failure to maintain records, paragraph E.3.d; failure to take effective correction action, paragraphs E.7.d, E.2.b; inspection and testing personnel not qualified per procedure, paragraph E.2.c; failure to maintain controlled documents up-to-date, paragraph E.4.a; welding activities not adequately controlled, paragraph E.4.c(2)(c); failure to provide adequate control of special processes, paragraphs E.5.b(2)(a), E.5.b(2)(b), E.5.a(2); radiography not performed to code, paragraph E.4.b; failure to take proper corrective action, paragraph E.1.b (Allegation 10A); failure to take action on repetitive deficiencies, paragraph E.9.b(3); deficient conditions not documented per procedure, paragraph E.9.a(1); knowing use of equipment identified as nonconforming, paragraph E.3.f; inadequate test control, paragraph E.3.f; failure to conduct an effective audit program, paragraphs E.8.c, E.8.d(2), E.8.d(3), E.8.d(1), E.9.a(3), E.8.d(2), E.8.d(3); inadequate inspection, paragraph E.2.b; welding procedures and specification changed without proper review and approval, paragraph E.4.c(3)(d); and interim changes to procedures not controlled per requirements, paragraph E.5.b(1)(a).

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Program at the STP Jobsite

A. INTRODUCTION

1. Purpose of Investigation

This investigation was initiated by the Nuclear Regulatory Commission's Office of Inspection and Enforcement (NRC, OIE) on November 10, 1979, under the provisions of 10 CFR Part 50.70. Its purpose was to: (1) investigate and determine the validity of recent allegations made by a South Texas Project employee concerning lack of support of quality control inspectors by their management, harassment and intimidation of Quality Control personnel and discrepancies in the construction and quality assurance program for concrete placement work; and (2) assess the effectiveness of the Quality Assurance/Quality Control (QA/QC) program at the Houston Lighting and Power Company's (HL&P) South Texas Nuclear Power Plant (STP).

2. Scope of Investigation/Inspection

The investigation/inspection effort was divided into two parts. The first was the investigation of the specific allegations recently received from a worker at the South Texas Project. The second was the inspection of selected construction activities to assess the effectiveness of the QA/QC program for the South Texas Project.

The need for the second phase was dictated by past allegations that also concerned lack of support by management, threats and harassment of Brown and Root, Inc. quality control inspectors. Some of these past allegations have received considerable media interest which has generated inquiries from several Congressmen and the NRC Commissioners. Appendix 1 lists the inspection reports that document the results of the NRC OIE investigation into these past allegations. These investigations were conducted without the use of signed, sworn statements.

The following site activities were reviewed to determine if an effective QA/QC program is being implemented.

- a. Observation of on-going work and review of records relative to the:
 - (1) production, placement, testing and curing of concrete and associated activities such as Cadwelding. A significant portion of the investigation/inspection effort was concentrated in this area because the majority of the allegations, both past and present, concern the construction and QC inspection activities for the placement of concrete.
 - (2) Installation and testing of plant engineered backfill.
 - (3) Installation and welding of safety-related piping.

- (4) Fabrication, installation and welding or bolting of structural components.
- (5) Nondestructive examination (NDE) of pipe and structural welding.
- b. Training and qualification of inspection, testing, welding and NDE personnel.
- c. Nonconformance Reports and Field Requests for Engineering Action.
- d. Audit and inspection activities.

The inspection did not include a review of installation and inspection of electrical work because of the relatively small amount of on-going activity in this area. Handling, storage and maintenance of equipment also was not reviewed because of previously identified problems in this area by both the NRC and the licensee and the on-going corrective action.

3. Facility Description

The South Texas Nuclear Project is co-owned and managed by the Houston Lighting and Power Company with home offices located in Houston, Texas. The site is located in the southeastern portion of Texas near the Colorado River in Matagorda County approximately 90 miles southwest of Houston. The South Texas Nuclear Project consists of two nuclear units both currently under construction. Their completion status as of November 30, 1979 was: Unit 1 and shared facilities - 50.7% and Unit 2 -16.4%. Engineering was approximately 63% complete.

The nuclear units are pressurized light water reactors of the four loop design furnished by the Westinghouse Electric Corporation. The balance of the plant was designed and is being managed and constructed by Brown and Root, Inc., a Houston-based architect-engineering and construction firm.

The license application for each unit is for a core power level of 3817 mWt which will result in a gross electrical output of approximately 1250 mWe. Construction permits CPPR-128 and CPPR-129 were issued for the units on December 22, 1975. The licensee's current project schedule is based on Units 1 and 2 receiving operating licenses and loading fuel in September 1983, and September 1985, respectively.

B. ALLEGATIONS

The current allegations were brought to the NRC's attention on November 2, 1979 by a South Texas Project (STP) employee who reported alleged cases wherein construction employees and QA/QC management personnel had

threatened or intimidated quality control inspectors. The employee initially conveyed his concerns to the Region IV Resident Inspector and subsequently expressed 12 specific allegations that covered threats to QC inspectors, dominant influence of construction craft personnel over QC management, non-support of QC inspectors by QC management, and questionable construction practices.

C. CONDUCT OF INVESTIGATION

1. Interviews

During the course of this investigation 57 formal interviews were conducted, by the assigned investigator, and approximately 50 informal interviews/discussions were conducted in the field by the NRC investigator and inspectors. Formal interviews were both selective and random. Selected interviewees were identified by co-workers who claimed they had pertinent information. Random interviewees were identified from employee rosters. In addition, the sequence of the interviews between random and selective interviewees was varied in a effort to protect the identity of personnel.

Investigation by the inspectors consisted of routine inspection and investigation techniques including observations, review of documentation, performance of tests and interviews and discussions with site personnel. Those interviewed included HL&P and B&R construction and QA/QC management personnel; B&R QC inspectors and engineers; Pittsburgh Testing Laboratory personnel; and other site personnel such as pipefitters, iron workers, welders, warehouse, training and office personnel. The summaries of the signed, sworn statements are contained in Appendix 2 and the summaries of interviews are contained in Appendix 3.

An allegation was considered to be substantiated if the information developed during the investigation demonstrated that it was reasonable to conclude that the alleged event did occur.

2. Investigation Team

The NRC onsite investigation team was comprised of five OIE inspectors and one investigator. One inspector and the investigator were from Region IV, one inspector each were from Regions I, and II, and two inspectors were from Region III.

3. Management Meetings

A formal entrance meeting was conducted on November 19, 1979, with the top HL&P QA and Project management site personnel. The licensee personnel were informed that in connection with the investigation and inspection efforts the NRC investigator and inspectors would be conducting formal and informal interviews and discussions with HL&P and their contractor personnel; that the interviews would be conducted without HL&P personnel present; that statements would be taken from

selected personnel; and that they would be informed of significant information identified during the investigation but, as appropriate, sources of information would be protected. Periodic site meetings were conducted to enable the licensee to initiate actions to analyze and correct, as required, those problems identified in this report.

A meeting was held with HL&P corporate management personnel by the Director of Region IV of the NRC and members of his staff on December 21, 1979 at the Region IV offices in Arlington, Texas. The purpose of this meeting was to inform the licensee of allegations that had been substantiated and deficiencies identified to date relative to concrete placement activities. These deficiencies were the same or similar to those previously identified in June 1979 and which in part led to a self-imposed stop work directive. Based on this fact and the substantiated allegations, the licensee agreed at that time to stop placement of concrete for all safety-related structures until corrective action could be developed and implemented.

HL&P corporate management personnel presented their proposed corrective action in a followup meeting held on December 28, 1979, also at the Region IV offices. The licensee had proposed or initiated action on each of the adverse findings identified as of that date. The understanding reached on these actions in the meeting were later confirmed by HL&P in a letter dated December 28, 1979, to the Region IV offices. The licensee had proposed or initiated action on each of the adverse findings identified as of that date. The understanding reached on these actions in the meeting and later confirmed in the HL&P letter was acknowledged by the NRC in an Immediate Action Letter dated December 31, 1979 and it was agreed that safety-related concrete placement could be resumed for non-complex placements. The stop work for complex concrete placements for safety-related structures remained in effect.

A formal exit meeting was held with the Houston Lighting and Power Company corporate and site management personnel on January 24, 1980 at the South Texas Project site. Those attending the meeting are identified in the "Persons Contacted" section of this report. The NRC inspectors discussed the results of their investigation and responded to the licensee's questions. The Director of the NRC Division of Reactor Construction Inspection reviewed the various enforcement options available to the NRC and explained that appropriate enforcement action would be taken following careful review of the investigation findings.

4. Persons Contacted

Principal Licensee Employees

- * G. W. Oprea, Jr., Executive Vice President
- * E. A. Turner, Vice President
- * R. A. Frazer, Manager Quality Assurance

Principal Licensee Employees (Cont'd)

- * W. N. Phillips, Projects QA Manager
 - * T. D. Stanley, Projects QA Supervisor
 - * L. D. Wilson, Site QA Supervisor
 - T. J. Jordan, Lead Mechanical Engineer
 - D. G. Long, Lead Civil Engineer
 - * D. G. Barker, Project Manager
 - * L. K. English, Project Site Manager
- * Denotes those persons who attended the exit meeting on January 24, 1980.

Brown & Root Employees

J. R. Geurts, Vice President
T. Gamon, QA Manager
C. Vincent, Project QA Manager

Pittsburgh Testing Laboratory

A. Ewton, Site Manager

Hartford Steam Boiler Insurance and Inspection Co.

R. Bryan, Authorized Nuclear Inspector (ANI) A. Nieman, Authorized Nuclear Inspector

The investigator and inspectors also contacted or interviewed other licensee and contractor personnel during the course of the investigation.

D. SUMMARY OF FINDINGS

This investigation has determined, through the examination of current work activities and interviews with over 100 personnel on site, that the QA/QC program at the South Texas Project is impaired. Procedural and programmatic inadequacies in the HL&P and B&R organizations have resulted in a failure to systematically identify quality problems and a failure to routinely correct and prevent recurrence of identified problems. Procedural, organizational and personnel inadequacies in the B&R QA/QC organization have resulted in a lack of adequate control over safety-related activities. The lack of detailed involvement of HL&P in the total scope of the activities associated with the construction of the South Texas Project has apparently been the reason behind these problems. This lack of detailed knowledge and involvement has hindered HL&P's ability to maintain adequate control over B&R which for this facility is the designer, constructor and provides the majority of support personnel for quality assurance/quality control program.

Allegations of harassment, threats and intimidation of B&R QC inspectors by B&R construction personnel that were common knowledge through rumors have been substantiated. These conditions have gone unchallenged by HL&P

and B&R to the point that the quality of work at the South Texas Project could be affected. In addition, instances were reported where inspectors' decisions in the field were improperly overruled by QC supervisors, at the request of construction personnel. While most of the allegations investigated were substantiated, no major deficiencies were found in any of the construction already completed.

Difficulties in controlling structural concrete activities and quality problems in completed portions of structures have been continuing problems at the South Texas Project since 1977. Ample evidence of this is provided in licensee and constructor documents, allegations, NRC inspection and investigation findings and licensee/NRC management meetings. Two stop work orders and two accompanying Immediate Action Letters from the Region IV NRC office support the seriousness of these problems. The inspection of current activities and recent QA records indicate that the QA/QC program has not prevented recurrence of poor concreting practices that at times resulted in voids in structural concrete. Another recent example of this was the lack of quality control during the Unit 2 containment shell void evaluation in December 1979, which resulted in severe deformation of the containment liner (See Appendix 4). Procedures lacking in clarity and qualitative acceptance criteria; personnel with inadequate training, experience and/or education; production pressures, harassment and intimidation have all contributed to this situation.

That the South Texas Project QA management may not fully recognize the requirements for QA/QC organizational freedom was evidenced by a January 4, 1980 lecture by the B&R Project QA Manager to the B&R site QA/QC and construction engineering and supervisory personnel. This lecture repeatedly overemphasized the B&R QA/QC organization's responsibilities to minimizing project cost and maintaining the construction schedule. In addition, the lecture strongly emphasized the fact that a B&R QC inspector's decisions are subject to question, challenge and supervisory review and reversal. This lecture was delivered as a result of NRC substantiation of allegations that QC personnel were being harassed and intimidated by construction personnel and were not being adequately supported by QA/QC management. This presentation was subsequently put in printed form and distributed to all B&R site personnel (See Appendix 5).

In the area of soil foundations, serious questions remain as to whether the in-place compacted backfill has met the required densities. When the licensee recently initiated a retest program to provide answers to these questions, the QA/QC program failed to adequately review and control this operation, in that standard test requirements were not followed.

Although safety-related welding activities are at an early stage at the South Texas Project, serious problems were identified in the areas of welder qualification, welding process controls and NDE performance and interpretation.

Further, although not reviewed during this investigation, licensee personnel indicated significant problems relative to the storage and maintenance of equipment and processing of quality records.

Improper implementation of the HL&P and B&R QA audits and surveillance programs and the failure to perform continuous and effective trend analysis of site documents that record problem areas have allowed these conditions to persist. The failure to prevent or identify and correct many of the deficient conditions identified by this team is indicative of a lack of aggressiveness and effectiveness in the QA/QC program and management.

E. REPORT DETAILS

1. ALLEGATIONS AND CONCERNS

a. Initial Allegations

The following is a detailed report of all allegations investigated. During the course of this investigation 57 individuals were formally interviewed. These interviews took place between November 10, 1979 and February 7, 1980. Twenty-four of these individuals executed signed sworn statements. These statements have been paraphrased and summarized in an effort to protect the identities of the individuals, and are attached to this report as Appendix 2.

In addition, 29 individuals did not execute written statements. These individuals were either not asked or expressed a desire not to make a sworn statement. However, a Results of Interview was prepared. These Results of Interviews have been paraphrased and summarized in an effort to protect the identities of the individuals. These summaries are attached to this report as Appendix 3.

The remaining four individuals who were interviewed were either new employees and/or did not profess to have any pertinent knowledge or information and therefore no Statements or Results of Interviews were executed.

The interviewed individuals are numbered A1 through A57. Individuals identified as B1 through B19 are employees who have voluntarily terminated, been terminated, were not immediately available for interview, or were not fully identified.

Supporting documents D1 through D8 are referenced in the investigative findings, however, to protect the identities of the individuals involved, they are not attached to this report.

The allegations, as understood by NRC, and resultant investigative findings are stated below:

Allegation No. 1

Individual A1 alleged that A40, during a site QA/QC meeting, on November 9, 1979, told the inspectors that he would know if any QC inspectors went to the NRC; that the NRC is tired of your complaints and he insinuated that action would follow.

Investigative Findings

Individuals A4, A6, A11, A21 and A27 executed signed sworn statements wherein they claimed that A40, during a meeting warned them not to talk to the NRC indicating that action (trouble) would follow. Individual A43 also confirmed this comment by Individual A40, but did not execute a signed statement. Interview of Individual A40 resulted in a signed sworn statement wherein he admitted to stating "Every time you go to NRC, we find out" explaining that the NRC usually arrives on site to investigate and eventually he learns who made the complaint. Further, Individual A40 admitted to stating "Going to the NRC, they are probably getting tired of your call" explaining that he was just giving his personal opinion. A40 denied that he inferred action or trouble would follow to those individuals talking to the NRC. Individual A40 advised that it was not his intent to warn or discourage QC Inspectors, but merely to point out the facts to them.

Conclusion

This allegation is substantiated. All individuals who substantiated the allegation stated they were unaware of any defective structures, components or materials. Therefore, there is no known direct bearing of this allegation on plant safety. The working environment created by this incident is not conducive to proper performance of the QC inspectors. If allowed to continue, such a work environment has the potential for permitting relevant deficiencies to go uncorrected.

Allegation No. 2

Individual A1 alleged that in early November 1979, a quality control inspector was threatened by a general foreman.

Investigative Findings

Individuals A3 and A6 executed signed sworn statements wherein they claimed they were present when Individual A50 threatened Individual A3. Interview of Individual A50 resulted in a signed sworn statement wherein he admitted that he threatened Individual A3, but explained he just lost his temper and made no attempt to actually injure A3. A35 indicated that he was present when A50 threatened A3.

Conclusion

This allegation is substantiated. This incident represented a case of a threat. A6 also indicated he was unaware of any defective structures, components or materials. There was no evidence from either A3 or A6 that would indicate any known safety-related defects are present in the facility. The working environment created by this incident is not conducive to proper performance of the QC inspectors. If allowed to continue, such a work environment has the potential for permitting relevant deficiencies to go uncorrected.

Allegation No. 3

Individual A1 stated he was present when a general foreman knowingly violated specifications by allowing excessive freefall and lateral movement of concrete. This occurred in the spring of 1979.

Investigative Findings

Individual A2 executed a signed sworn statement wherein he corroborated A1's allegation in that the general foreman, A50, and his concrete foreman, A45 knowingly allowed concrete placement to continue under deficient conditions. A2 stated he did not measure the excessive distance during the freefall and lateral movement of concrete and therefore could not, in effect, prove his contention that there was excessive freefall and lateral movement. Interview with individual A50 resulted in a signed sworn statement wherein he advised that A1 and A2 were present at the placement and that they had claimed there was excessive (greater than 5 feet) freefall and that vibrators were being used to move concrete laterally more than 5 feet. A50 advised that neither A1 or A2 had made measurements and when A30 (QC Supervisor) was called to the site, A30 agreed that the placement could continue. Interview of Individual A45, who works directly for A50 and was the concrete foreman involved in the placement of the concrete, resulted in a signed sworn statement wherein he denied excessive freefall of concrete, but admitted he moved concrete laterally, by vibration, in excess of that allowed by the specification. A45 advised that during this incident the specification called for lateral movement not to exceed 5 feet, however, admitted that he moved the concrete approximately 7 feet. A45 stated he usually overvibrates the placements to ensure that honeycomb does not occur.

Interview with Individual A30 resulted in a signed sworn statement wherein he advised that QC inspectors had tried to stop A50 from placing concrete and had failed. As a result A30 had been called to the site of the placement where he determined that A1 and A2 had not measured the distances of freefall, one of the items in question. A50 advised that when he measured the freefall on the second pass the distance was within the allowable limits. A30 told A1 and A2 to measure the distance in the future. A30 allowed the work to be completed without an NCR since the placement wasn't critical. A30 advised that he was aware that A50 had allowed excessive freefall in the past. A30 also advised that at this same time there was a question over the lateral movement of concrete more than 5 feet but that A1 and A2 had not measured it in this case. A30 advised them they must measure before stopping a placement.

As a result of another situation A3, a QC inspector, was interviewed and provided a signed sworn statement. A3 advised that recently he noted freefall of concrete in excess of 42 inches at four locations. A3 pointed this out to A45 who did nothing. A3 then told A50, A45's immediate supervisor, and A50 did nothing to correct the situation.

A3 then told A50 he was going to leave the placement. A50 then stopped the placement and corrected the situation. A45 in a signed sworn statement said that he had cut the tremies too short and the QC inspector told him to stop the placement but he continued to place with the intention of stopping at the end near the form. The QC inspector threatened to walk off the job until A50 told A45 to stop and placement was ended. A50 in a signed sworn statement stated that he was notified by A3 that the tremies were too short and when he was informed of this he ordered the foreman, A45, to stop the placement. A50 was unaware that A3 had previously asked the foreman, A45, to stop.

Further, interview of A35 and A54, both QA/QC supervisors, resulted in both stating that they were aware that A45 could not be trusted to place concrete that will meet all specification requirements. A54 was aware of this based on information received from A35.

Conclusion

The allegation concerning lateral movement is substantiated. The allegation concerning freefall is substantiated.

The excessive lateral movement of concrete in this case is not considered to have had a significant effect on the integrity of the structure since no segregation was observed during the placement and no effects of segregation were observed after form removal. No apparent effect of excessive freefall was observed since segregation was not detected. This incident represented a case of lack of QC management support, but results in no direct concern for safety of the as-built structure.

Allegation No. 4

Individual A1 advised that he overheard a concrete foreman A45, state that the construction practices on Lift #3 on RCB-1 shell wall were worse than Lifts #8 and #15 which resulted in significant voiding, previously identified to the NRC.

Investigative Findings

Interview of construction foreman, Individual A45, resulted in his executing a signed sworn statement wherein he admitted that he may have made a comment indicating that Lift #3 was worse than Lifts #8 and #15. Individual A45 explained that the present quality control inspections are much improved over the quality control inspections in 1976, and that the concrete slump in that particular placement, in 1976, was 2 inches where as a slump of 4 to 6 inches is allowed today.

Conclusion

This allegation is substantiated. However, a review of the B&R specification disclosed that in 1976 the specified slump was 2 to 4-inches. The present specification now specifies a slump of 5 to 7 inches for containment exterior shell wall concrete. This change in the specification was made to facilitate placement and consolidation of these congested placements. The NRC considers the range of slumps from 2 to 7 inches is acceptable as long as the resulting properties meet the design requirements. No records were found which indicated the necessary properties were not met.

The licensee has established a program to study voiding in completed containment shell wall concrete. The possible presence of voids in Lift #3 will be investigated as part of this effort. (Note: On 2/18/80, after this investigation was completed, the licensee submitted a final report on the voids in Units 1 and 2 reactor containment buildings. All exploratory work is completed and all repairs made except for a 10' x 14' area on Unit 2 where the liner bulge occurred. This area will be reported on by the licensee separately. See Appendix 4.)

Allegation No. 5

That a QC inspector and construction personnel agreed to place concrete in a complete 24-inch lift instead of the 18-inch lift required by the specification. This occurred during the spring of 1979.

Investigative Findings

Interview of A1 resulted in his executing a signed sworn statement wherein he admitted that he allowed construction personnel to place a complete lift of 24 inches instead of 18 inches, explaining that the specification calls for a maximum 18 inch lift with an occasional variance to 24-inches allowed. A1 stated that he was subsequently confronted by A30 and A35, his supervisors. Interview of A30 and A35 confirmed that A1 allowed construction personnel to place a complete concrete lift of 24-inches. In addition, A50 claimed he was present and admitted to A35 that construction was equally responsible for the 2^d inch placement.

Conclusion

This allegation is substantiated. However, it is noted that the specification allows occasional variances to 24-inches, that the inspector stated that the concrete had been properly consolidated and that this involved only the bottom layer of a 4-foot thick section.

This item has no safety significance.

Allegation No. 6

That quality control inspectors (Civil) have lost support of their supervisors when they (inspectors) are confronted by construction personnel.

Investigative Findings

Interview of A1, A2, A3, A4, A5, A6, A9, A11, A14, A16, A17, A21, A27, A31, and A52 resulted in each executing a signed sworn statement wherein they claimed that their supervisors, identified as Individuals A35 and A40, have not supported them during confrontations with construction personnel, whom they identified as individuals A33, A45, and A50. Individuals A25 and A37, also voiced the same concern. Interviews with A33, A45, and A50 resulted in signed sworn statements wherein they admitted ignoring and/or bypassing quality control inspector's directive to stop by continuing their work, and then going to the QC inspector's supervisor, to reverse the QC inspector's directive. Individuals A33, A45 and A50 all agreed that in the future they will try to listen to the quality control inspector and when told to stop work, they will stop, until a resolution can be worked out. Individual A50 also agreed that in the future he will not bypass his own chain-of-command or the chain-of-command of the quality control to gain support over the inspector for his point of view. Individuals A35 and A40 verbally advised that they tried to support quality control inspectors at all times. A35 commented that he personally went to Individual A50 and requested support from A50 in that comments from construction personnel to the effect that A35 will sign off placements over the objection of the assigned inspector is undermining his authority and credibility. A35 pointed out that he has supported Individuals A45 and A50 because most of the time they are correct.

Conclusion

This allegation is substantiated. Most civil QC inspectors feel that they are not supported and perceive that the construction organization usually has the final word (authority) when confrontation occurs. This instance represents a case of lack of QC management support. No direct safety significance of actual structures is attached to this substantiated allegation. Instances related by the involved individuals that might pertain to safety are addressed elsewhere in the report.

Allegation No. 7

That QC inspectors do not have direct communication (two-way radios) with their supervisors when in the field; that their supervisors refuse to supply radios; that they do not have drawings in the immediate placement area in the field.

Investigative Findings

Interview of Individual A1, A4, A5, A6, A9, A14, A17 and A27 resulted in signed sworn statements wherein they advised that two-way radios for concrete placement inspectors in the field are not available and therefore they have no immediate communications with their supervisors. Most of the above individuals pointed out that the only radios available were the ones held by construction personnel and when they are trying to stop or correct a concrete placement, it is somewhat awkward to ask Construction if they can use their radios to get support to use against them (Construction). A40, a QC supervisor, advised that radios are available during placements and that all the inspectors need do is search through the QC organization to locate an available radio. A40 stated, that he assumed that QC inspectors were aware of this, however, admitted that he has never discussed or written any notices to this effect. A40 explained that it would be too expensive to issue two-way radios to all placement QC inspectors. In addition, Individual A40 explained that all QC inspectors have temporary Stop-Work authority and therefore, do not really need the radios. A35 advised that two-way radios would help QC inspectors, but the lack of them could be worked around. He also noted that the request for the radios had been rejected by HL&P.

Additionally, most QC inspectors advised that copies of prints and specifications are not readily available in the field, however, admitted that they are accessible in certain field shacks. A40 pointed out that drawings and specifications are readily available at various QC shacks located adjacent to the work area in the field.

Conclusion

The allegation that QC inspectors have no direct (radio) contact with their supervisors and that radios are not supplied by supervisors is substantiated. It was determined that most lead inspectors have radios, but that they are not always present at each placement or during the full time of a placement. This situation is not judged to have any direct safety significance with regard to the actual structures, however, the problem may add to the number of times the verbal confrontations occur between construction and quality control personnel. The allegation that drawings are not in the field is not substantiated in that drawings are located in various central field locations, in the main QC offices, and in the Document Control Center.

Allegation No. 8

That one of the QC inspectors reported that the assigned concrete foreman left a concrete placement; the concrete placement crew would not correct procedural violations identified by the concrete placement inspector. This occurred in September or October 1979.

Investigative Findings

Interview of Individual A9 resulted in a signed sworn statement wherein A45 was identified as leaving a concrete placement for about one hour while the placement was in progress.

The interview of Individual A45 resulted in a signed sworn statement wherein he admitted leaving a concrete placement while it was in progress for about one hour in order to attend a meeting. A45 explained that he left one of his construction workers in charge of the placement, but did not inform the QC inspector.

Interview of A56 advised that it is the policy of B&R that the concrete placement foreman must be present during placement of concrete. A56 explained that A45's supervisor had called a meeting at the time of the placement in question. However, he emphasized that no meeting in the future that will require a foreman to leave a placement.

Further, Individual A9 stated that procedural violations occurred during this time which were documented on the preplacement examination checklist. The placement was, however, completed with all aspects of the specifications met. A9 noted that some of the parameters were against the limits of the specifications. A9 stated that the placement was thoroughly monitored. A9 told relief inspector, A2, about this incident as well as A9's supervision, A17.

Conclusion

This allegation is substantiated. The fact that the foreman left the site does not represent a direct safety issue. QC inspection personnel were on site during the placement and the procedural violations that occurred were noted and documented. All the specification requirements were met. The incident was later the subject of verbal comments which left the QC inspector in the position of being harassed.

Allegation No. 9

That a QC inspector was threatened by a construction worker who stated he was going to throw him off the top of a concrete wall. This occurred between September 15 and October 31, 1979.

Investigative Findings

Interview of Individual A2 resulted in his executing a signed sworn statement wherein he claimed that a concrete worker threatened to throw him off the top of the containment wall. A2 could not identify the individual and efforts to locate witnesses to the incident were unsuccessful. A2 further stated that the construction individual was much smaller than him and that he did not take the threat too seriously.

Conclusion

This allegation is not substantiated. No direct question of plant safety was involved. The working environment created by this incident is not conducive to proper performance of the QC inspectors. If allowed to continue, such a work environment has the potential for permitting relevant deficiencies to go uncorrected.

Allegation No. 10

That a QC inspector was threatened by a carpenter who stated he would hit him with crescent wrench during a dispute involving water curing of concrete. This occurred in October 1979.

Investigative Findings

Interview of Individual A5 resulted in a signed sworn statement wherein he explained that during a curing process, one of the carpenters cut off the water supply to some concrete being water cured. Individual A5 advised that he asked the carpenter to turn the water back on, at which time the carpenter threatened to hit him with a crescent wrench. A5 could not identify the individual and efforts to locate witnesses to this incident were unsuccessful.

Conclusion

This allegation is not substantiated.

Although the location and extent of the curing water interruption was not established a continuing concrete curing inspection program was in existence and any discrepancies would have been noted and corrected. No direct safety significance involved. The working environment created by this incident is not conducive to proper performance of the QC inspectors. If allowed to continue, such a work environment has the potential for permitting relevant deficiencies to go uncorrected.

Allegation No. 11

That a QC inspector complained that markers, potentially containing halogenic materials, were used by vendors to mark stainless steel items and that stainless steel and carbon steel were stored together (touching) by a vendor.

Investigative Findings

Interview of Individuals A12 and A13 disclosed that during a recent vendor surveillance (September 24-28, 1979) off site, they observed markings suspected of containing halogenic material being used on various stainless steel items scheduled to be sent to the South Texas Project. Individual A12 explained that the markings were brought to the attention of the vendor, at which time the markings were ordered removed, B&R Purchase Specification 1L060 PS101-0 specifies maximum limits of chloride, other halogenics and sulfur content for material in contact with austenitic stainless steel. Also, as a result of a torn plastic shipping bag, carbon steel and stainless steel were found in contact.

The vendor surveillance specialist, A26, for the September 24-28, 1979 vendor inspection was interviewed and indicated that a number of problems were identified during the surveillance including the storing of stainless steel with carbon steel. Individual A26 remarked that deficiencies were identified on a Corrective Action Request (CAR) for vendor action and no items were released for shipment that had deficiencies. The applicable Vendor Surveillance Report D1, and CAR D2, outlining the inspection plan and documenting the results were examined. Corrective action included the segregation of carbon and stainless steel and the removal of markings from stainless steel items.

B&R warehouse storage of hundreds of safety-related stainless steel fittings was examined. This examination resulted in two fittings marked with black ink (of unknown composition). Nonconformances were subsequently written against these items. Additionally the QC inspector, A38, responsible for material issues stated that no items are issued with non-qualified markings. Observations of the markings reflect that these two items were special items rather than part of bulk supply of standard fittings.

Conclusion

This allegation is substantiated. However, corrective action was taken and existing site procedures appear to preclude the issuance and installation of discrepant materials. There is no reason to believe that discrepant materials were ever issued from the B&R warehouse for installation since nonconforming material was identified and rejected or repaired. There is no resulting safety question concerning installed materials.

Allegation No. 12

That traceability of embeds is lost after leaving the B&R Receiving group.

Investigative Findings

Investigation of the embed material receiving, storage, and fabrication areas, through interviews and procedural reviews, established that QC does not verify the identification of embeds during erection and installation. Quality Construction Procedure A040 KPCCP-3, "Pre-Pour Activities," Revision 4, specifies the in-place inspection to be performed by the QC inspector. The procedure provides for checking the type, number, location, and support of embeds. There is no objective evidence to indicate the material traceability is verified for embedments. The licensee's architect/engineer performed a special investigative audit during November 14-16, 1979, and identified lack of embed plate traceability as a finding. The audit finding is discussed in internal correspondence and, at the time of this investigation, is pending resolution.

Conclusion

This allegation is substantiated. The traceability of embed plates is not maintained to the point of installation, however, the licensee's audit program had identified the discrepancy and corrective actions are being considered. Further review of this matter is planned pending implementation of corrective action (498/79-19-01 and 499/79-19-01).

b. Additional Allegations

The following allegations identified as 1A thru 19A were developed during the course of this investigation.

These allegation surfaced during formal interviews of individuals A1 thru A57.

The allegations as received and understood by NRC are stated below.

Allegation No. 1A

That a QC inspector had falsified concrete curing records. This occurred in early November 1979.

Investigative Findings

Interview of Individual A5 resulted in him executing signed sworn statements wherein he admitted he initialed two documents as instructed by his supervisor, A31, indicating he performed inspections, when he in fact had not conducted the required inspections. A5 identified D3 and D4, Brown & Root Quality Assurance Examination Check Sheets, as the documents bearing his initials which falsely indicate he inspected concrete curing. A5 initialed the dates on the right side of D3 and D4, pinpointing the exact falsification. In addition, review of Brown & Root Labor Control Sheet, D5, verifies that A5 did not work on two dates so indicated by his initials. A5 advised that he falsely signed off on D3 and D4 under the direct instructions of his supervisor, A31. A4 stated that A5 told him that A31 had asked A5 to sign off on the record. Interview of A31 resulted in a signed sworn statement wherein he denied instructing anyone to sign curing records when the inspection was not performed.

Conclusion

This allegation is substantiated, however the reason for the falsification is not apparent based on the two interviews.

However, the concrete placements involved were being cured with liquid membrane curing compound which needs only to be inspected for damage. The records indicate that the condition of the curing surface was satisfactorily inspected after the days in question which would assure no degradation of concrete quality. Therefore there is no question with respect to the adequacy of the concrete structure. This incident apparently represented intimidation.

The matter of falsifying a record is being referred to the Office of Inspector and Auditor for possible further action.

Allegation No. 2A

That a construction general foreman threatened a quality control inspector with bodily harm. This occurred in the fall of 1979.

Investigative Findings

Interview of Individual A18 resulted in his executing a signed sworn statement wherein he claimed that A50 threatened him with bodily harm. Interview of A23 resulted in a signed sworn statement wherein he witnessed A50 threatening A18. Interview of Individual A50 resulted in him executing a signed sworn statement wherein he admitted threatening A18. Individual A50 explained he lost his temper adding that he did not plan to harm A18.

Conclusion

This allegation is substantiated. No direct question of plant safety was involved, but the incident was a threat. The working environment created by this incident is not conducive to proper performance of the QC inspectors. If allowed to continue, such a work environment has the potential for permitting relevant deficiencies to go uncorrected.

Allegation No. 3A

That a construction superintendent threatened a QC inspector with bodily harm. This occurred sometime between October and November 1979.

Investigative Findings

Individual A17 executed a signed sworn statement wherein he identified A53 as threatening him with bodily harm. Individual A53 was interviewed and admitted that he threatened A17 with bodily harm. A53 explained that he lost his temper and did not actually intend to hurt anyone.

Conclusion

This allegation is substantiated. No direct question of plant safety was involved, but the incident was a threat. The working environment created by this incident is not conducive to proper performance of the QC inspectors. If allowed to continue, such a work environment has the potential for permitting relevant deficiencies to go uncorrected.

Allegation No. 4A

That a QC supervisor stated words to the effect that after NRC leaves we will have to get rid of some of the QC inspectors, indicating that the QC inspectors who talked to NRC would be "hitting the gate."

Investigative Findings

Interview of Individual A16 resulted in a signed sworn statement identifying A35 as the individual who stated, "It is my opinion that if QC inspectors don't straighten up, they'll be hitting the gate." A16 advised that A35's comments were interpreted, that management would get rid of QC personnel who talked to the NRC. Interview of A35 resulted in A35 admitting that during mid-November 1979, he used words to the effect, that after NRC is finished investigating, we need to get rid of some of our people. A35 emphasized that his intention was to get the message across to QC inspectors that if they were not performing their jobs in a proper manner they would be released. A35 added that as a supervisor he was not responsible for the interpretation of his comments by the various QC inspectors, and therefore, did not have to explain his comments to anyone.

Conclusion

This allegation is substantiated. No direct question of plant safety was involved, but the incident represented a case of harassment. The working environment created by this incident is not conducive to proper performance of the QC inspectors. If allowed to continue, such a work environment has the potential for permitting relevant deficiencies to go uncorrected.

Allegation No. 5A

A memo/letter from a former B&R employee directed to B&R management was received by the NRC during the course of this investigation. He alleged that he had information that was significant enough to make the current NRC investigation "look like a picnic."

Investigative Findings

Individual A55, the author of the memo/letter D6 directed to B&R management was interviewed by telephone. During this interview A55 stated that the information he possessed was in the area of cost overrun, adding that "it was none of NRC's business." A55 declined to provide amplifying details and emphasized that it was a B&R internal affair and that he did not want to discuss it further. He did, however, comment that in his opinion the South Texas Project had the worst cost overrun record in the country. A B&R response letter, D7, apparently satisfied A55 concerns. A55 further remarked that the NRC requires QA/QC personnel to have experience in the field, however, there is apparently no requirement that construction workers/laborers (male and female) have background experience.

Conclusion

This allegation is not substantiated.

A55's statement relative to no requirement for background experience is partially true, however, Criterion II of 10 CFR 50, Appendix B, and certain codes and standards do contain personnel qualification requirements for construction workers in certain specialized tasks such as welding and reinforcing steel splicing. A55 is correct that there are no all-inclusive requirements of the NRC for construction workers comparable to the requirements for the personnel in the QA/QC programs. No question related to plant safety was raised by A55.

Allegation No. 6A

The NRC investigator received an allegation that the Surveillance Deficiency Report of B&R was changed for no apparent reason and that the concrete audit schedule was changed to July 1980, a later date for no apparent reason.

Investigative Findings

The NRC inspector contacted site internal surveillance (SIS) personnel relative to changing site internal surveillance findings that had been initially reported and finally documented in Report SIS-26 (Special Surveillance of Concrete Activities) performed in October 1979. The surveillance personnel were sent back to the field in November 1979 because of differences in opinion between the surveillance personnel and their supervisors relative to their surveillance findings. Management did subsequently review and revise this surveillance report.

The B&R site Lead Auditor, A57, was interviewed and the audit schedule was subsequently reviewed. The audit of concrete work activity is scheduled for July 1980. A57 explained that concrete activities were scheduled for July 1980 because he had determined that there were serious problems in the B&R QA records vault and he decided that QA records should receive priority. The NRC inspector asked why QA records were to be audited monthly for the next four to six months when serious problems relative to concrete work activity exist. Again, A57 stated that QA records deserved higher priority than concrete.

Conclusion

This allegation is substantiated. However, it is management's choice to direct additional monitoring and/or report revision when deemed necessary. Further, management routinely reschedules work based on priority. The NRC inspector was subsequently informed that surveillance of concrete activities would be given a higher priority. No direct safety questions concerning the plant were raised as a result of this allegation.

Allegation No. 7A

That QC inspectors are taught during a B&R QC (Civil) inspector training course, not to expect any support from their supervisors.

Investigative Findings

Individual A27, who recently completed a B&R QC (Civil) training course, executed a signed sworn statement, wherein he claimed that the instructor, Individual A28, taught that QC (Civil) inspectors are not to expect any support from their QC supervisors. Interview with A28 resulted in him confirming that he does, in fact, teach each prospective QC (Civil) inspector that they will be working alone on many occasions; that there will be times when no support from their supervisor is immediately available; and that when construction personnel do not agree with them they will have to prove their position without support from their supervisors. A28 remarked he did not clarify or explain B&R's position, but added that experienced QC inspectors will assume that one or two QC supervisors cannot be at 20 different locations at the same time.

Conclusion

This allegation is substantiated. The investigation also disclosed that QC supervision is usually available when needed. If QC inspectors are properly trained to deal with the scope of responsibilities assigned to them they should be capable of independent action within that scope of responsibilities. No direct safety questions concerning the plant were involved. This instance involved the lack of QC management support.

Allegation No. 8A

That Nonconformance Report (NCR) procedures are not being followed in that NCR drafts are not serialized; that only approved NCRs are serialized.

Investigative Findings

Interview of Individuals A5, A10, A22, A29, A35, A36, A43 resulted in all describing different methods of writing NCRs. All concurred that most draft NCRs that are not approved, are destroyed or discarded prior to assigning a serial number to the NCR.

Conclusion

This allegation is substantiated. This represents an instance of lack of QC management support.

Further information on this allegation is contained below in paragraph E.1.b, Allegation No. 9A.

Allegation No. 9A

That a large number of Nonconformance Reports (NCRs) relative to maintenance of stored equipment are not being processed and are being filed away with no action.

Investigative Findings

Individual A36 advised that there has been a large number of Nonconformance Reports (NCRs) written over the past year in the Storage and Maintenance Department. A36 remarked that under the present system CARs are written and must be answered within 10 days after they are submitted. A36 stated that there are no instructions as to the proper action to be taken when the submitted CARs are over 10 days old. A36 explained that, presently delinquent CARs are stored in a file with no apparent corrective action in progress. A36 emphasized that requested assistance for direction and guidance from QC management concerning the delinquent CARs has been unproductive.

The NRC understanding of the problem is as follows:

1. QC inspections are performed to verify that equipment on site is properly stored and maintained.
2. If the Equipment Storage and Maintenance Instruction (ESMI) card is not being followed or if a ESMI card has not been issued, this fact is identified in a Storage Inspection Report (SIR).
3. A response to the SIR is required within 10 days and if not received a Nonconformance Report (NCR) is issued.
4. A number of NCRs concerning inaction on SIRs, or the preparation of ESMI cards have been issued by the Storage and Maintenance department over the past year.
5. Corrective Action Requests (CARs) (Which escalates the matter within B&R) have been issued by the Storage and Maintenance department because of the continuing problem with inaction on SIRs and ESMIs.

During this investigation two CARs were identified relative to this item, No. S-139 dated September 18, 1979 and No. S-149 dated October 4, 1979. They identified numerous SIRs and/or ESMIs where the required corrective action had not been taken.

This matter was discussed with B&R personnel including Systems Engineering who have the responsibility for developing the ESMI cards. Responsible B&R personnel were aware of the backlog and

were working to correct this situation. This matter was also discussed with HL&P QA including an apparent misunderstanding relative to the intent of a third CAR, No. S-157A which concerned resolution of SIRs. HL&P QA had previously identified this problem and the questionable purpose of CAR S-157A and were in the process of preparing a memo to B&R management.

Conclusion

This allegation is substantiated. However, the licensee had previously identified the problem and was in the process of effecting corrective action. No direct safety problems with in-place equipment were identified. This represents an instance of lack of QC management support.

This item is considered unresolved pending completion of the licensee's corrective action and review by the NRC (498/79-19-02 and 499/79-19-02).

Allegation No. 10A

That Cadwelders were not requalified as required by specification, 2A010CS028-G, when 2 of 15 Cadweld splices were rejected per visual examination by QC inspectors. An NCR was written in October 1979.

Investigative Findings

Interview of Individuals A52 and A35, resulted in each claiming that A33 refused to requalify Cadwelders in accordance with Brown & Root procedures after 2 of 15 Cadweld splices conducted by the Cadwelders were visually unacceptable by QC inspectors. A35 advised that an NCR was written, D8, and during the six weeks that it took to resolve the issue, A33 continued to work his Cadwelders. A35 and A52 pointed out that each Cadweld made during this time was tagged by QC personnel. Interview of A33 resulted in a signed sworn statement wherein he admitted he refused to stop his Cadwelders from Cadwelding when directed by QC inspectors and QC supervisors, because he (A33) disagreed with the interpretation of the specifications they were quoting. A33 remarked that he is not required to stop work when directed by QC inspectors or by an NCR that is written against his crew's work performance. A33 concluded by stating in the future he would stop his Cadwelders until disagreements with QC can be resolved.

Based on the review of D8, it was determined that five Cadwelders who had two unacceptable production splices within a unit of 15 consecutive splices were permitted to continue splicing without requalifying as required. Also noted on D8 was a statement that "No hold tags applied."

Specification No. 2A010CS028-G/DCN/5-2-79 "Concrete Construction," in effect at the time of the alleged events, states in paragraph 5.3.3.6 "when a splicer accumulates two unacceptable tests, either visual or tensile, within a unit of 15 consecutive test samples, and the rejections are not due to material deficiencies, he shall not be permitted to continue splicing until he has requalified according to paragraph 5.3.3.5."

The South Texas Project Final Safety Analysis Report (FSAR) states in Amendment 7 dated July 16, 1979, in Chapter 3 paragraph 3.8.1.6.3 "Cadweld Splices:"

"As an alternate to the requirements of Regulatory Guide 1.10, the provisions of the ASME-ACI 359 document, Paragraph CC-4333 are applicable as follows:

- a. Subparagraph CC-4333.3, Initial Qualification Tests, serves as an alternate to Section C.1 of Regulatory Guide 1.10, except that a splicer will be requalified if in any 15 consecutive

Cadwelds there are 2 unacceptable (either visual or tensile) Cadwelds made. The splicer will be requalified in the position or positions in which the failure(s) occurred. Qualification splices and procedures meet the requirements of Paragraph CC-4333 and Subarticle CC-5320."

D8 was dispositioned by revising the requirements of Specification 2A010CS028-G. This specification change was documented and approved by Engineering in a Document Change Notice (DCN) dated November 12, 1979.

"When it is identified that a splicer accumulates two (2) unacceptable tensile tests within a unit of 15 consecutive tests samples, he shall not be permitted to continue splicing until he has requalified according to paragraph 5.3.3.5.

When it is identified that a splicer has accumulated two (2) consecutive visual rejections in any one position, his next two (2) production splices for that position shall receive 100% inspection (i.e., preparation and final).

In view of the fact that the specification revision also affected commitments contained in the STP-FSAR, DCN/11-12-79 was reviewed to verify that it was properly coded to initiate a FSAR Change Notice required by procedure PEP-12. The DCN was properly marked indicating FSAR paragraphs 3.8.1.6.3.1(a) and 3.8.3.6.3.1(a) would require revising.

It should be noted that all splices performed by the Cadwelders in question, both prior to and subsequent to, the alleged events were properly inspected by QC personnel and those splices not meeting requirements were replaced. The quality of the Cadwelds in meeting specified requirements is not in question.

Conclusion

The allegation is substantiated. Both specification requirements and FSAR commitments were violated. Further, the resolution of D8 was not adequate in that it did not address the fact that Cadwelders, contrary to applicable specification requirements, were permitted to continue making production splices after two unacceptable splices within a unit of 15 consecutive splices were identified by the QC inspectors. No safety related questions remain regarding the quality of Cadwelds completed by these individuals. This represents an instance of lack of management support.

This item is contrary to the requirements of 10 CFR Part 50, Appendix B, Criterion XVI as identified in Appendix A of the report transmittal letter (498/79 19-03 and 499/79-19-03).

Allegation No. 11A

That Lift #5, RCR-2 shell wall, was not totally inspected for cleanliness before the placing of concrete.

Investigative Findings

Individuals A44, A45 and A49, executed signed sworn statements wherein they indicated that lift #5 was not completely inspected prior to the concrete placing and that A35 signed off the placement without totally inspecting the lift. During interview of A35, he admitted that he signed off the placement knowing that lift #5 was not 100% inspected for cleanliness.

Conclusion

This allegation is substantiated. This represents a case of production pressure.

This same allegation was previously investigated by NRC Region IV inspectors. The results of their investigation are documented in Report No. 50-498/79-09 and 50-499/79-09 and are summarized in Appendix 1 herein on page 1-1.

The working environment created by this incident is not conducive to proper performance of the QC inspectors. If allowed to continue, such a work environment has the potential for permitting relevant deficiencies to go uncorrected.

Allegation No. 12A

That vertical cracks exist in structural steel clips in RCB-1, El 36', boron injection room FA. These were identified in October or November 1979.

Investigative Findings

This allegation made by Individual A8 was not investigated and remains unresolved pending followup during a future inspection (498/79-19-04 and 499/79-19-04).

Allegation No. 13A

That a pipe sleeve weld located at Azimuth 300°, El. 8'-0" in RCB-1 near work panel 15, contains a defect approximately 1/4 inch deep.

Investigative Findings

This allegation made by Individual A8 was not investigated and remains unresolved pending followup during a future inspection (498/79-19-05 and 499/79-19-05).

Allegation No. 14A

That a problem existed with the RCB-1 polar crane.

Investigative Findings

Individual A25 stated that it was his understanding that problems existed with the RCB-1 polar crane; however, he did not know the exact problem.

The licensee informed the NRC inspector that it was HL&P's position that the polar cranes are not safety-related, thus the requirements of 10 CFR 50, Appendix B did not apply to their design, fabrication or installation.

This item remains unresolved pending further review and determination of the crane's classification (498/79-19-06 and 499/79-19-06).

Allegation No. 15A

That problems exist with the storage of electrical/mechanical penetrations and that Megger tests of motors in the warehouse are a problem because the electricians do not understand the test.

Investigative Findings

Although not included in his statements, Individual A14 believes that there are problems with the storage of electrical/mechanical penetrations; however he could not specify the details of the problem. A14 also believes that there are problems with the Megger tests of motors in the warehouse because the electricians do not understand the test; however, he could not specify the details of the problem.

These items were not investigated and remain unresolved pending followup during a future inspection (498/79-19-07 and 499/79-19-07).

Allegation No. 16A

That an NCR was written because the intake structure was improperly cured, but no action was taken.

Investigative Findings

This allegation made by Individual A9 was not investigated and remains unresolved pending followup during a future inspection (498/79-19-56 and 499/79-19-56).

Allegation No. 17A

A QA auditor, A25, alleged that he had heard a former QC inspector, B18, say that B18 had told an NRC inspector something about voids in concrete. A25 was not aware that this had ever been investigated since he had not seen an NRC report. A25 thought that B18 had never seen an NRC report either. Because of this A25 said that some QC inspectors are reluctant to talk to the NRC.

Investigative Findings

This allegation made by Individual A25 was not investigated and remains unresolved pending followup during a future inspection (498/79-19-57 and 499/79-19-57).

Allegation No. 18A

A QC inspector in a signed sworn statement quoted a QA manager as having stated that the NRC is telling HL&P/B&R who is talking.

Investigative Findings

This allegation made by Individual A11 has not been fully investigated. In a signed sworn statement the QA manager, Individual A40, explained that his statement was: "Everytime you go to the NRC we find out." He explained that this meant that after any allegation is made to the NRC, the NRC arrives at the site to investigate. This matter remains unresolved and will be referred to the Office of Inspector and Auditor.

Allegation No. 19A

A QC inspector in a signed sworn statement indicated that he discovered 3 horizontal reinforcing bars omitted. (Resolution unknown).

Investigative Findings

This allegation made by Individual A17 has not been fully investigated to ascertain whether the missing reinforcing steel was added prior to the placement of concrete, whether there was a FREA or NCR, or other disposition. The location was determined to be in placement ME1-W250-01 which is the loading dock area. This remains unresolved pending followup during a future inspection (498/79-19-59 and 499/79-19-59).

c. Comments and Concerns

Listed below are comments or concerns, expressed by site personnel during the course of this investigation, that are not contained in the Summaries of Statements or Results of Interviews. These items are either discussed elsewhere in this report, were not considered significant relative to effects on plant safety or the person expressing the concern had insufficient information to permit a meaningful investigation. Therefore, the items listed here are not considered unresolved and need no further followup effort.

- (1) Nine individuals expressed concern relative to the adequacy of concrete curing or the performance of one of the concrete curing inspectors. These included: (a) It is believed that inspection of curing is absent or is inadequate on the back shifts and weekends; (b) one inspector gets seven-day curing requirements mixed up with 14-day curing requirements; (c) one QC inspector that inspects curing is not respected by most QC inspectors; (d) concrete was allowed to "dry out" during the curing process (wet method) and that inspectors would be fired for this at other nuclear projects where he has worked.
- (2) Over 21 individuals commented or expressed concern relative to management or management practices. These included: (a) management at this site is all "fouled up;" (b) I have never worked at a site with such poor management; (c) I contribute poor management to: (i) authority not delegated, (ii) QC supervisors do not see the big picture, (iii) too many layers of supervision, (iv) QC inspectors have two bosses at the same time, and (v) lines of communication are bad, (d) concrete foremen do not cooperate with QC inspectors; (e) there are many young engineers who do not know what they are doing because they are fresh out of college; (f) the area management concept and procedure GCP-21 allow too much interpretation; (g) proper action was not taken against a construction foreman for threatening a QC inspector; (h) that the usual fix by engineers is "to accept as is"; many of the construction foremen are not qualified - B&R has run off all the good crews; (i) construction exerts an undue amount of influence on QC personnel; and (j) two QC top managers "overrode" a lead QC inspector concerning a rebar congestion question without investigating the problem.
- (3) One individual stated that a problem on the December 7, 1979 diesel generator building placement, was lack of preplacement inspectors; that additional manpower was requested but none was furnished; that placement inspectors were seen standing around but did not assist the preplacement inspectors.
- (4) One individual questioned the integrity of a MEA wall placement because of a 16-foot lift on the 1-1/2 foot thick wall. He considered the lift excessive and questioned the ability of inspectors to observe the placement/consolidation.

- (5) One individual stated that engineering and construction generally allows 8-foot free fall of concrete in 12-inch walls; no tremies are used.
- (6) Two individuals stated that the November 9, 1979 QC meeting was a farce.
- (7) One individual stated that specifications that QC inspectors must follow are too loose and vague (when a requirement impedes construction progress it's changed or reworded to be vague).
- (8) One individual stated that on occasion concrete construction personnel tried to intimidate the "hell" out of QC inspectors; that concrete crews think of themselves as "prima donnas."
- (9) One individual stated it was his opinion that the wall at MEAB-2 W012-06 moved because vibrators were repeatedly allowed to penetrate too far down into the previous layer and that the base did not develop the required strength to support the several concrete layers added. This was reported to a supervisor but he said that the specification did not limit the depth and that QC inspectors were not the engineers. The individual also said that during the placement, the lifts were not put in as per directions on the pour card; that voiding resulted because grout was not placed around pipe penetrations prior to the placement of the concrete.
- (10) One individual said it was common for walls to go out of tolerance during a placement because of poor workmanship and gave examples as: ME2-W001-13, ME2-W0013-6, ME2-W001-00, and ME2-W012-04.
- (11) One individual stated that a preplacement inspection conducted two weeks prior to the diesel generator building base mat placement indicated that the placement area would never be ready by December 7, 1979; that management knew this and that this was another example of construction scheduling concrete placements before they are ready.
- (12) One individual said rebar foreman will tell you they have people who do not know what's going on; that they cannot speak English; that they stay on the job by just showing up every day.
- (13) One individual stated that during a 20-hour placement, low slump concrete was dumped in the placement.
- (14) One individual stated that part of B&R's problem with turnover is that they hire inspectors who are less qualified than many that are already on the job and pay them a dollar an hour more.

d. Summary of Conclusions

Of the initial 12 allegations, nine were substantiated and one was partially substantiated. Two could not be substantiated. Of the 19 additional allegations, 10 were substantiated and 1 was not substantiated. Eight additional allegations require further investigation and are considered unresolved. None of the allegations led to the discovery of any major deficiencies found in the work already completed.

Interviews indicated that the QA/QC organization in the civil area was not sufficiently independent from the pressures of production. Thirteen of fifteen allegations concerning production pressure, lack of supervisory support of QC inspectors, harassment, intimidation and/or threats have been substantiated. Repeated cases were reported where civil construction personnel ignored the findings of QC and willfully violated procedures and specifications. In other cases QC allowed improper work practices to be performed.

Interviews also revealed many instances where QC supervision did not properly support field inspectors. It is noted that in some instances a supervisor's correction or overruling of an inspector's decision was probably justified. However, a significant problem affecting the quality of work by the QC personnel is indicated by the following considerations:

- (1) QC supervision corrected and overruled civil QC inspectors decisions in front of construction personnel, usually as a direct result of a request by construction personnel, although in some instances the QC inspector was not correct.
- (2) The large number of these reported occurrences indicates either improper training or qualifications of QC inspectors or improper actions by the supervisors in overruling their inspectors.
- (3) In one instance it was confirmed and admitted by a supervisor that he had accepted a condition that had not been inspected.
- (4) Confusion exists on the part of many civil QC personnel regarding the criteria to be met in order to initiate a controlled nonconformance report (NCR) as well as the meaning of "temporary stop work" and "stop work" orders and where the authority to impose and lift these controls actually rests.

Failures to assure the organizational freedom and independence of QA/QC activities and failures to provide sufficient and well-defined authority are in noncompliance with Criterion I of 10 CFR 50, Appendix B as discussed in Appendix A to the report transmittal letter (498/79-19-08 and 499/79-19-08).

2. STRUCTURAL CONCRETE ACTIVITIES

a. Specifications and Procedures

The following documents reference or provide the guidance, material and process controls and acceptance criteria for safety related structural concrete activities:

STP PSAR and FSAR Sections 3.8 and PSAR Section 17.1

B&R Specification 2A010CS001, Rev. G, "Concrete Supply"

B&R Specification 2A010CS027, Rev. F, "Inspection and Testing of Concrete and Its Constituents"

B&R Specification 2A010CS028, Rev. G, "Concrete Construction"

STP Quality Construction Procedure (QCP) A040KPCCP-3, Rev. 14, "Prepour Activities"

STP QCP A040KPCCP-4, Rev. 13, "Concrete Placement and Finishing"

STP QCP A040KPCCP-8, Rev. 7, "Form Removal, Concrete Curing and Repair"

STP QCP A040KPCCP-11, Rev. 9, "Reinforcing Steel Mechanical Splicing (Cadvelds)"

STP QCP A040KPCCP-12, Rev. 5, "Installation of Waterstop and Waterproofing Membrane System"

STP QCP A040KPGCP-21, Rev. 8, "Field Requests for Engineering Action"

STP QCP A040KPGCP-13, Rev. 2, "Indoctrination and Training"

B&R QA Procedure ST-QAP 2.6, Rev. 3/15/79, "Nonconformances"

B&R QA Personnel Training Manual, Rev. 8/23/79

Pittsburgh Testing Laboratory (PTL) Procedure QC-FSTC, Rev. 18, "Field Sampling, Testing and Inspection of Concrete"

PTL Procedure QC-CBP-1, Rev. 7, "Concrete Batch Plant Inspection"

PTL Procedure QC-PQ-2, Rev. 8, "Training and Qualification of Testing and Inspection Personnel"

The above documents were reviewed for basic scope, completeness, consistency with referenced codes, standards and NRC regulatory guides and for reference during inspection of field activities and quality records. The following observations were made regarding the licensee's procedures.

QCP CCP-3 for prepour activities does not require reinspections of an area after lengthy delays before concrete placement or after additional "last minute" construction work has been performed. It also does not make provision for adequate time for final QC inspection prior to scheduling of a placement. Examples of problems in these areas include placement ME2-W012-06, placed on November 26, 1979 with the pour card signed off five days earlier on November 21, 1979 and inspection problems on DGI-M1 discussed later in this report (E.2.b.).

QCP CCP-8 for concrete curing should specify that ambient temperatures at the placement are to be determined and when they are to be determined. This would replace the use of mean daily temperatures at an offsite (approximately 75 miles) location as the procedure now specifies. The time at which curing actually commences (for record purposes) and the length of required curing should also be clarified.

Based on field observations and discussions with QC personnel, it was also determined that, at least on a sampling basis, water curing inspections should be performed prior to day shift craft personnel arriving onsite. This could identify and possibly prevent cases where curing water is being shut off on backshifts and turned back on at the beginning of day shift.

Specifications 2A010CS028, "Concrete Construction" and QCP CCP-4, "Concrete Placement and Finishing," should be revised to provide a dimensional acceptance criteria for permitted lateral movement of concrete.

Tighter limitations for free standing water and rainwater for concrete placement should be instituted in the above two documents and QCP CCP-3, "Prepour Activities." Paragraph 3.4.1.3 of CCP-4 allows continuation of placing during rainfall and pushing water ahead of the concrete and ditching for runoff. This operation could easily result in excessive washing of mortar, especially at the construction joints.

The above observed deficiencies if corrected can aid in clarifying and quantifying acceptance criteria. The adequacy of QCP GCP-21, "Field Request for Engineering Action," and ST-QAP-2.6, "Nonconformances" is discussed elsewhere in this report (E.7.). The strengthening of these procedures is identified as an unresolved item (498/79-19-09 and 499/79-19-09).

b. Field Activities

Aggregate storage and batch plant operations were observed. Batch plant scales had current calibration stickers attached. Plant inspectors and operators were interviewed as to responsibilities, procedural requirements, and acceptance criteria. The concrete laboratory was examined for cylinder curing conditions and equipment calibration. Compressive strength tests for three 7-day cylinders (sample 4411) and three 28-day cylinders (sample 4349) were observed. Loading rate and documentation of failure loads and break types were acceptable. The specimens tested met the required strengths.

Portions of the following placements were observed:

C11-W81B	11/20/79	RCB #1 Pressurizer Cubicle Wall
CA-2-W6	11/28/79	RCB #2 Tendon Gallery Access Shaft Wall
DG1-M1	12/7/79	#1 Diesel Generator Building Basement
ME2-W010-02A	12/18/79	#2 Mechanical Electrical Building Wall

The general condition of forms and the cover and layout of reinforcing steel appeared satisfactory. Chutes were utilized to control freefall and lateral flow distances were not excessive. Slump, air content and test cylinder molding activities were observed to meet procedural requirements. Test personnel were interviewed concerning test requirements and acceptance criteria. Truck tickets were initialed by the PTL inspector verifying delivery of the proper mix design.

The following items of concern, however, were observed during these placements. On placement C11-W81B vibrators were not being placed in any uniform pattern as specified in CCP-4 and ACI 309. On numerous occasions vibrators were left in the concrete for over one minute at a time. ACI 309 provides guidance as to the visual indications of sufficient vibration and also specifies a nominal time of immersion of 5 to 15 seconds. The general lighting on this placement was inadequate, requiring QC inspectors to use spot lights to see the concrete being placed on the lower layers of the lift. It appeared that vibrator operators could not determine the presence of the visual indications of sufficient vibration identified in ACI 309. It should be noted that the preplacement plan required special lighting be provided to aid QC and placement personnel in ensuring proper consolidation. This was not provided.

Poor vibrator practices including moving of concrete laterally, horizontal insertion and no uniform pattern were also observed in placement DG1-M1. In addition, placement methods, i.e., stepped placement as outlined in ACI 304, were not specified in the placement plan as required by Paragraph 3.1.1.3 of CCP-4, nor were they

discussed in the preplacement meeting held December 6, 1979. This large slab (82 feet x 107 feet x 4 feet) consisting of three integral bays was placed by completing the middle bay and then bringing forward the side bays from MEA building. This resulted in the concrete in the north end of the middle bay having been in place several hours before being tied into the final placements of the side bays. A specific placement approach, such as "stepping", is necessary for this type of placement to minimize the possibility of cold joints.

This failure to follow procedure CCP-4 regarding improper vibrator practices and lack of a specific placement method is in noncompliance with Criterion XVI of 10 CFR 50, Appendix B as discussed in Appendix A to the report transmittal letter (498/79-19-10 and 499/79-19-10).

In addition, IE inspectors noted prior to placement DG1-M1 that many (estimated later by B&R QC to be more than 100) vertical reinforcing tie bars had not been wired in place. Many other bars were loosely wired. The untied shear ties were noted on the preplacement punchlist but the number and locations were not identified. There were only two preplacement inspectors assigned to this placement. After the number of loose ties was identified approximately 15-20 persons worked to locate and secure the steel. However, when the IE inspectors returned later after the placement was 1/3 completed, approximately 10 ties were observed, at the north end of the east bay and 3 additional untied bars were noted. The NRC inspectors pointed out the condition to a B&R QC inspector but relied on the B&R inspectors to identify additional untied bars. Since the middle bay had been placed at this point, no one could determine the number of loose bars in this bay. This matter will have to be addressed by the licensee in answer to the noncompliance.

This failure to properly inspect the reinforcing steel for placement DG1-M1, as required by CCP-3, is in noncompliance with Criterion X of 10 CFR 50, Appendix B as discussed in Appendix A to the report transmittal letter (498/79-19-11 and 499/79-19-11).

It should be noted that craft personnel were working on items to be embedded in placement DG1-M1 up to within one hour of the scheduled time to start concrete placement. There were only two preplacement inspectors assigned to do the final inspection. This poor scheduling, coupled with the full concrete batching and placing crews standing by on an overtime shift, resulted in great pressure on the QC inspectors to accept the preplacement conditions. Numerous QC personnel stated during interviews that placements are often scheduled prematurely resulting in such pressure on QC. A review of the post placement interview report, required by CCP-4 to highlight problem areas identified during complex placements, revealed that the problems with the lack of sufficient preplacement inspectors, last minute work by construction and the loose tie bars were not addressed.

This is another example of noncompliance with Criterion XVI of 10 CFR 50, Appendix B as discussed in Appendix A of the report transmittal letter (498/79-19-10 and 499/79-19-10).

A punchlist of outstanding work items, deficient conditions, FREA's required, etc., is generated for each concrete placement. Entries to this punchlist can be made by crafts, engineering, QC or others and a column is provided for signoff that the item has been corrected or completed. After the completion of placement ME2-W010-02A the IE inspector noted that five items on the punchlist had not been signed off by the QC inspector as corrected or completed. Discussions with the preplacement QC inspector indicated that he did not believe that he needed to sign off items entered by non-QC personnel. Although the punchlist is not a formal QA document and final acceptance of a placement for placing of concrete is the signoff on the pour card, the NRC inspector considers that the punchlist is a necessary and effective tool to aid the QC preplacement inspector. All items should be verified by the QC inspector as having been corrected or completed prior to signing off the pour card.

On at least three occasions inspectors observed loaded concrete trucks in transit or standing-by with the agitating drum idle. With the high slump concrete often used at STP jarring or shaking during transport without agitation can cause segregation. In addition, paragraph 3.2.4.4 of CCP-4 specifies maximum drum revolutions as part of the acceptance criteria for the interval between batching and placing. If drums are not rotated this criterion cannot be used for inspection. In the situations observed there were no indications that concrete quality had been affected. However, this item is identified as an unresolved item (498/79-19-12 and 499/79-10-12). Licensee actions will be examined in a future inspection.

Throughout the investigation the inspectors observed water and membrane curing of various placements for complete coverage, protection, proper initiation and duration. Craftsmen and QC inspectors responsible for curing inspections were interviewed regarding procedural requirements and problems areas. Procedural changes resulting in part from the IE observations of curing have been previously outlined in this report.

The inspector examined completed placement ME2-W012-06 as a result of concerns expressed during an interview (See paragraph E.1.c(9)). These concerns were that the forms had moved during this placement and that there were voids around pipe penetrations due to poor placement practices. There appeared to be no significant distortion of this wall and a review of documents and discussions with involved personnel indicated that the placement had been stopped and the form condition corrected prior to completion. The voiding around the penetrations resulted from the close spacing of the penetrations and the spillage of concrete into and partially blocking the top spaces before the specified grout could be placed. These voids had been identified and were being repaired.

Completed placement ME2-W001-13, ME2-W0013-6, ME2-W001-00 and ME2-W012-04 were examined for distortion based on concerns expressed during an interview (See paragraph E.1.c(10)). Although there was some slight distortion noted in two of these placements, nothing of significance was noted.

c. Quality Assurance Records

Quality assurance records for four completed placements were examined for completeness and compliance with licensee procedures, specifications and commitments. These placements and the records examined were as follows:

CS1-W5, 660 cubic yards placed October 21, 1977

Pour Card, Curing Inspection Card, Concrete Inspection Book, Concrete Curing Daily Log, Special Prepour Checklist, Post Tensioning Inspection Reports, Concrete Test Load Tickets, Truck Tickets and Attachments II through VIII of PTL procedure QC-CBP which consist of reports on Daily Batch Plant Operation, Scale Dial Reading Digital Printout and Batch Tolerance Checks, Batch Record Summary, Moisture Content of Aggregates, Moisture Adjustments and Batch Weights, Batch Plant Equipment Inspection and Field Testing Summary.

CS1-W17, 884 cubic yards placed December 21, 1978

Pour Card, Special Prepour Checklist, Examination Checks for Preplacement, Placement and Curing, Truck Tickets and Attachment II - VIII of PTL procedure QC-CBP.

CS2-W5, 464 cubic yards placed April 27, 1979

Pour Card, Special Prepour Checklist, Examination Checks for Prepour, Placement and Curing; Inspection Repair Card, Repair Inspection Report, Post Tensioning Inspection Reports, Attachments II - VIII of PTL procedure QC-CBP, Truck Tickets.

CS2-W7, 450 cubic yards placed September 17, 1979

Special Prepour Checklist, Examination Checks for Prepour, Placement and Curing, Prescon Corporation report on post tensioning, Concrete Placement Plan.

It was noted that the truck tickets in the QA records vault did not have the required PTL inspectors' initial indicating that the proper mix design was delivered to that placement. It was then determined that the initialed copy of the ticket was being forwarded to B&R's accounting department and an unsigned copy from the batch plant was being forwarded to the QA records department. The initialed copy for future placements will be provided to B&R QA records and those for prior placements have been retrieved from accounting. A spot check of the retrieved copies indicated that PTL inspectors were in fact documenting the use of the proper mix design.

Pour Cards, Preplacement and Placement Examination Checks for the following placements made November 1-7, November 20, September 12 and September 17, 1979 were reviewed for completeness and the type and extent of problems identified:

ME1-S203	ME2-W010-02
ME2-W012-01	ME1-S047
ME2-W007-09	CS2-W7
ME2-W210-06	ME2-W009-07
C11-W81B	

It was noted that improper consolidation and excessive lift thickness were mentioned on three of these reports. Review of B&R Site Internal Surveillance (SIS) Report 26 (November 1979) and the pour cards and examination checks for placements ME2-W012-06 and ME2-W001-04 also indicated that consolidation and lift thickness continue to be problems. This failure to take effective remedial action for these repetitive problems is another example of noncompliance with Criterion XVI of 10 CFR 50, Appendix B as discussed in Appendix A to the report transmittal letter (498/79-19-10 and 499/79-19-10).

Curing Examination Checks for eight placements on September 27, 1979 and October 2, 1979 were examined.

Complex pour post placement interview minutes for the following placements for September - November 1979 were reviewed for thoroughness and types of problems identified:

C11-S54	C11-W81A
C12-W14	C11-W90
CS2-W7	C11-W83
CS2-W8A	

The following additional concrete quality assurance records were examined.

- (1) Main batch plant scale calibration reports for admixture dispensers (July 1978, January 1979 and July 1979), water and ice, cement, two coarse aggregate and sand scales (June 1978 and June 1979).
- (2) PTL Concrete Test Data Sheets for cylinder compressive strength tests performed August through November 1979.
- (3) W. R. Grace Company Certified Material Test Reports for air entraining agent (February 23, May 14 and September 14, 1979), water reducing agent (February 23, April 25 and October 29, 1979) and water reducing retarder (February 23, April 25, May 14, September 14 and October 29, 1979).

- (4) PTL Daily Aggregate Tests for September 25, 1979.
- (5) Report for intensified monitoring of course aggregate free moisture for September 6-21, 1979.
- (6) Daily Concrete Inspection Test Results for September 25, 1979.
- (7) Concrete Inspection Test Reports for placements CI1-S54 and ME2-S002 placed on September 25, 1979.
- (8) Monthly mix water chemical analysis for April - September 1979.
- (9) Cement chemical and physical test reports dated June 18, 1979 for grind C-204 and August 27, 1979 for grind C-214.
- (10) Early Stiffening of Portland Cement tests run from November 8, 1978 through May 21, 1979.
- (11) Six month aggregate test results for magnesium sulfate soundness, potential alkali reactivity and Los Angeles Abrasion on PTL report dated September 27, 1979.
- (12) Monthly aggregate tests as listed Table 5.6 in specification 2A010CS027 for samples taken July 1, August 2 and September 1, 1979.

The inspector selected the following 11 placements to examine documentation of the inspection of concrete surfaces for defects as required by CCP-8: FH1-W99, W16C, 13C; ME1-S025A; CI1-W58, W59, W61; ME1-W025-03A; ME1-W033-10; CI1-W37; ME1-W012-04; ME2-W001-04; ME1-W001-06; ME2-W006-03; CI2-W14.

The first seven placements had documentation attesting to the inspection and the last four, placed between August - October 1979, had not yet been inspected. Although there is no time limit for this inspection, it was noted that some inspections were not performed for more than a year after placement and B&R has no log or other means to readily verify that each placement has been inspected. The QC Engineering Civil Supervisor indicated that some method of keeping track of the inspection status would be developed. This is identified as an unresolved item (498/79-19-13 and 499/79-19-13).

For pumped concrete, sampling for air content, slump, temperature and test specimens is performed at the truck discharge, not at the point of placement as specified in ACI 304-73 and ANSI N45.2.5-1974. In addition, neither is continuing correlation testing performed as specified in ANSI N45.2.5-1978. Correspondence and correlation tests results from the approximately 80 tests run during May - October 1977 were examined. The STP practice of sampling pumped concrete only at the truck discharge has not been accepted by NRC's Office of Nuclear Reactor Regulation (NRR) and is the subject of

FSAR question 130.25 from NRR. On December 21, 1979, HL&P Engineering directed B&R to resume correlation testing for pumped concrete. Pending resolution of this matter by NRR this item will be identified as an unresolved item (498/79-19-14 and 499/79-19-14).

The qualification of personnel involved in concrete placement was examined for compliance with site procedures, licensee commitments and NRC requirements. In response to NRR question 411.70, HL&P committed in Appendix A to the PSAR to comply with Regulatory Guide (R.G.) 1.58, Revision 0. R.G. 1.58 endorses ANSI-N45.2.6-1973 for qualification of inspection personnel. However, B&R Quality Assurance Personnel Training Manual specifies experience levels consistent with the less restrictive ASME Section III, Division 2, not ANSI N45.2.6. PTL QC Procedure QC-PQ-2 is not clear as to which experience requirements apply to concrete inspectors but actual practice at STP has been to qualify them to the requirements of ASME Section III, Division 2. This inconsistency between the PSAR commitment and actual site practice is identified as an unresolved item (498/79-19-15 and 499/79-19-15).

The qualification/certification records of 14 B&R civil QC inspectors and six PTL concrete inspectors were reviewed for compliance with B&R Quality Assurance Personnel Training Manual and PTL Quality Control Procedure QC-PQ-2. These records indicated that five B&R inspectors and three PTL inspectors did not have the required applicable QA/QC experience at the time of their certification. Examples include less than the required amount (years) of experience, experience totally unrelated to the inspection tasks certified for and little or no QA/QC experience (construction experience only).

This failure to follow site procedures is in noncompliance with Criterion V of 10 CFR 50, Appendix B, as discussed in Appendix A of the report transmittal letter (498/79-19-16 and 499/79-19-16). A similar item was identified to the licensee in report 50-498/79-13. It should also be noted that the responsible level III inspector and the site QA Training Coordinator indicated that the experience listed on personnel resumes is not verified with previous employers.

Construction and QC personnel are briefed on changes to site procedures during formal training sessions. Personnel requiring training are designated by reviewers on a cover sheet to the procedure revisions. A review of training records for Revisions 8 and 9 to CCP-11 and Revisions 9, 12 and 13 to CCP-4 indicated that a few QC inspectors and a larger number of construction foremen did not receive the specified training. The program for training personnel in changes to procedures is not included in site procedures and no training or briefing is performed for revisions to specifications. Considering the continuing difficulties between construction and QC and the concrete placement problems at STP, training for QC and construction personnel concerning changes to procedures and specifications should be controlled by a formalized program. This program

should include a more positive means to assure that all persons requiring training are identified and that they actually receive the training. This will be identified as an unresolved item (498/79-19-17 and 499/79-19-17). The PTL program for keeping inspectors current on procedure and specification changes was examined and appeared satisfactory.

d. Cadwelding Activities

Due to questions about the accuracy and completeness of Cadweld records prior to 1979, B&R is conducting a special review of these records. At the time of this investigation no inspection reports have yet been located for 106 Cadwelds and 1660 could not be identified as to specific location out of a total of 37,030 Cadwelds. This records search is continuing and these activities are being followed by RIV inspectors.

Acceptance criteria for Cadwelding activities at STP are contained in CCP-11, Regulatory Guide 1.10 and ASME Section III, Division 2. Cadweld inspection books for the Unit 1 RCB Dome dated November 8 and 9, 1979 and for the Unit 1 MEAB dated November 14 and 15, 1979 were examined. The Cadwelder Test Record and Cadwelder Qualification Report for Cadwelders 36 and 48 were reviewed for compliance with test frequency requirements. The satisfactory tensile test of qualification Cadweld 80HX2 was observed. Cadweld inspectors were interviewed and were knowledgeable concerning site Cadweld activities and procedural requirements.

3. PLANT BACKFILL

The inspector met with Houston Lighting and Power (HL&P), Brown and Root (B&R), and Pittsburgh Testing Laboratory (PTL) representatives to review in progress and completed work activities relative to the placement and testing of Category I plant backfill material. The purpose of the review was to establish:

That the Safety Analysis Report, specifications and procedures are consistent, reflect the design criteria and are consistent with NRC requirements.

That a test fill section had been placed to demonstrate the plant backfill material could be consistently compacted to the required density using the available equipment, given a systematic and controlled placement of the material.

That a production sampling program had been implemented in the field during placement to verify the consistency of the backfill material and that the specified densities were being obtained.

That records of completed work demonstrate the backfill material placement and compaction was accomplished in a controlled manner as specified and the density test results reflect that the required soil densities were obtained throughout the placement, both in area and depth.

That field activities of ongoing work were consistent with procedures and specifications.

a. Specifications and Procedures

The following documents reference or provide the guidance, material and process controls and acceptance criteria for safety related Category I backfill.

- (1) STP PSAR and FSAR Section 2.5.4
- (2) B&R Specification 3Y069YS029, Rev. F., "Structural Backfill"
- (3) STP Quality Construction Procedure A040KPCCP-2, Rev. 2, "Structural Backfill"
- (4) PTL Procedure IS-S11-D1556-64, Rev. 2, "Density of Soil In-Place by the Sand Cone Method"
- (5) PTL Procedure IS-S10-D2049-69, Rev. 3, "Relative Density of Cohesionless Soils"

The above documents were reviewed for basic scope, completeness, consistency with referenced codes, standards and NRC regulatory guides and for reference during inspection of field activities and in the review of quality records. The following procedural deficiency was discussed with the licensee: PTL's QA Procedure No. IS-S11-D-1556-64 requires that the in-place density measurements are to be performed according to ASTM D-1556. However, there are no instructions in the PTL procedures as to what depth below the backfill lift surface the test should be performed. A review of PTL's density records and discussions with soil inspectors indicated that PTL inspection personnel have been performing density tests at various test depths.

This failure to establish procedures for a systematic sampling technique as part of a testing program to verify that the required densities are being obtained throughout the placement lifts is contrary to the requirements of 10 CFR Part 50, Appendix B, Criterion V, as discussed in Appendix A of the report transmittal letter (498/79-19-21 and 499/79-19-21).

In addition, the FSAR in Section 2.5.4.5.6.1 states that the maximum lift thickness for structural backfill would be 18 inches where there was unrestricted placement. B&R Specification 3Y069YS029, Rev. F, also indicates the 18 inch maximum lift thickness. The inspector reviewed the document purported to represent the results of the test fill program (See Section E.3.b herein). This indicated that the test fill program resulted in the determination that for 18 inch maximum lift thickness, it would be necessary to make 12 passes with the compaction equipment. The inspector reviewed the associated construction procedure, STP-QCP A040KPCCP-2, Rev. 2, Structural Backfill, and determined it required only 8 passes with the compaction equipment for the maximum lift thickness of 18 inches.

The failure to complete backfill compaction, a special process, in accordance with a procedure that reflected the qualification procedures used for an activity affecting quality is a noncompliance and is contrary to the requirements of 10 CFR Part 50, Appendix B, Criterion IX as discussed in Appendix A of the report transmittal letter (498/79-19-18 and 499/79-19-18).

The NRC inspector also determined from conversations with the cognizant B&R engineer initially responsible for specifying the lift thickness that 12 inch lifts had originally been specified. The lift thickness was changed to 18 inches as a result of a suggestion by the soils consultant, Woodward-Lundgren, during the review of the B&R specification. Woodward-Lundgren in making that recommendation also suggested that a test fill section should be completed to demonstrate that 18 inch lifts could be consistently compacted to the required density. This item remains unresolved pending further review (498/79-19-58 and 499/79-19-58).

b. Test Fill

Discussions with HL&P and B&R began on December 18, 1979 concerning whether a test fill had been completed. Finally, on January 3, 1980, after several discussions subsequent to December 18, 1979, the inspector was informed by HL&P that a test fill had not been completed at STP. However, the next day the B&R cognizant engineer (the design engineer from B&R, Houston) presented a memo to the inspector as the document representing the results of the test fill program. This indicated the use of 18 inch lifts of material and compacted using 12 passes of the equipment. The memo, No. BC-00990-JDG dated June 16, 1976, was reviewed and considered to be inadequate for the following reasons:

- (1) Backfill material used for the test was not identified.
- (2) The base material used for the test fill was not identified.
- (3) The report did not indicate placement of more than one test lift. If in fact only one test lift was placed the specified testing depth of 18 to 24 inches would only reflect density tests on the base material.
- (4) Some of the documents attached to the test fill record indicate a 16 inch loose lift was tested while the cover letter on the memo stated a 18 inch loose lift had been tested.

During the review of information relative to a test fill program the inspector determined that the licensee's soils consultant, Woodward-Lundgren, recommended in their Special Study No. 330, dated February 12, 1975, that a test fill (field test) be performed, stating that it would be presumptuous not to conduct a field trial test. They again recommended a test fill in their subsequent review of the B&R Structural Backfill Specification 3Y069YS029, dated April 14, 1975.

Since the performance of a valid test fill program is important to verify that the relevant backfill placement parameters are adequate in order to achieve the desired field densities, the inspector requested in-place field density tests. The performance of these tests in a normal fill area, could, if they met the compaction requirements, provide verification of the construction method being used to compact the backfill material. Relevant parameters which can affect field compaction are considered to be loose thickness of lift; weight, speed, and frequency of vibratory compaction equipment; number of passes; and moisture used.

Two density tests were performed to verify the adequacy of the compaction equipment which had completed an 18 inch lift. The two density tests performed for the inspector on January 7, 1980 failed the acceptance criteria even though the lift had been previously approved by PTL for placement of the next lift. The results of the

tests conducted for the inspector indicated that the upper part of the lift as well as the top of the previous lift had not been compacted to the required density.

Following placement of another 18 inch lift in the same area, six additional tests were conducted on January 8, 1980. The upper two tests indicated that the top 12 inches of the lift were not compacted to the required density. This is not considered to be abnormal for this type of material. The other four tests, taken at -12, -18, -28 and -34 inches, all passed but were not considered representative since the number of passes in the test area by the compaction equipment was observed by the NRC inspectors to greatly exceed the eight one-way passes specified in the site procedure.

The same special treatment (i.e., excessive number of passes of compaction equipment and extra watering) was observed on the next lift. The licensee's representative in response to questioning concerning the special treatment given the selected test are stated "it's only human nature" that they want to make sure the tests pass.

Because of observations in the field, Woodward-Lundgren's special study, discussions with the B&R soils engineer and HL&P field personnel and a literature review, it is evident that the upper part of the last lift of the backfill material used at STP "cannot" be compacted using the current methods. Given this fact, at least six to nine inches of material beneath Category I buildings probably does not meet compaction criteria. B&R's cognizant engineer, when questioned about the loose fill, indicated that they have literature that indicates loose material under the structures is satisfactory. This item remains unresolved pending review of the B&R literature (498/79-19-19 and 499/79-19-19).

Subsequently, on February 6, 1980, as a result of the NRC findings, the licensee conducted a site test fill to demonstrate that 18 inch lifts could indeed be compacted with only eight one-way passes of the equipment in use. The results of this test fill had not been fully evaluated as of February 21, 1980 and had not been provided to the NRC. During the conduct of the retest of fill placement the NRC inspector and the licensee's representative observed that the compaction equipment roller was overlapping a full half drum width. Thus, the center section of the test fill would have received 16 passes instead of the specified eight of the field procedure. The licensee, following questioning by the NRC, stopped the improper rolling of the test fill. The matter remains unresolved pending review of the test fill results (498/79-19-20 and 499/79-19-20).

c. Soil Sampling Program

A comprehensive soil sampling (testing) program must be implemented at the beginning of backfill operations to verify the consistency of the backfill placement procedures and to insure that the specified densities were obtained.

The FSAR in Section 2.5.4.5.6.2.4 and B&R's Specification No. 3Y069YS029, Revision F, paragraph 9.e, and B&R's Procedure No. A040KPCCP-2, paragraph 3.1.3.5 require that at least one relative density test be performed for every fourth field sand cone density test. A review of PTL's relative density laboratory data on December 18, 1979, indicated that a relative density test had not been performed since November 17, 1979, although plant backfill material continued to be placed during that period. Furthermore the testing laboratory personnel failed to document and correct this nonconforming condition. Discussions with the PTL cognizant individual indicated that the relative density test apparatus had been out of service since November 17, 1979 and had been breaking down periodically during the previous month. The test equipment was replaced and relative density testing was resumed on January 7, 1980, nearly two months later. Plant backfill continued to be placed during the entire period of the equipment breakdown. Subsequent tests on the retained samples indicated that the required relative densities had been met.

The failure to take prompt corrective action once the defective equipment was identified and the failure to preclude repeated cases of tests not being performed is in noncompliance with Criterion XVI of 10 CFR 50, Appendix B as discussed in Appendix A of the report transmittal letter (498/79-19-22 and 499/79-19-22).

d. Records

Quality assurance records for backfill inspections were examined for completeness and compliance with licensee specifications, procedures and commitments.

B&R Specification No. 3Y069YS029, in paragraph 7.1.e, requires that the backfill material be placed in uniform layers not exceeding 18 inches of loose thickness. Paragraph 3.3.3.2 of B&R Procedure No. CCP-2 requires that the minimum number of passes of compaction equipment will be eight one-way passes. A review of the test records and procedure indicated that neither the procedure or the test record Form SF-6, "In-Place Density Test by Sand Cone Method," required this important information to be documented.

It was determined from discussions with PTL's personnel that the lift number on the test record has no relationship to lift elevation in a specific area. The NRC inspector and HL&P personnel attempted

to obtain elevation data on consecutive lifts in a specified area from other QA records to establish that the fill had been placed systematically and uniformly in 18 inch layers and compacted accordingly. However, due to the method of lift numbering and system of filing, this could not be accomplished during the inspection. The licensee is continuing their efforts to assemble this data. Further review is planned for future inspections on this unresolved item (498/79-19-23 and 499/79-19-23).

Discussions with B&R excavation personnel indicated that no instructions as to minimum number of passes to make with the compaction equipment are given to the compactor operators. The operators are told to roll an area until told to stop. This information was obtained through an interpreter since the compactor operator did not speak English and his foreman didn't speak Spanish. B&R's excavation superintendent also indicated that "there are no project requirements on number of passes of equipment since each compactor has different characteristics, and to specify number of passes would be meaningless." PTL's soil inspectors indicated that they have no idea on how many passes of the compactor the fill area received before they test it, only that the B&R supervisor calls them over to perform a test.

Failure to document the lift thickness and the number of passes of the compaction equipment, which are needed to assure that the backfill material is being systematically placed and compacted, is contrary to the requirements of 10 CFR 50, Appendix B, Criterion XVII as discussed in Appendix A of the report transmittal letter (498/79-19-24 and 499/79-19-24).

e. Field Activities

PTL's testing activities were observed both in the soils laboratory and in the field. PTL personnel were interviewed as to responsibilities and procedural requirements and acceptance criteria.

A laboratory relative density test was observed and was performed in accordance with the procedure. However, a review of PTL's laboratory data on relative density determinations indicated that PTL had run only dry maximum density determinations in the laboratory. ASTM D-2049-69, the reference testing standard states in Note 2 that, "While the dry method is preferred from the standpoint of securing results in a shorter period of time, the highest maximum density is obtained for some soils in a saturated state. At the beginning of a laboratory testing program, or when a radical change of materials occurs, the maximum density test should be performed on both wet and dry soil to determine which method results in the higher maximum density. If the wet method produces higher maximum densities, (in excess of one per cent) it shall be followed in succeeding tests." Therefore, the inspector requested that a maximum density test be run wet and a Modified Proctor test be run to determine if the maximum density that PTL is using to control the backfill placement is indeed the maximum density. The results of these tests indicated that the

placement is indeed the maximum density. The results of these tests indicated that the relative wet maximum density was less than the relative dry density. In fact, the material in the relative density mold became looser under vibration with the addition of water. This matter was discussed with B&R and HL&P personnel to determine what effect this might have on the plant backfill material under earthquake conditions in view of the normal plant high water table. HL&P and B&R representatives indicated that they would look into it. The problem of possible liquefaction is considered unresolved pending completion of their review. (498/17-19-25 and 499/79-19-25)

The Modified Proctor test showed a maximum dry density of 127.5 pounds per cubic foot which agreed with the values documented in the SAR. The minimum-maximum relative density values referenced by the FSAR (93.5 and 128.1 pcf) represent those values noted originally in the PSAR. These were different from those being used in the field (105.3 and 123.6 pcf). In light of discussions with PTL personnel who indicated that the material properties haven't changed during the course of the work, the inspector questioned what backfill material was tested to obtain the SAR's values. Since the values documented in the SAR's were used for liquefaction studies, further review of this matter is needed. This item remains unresolved pending this further review (498/79-19-26 and 499/79-19-26).

Numerous field sand cone density tests were observed. The one PTL soils inspector that performed the tests was conducting them according to established procedures. (Lack of instructions relative to the sampling technique for the tests is discussed in paragraph 3.a. above).

f. Additional Soil Penetration Tests

Subsequent to the initial phase of the investigation, the licensee initiated a soil penetration test program to ascertain whether the plant backfill was adequately placed and compacted. The NRC was informed of this program on January 30, 1980, after the testing commenced on January 28, 1980.

A review of the Woodward-Lundgren drilling procedure indicated that they were to conduct the soil penetration tests according to ASTM D-1586, "Penetration Test and Split-Barrel Sampling of Soils."

The resident NRC inspector determined on January 30, 1980 after several tests were run, that the required ASTM 140 pound hammer on the test rig did not have a weight certification. Upon further examination it was determined that the hammer had been weighed on January 28, 1980 and was found to be in nonconformance with the requirements of ASTM D-1586. This nonconformance was documented on a Woodward-Lundgren "Nonconformance and Corrective Action Report" dated January 28, 1980. Although disposition of this nonconformance was not completed until February 4, 1980, site soil penetration testing activities were allowed to continue during the period

January 28 to February 4, 1980, using this hammer which had been identified as nonconforming.

This is contrary to the requirements of 10 CFR 50, Appendix B, Criterion XV as discussed in Appendix A of the report transmittal letter (498/79-19-27 and 499/79-19-27).

On February 5, 1980 the NRC inspector measured the inside diameter of the split-spoon cutting edge to be 1.50 inches. ASTM D-1586 requires the spoon inside diameter of the cutting edge to be 1.375 inches. Also, the required 0.75 inch taper on the end was 0.50 inches and the cutting edge was very rough. From discussions with the Woodward-Lundgren engineer responsible for logging in the borings, it was determined that he was not aware that the split-spoon should be 1.375 inches.

This failure to identify a deviation from the specified ASTM test procedures is in noncompliance with Criterion XI of 10 CFR 50, Appendix B as discussed in Appendix A of the report transmittal letter (498/79-19-28 and 499/79-19-28).

The recorded blow counts with these two deviations (i.e., hammer weight and split spoon size) cannot be compared to "Standard Penetration Test-Relative Density Curves" since they are not "standard" blow counts. This item is currently under review by Woodward-Lundgren to determine if the recorded blow counts can be transformed into "standard" blow counts. This item is considered unresolved pending review of the results of this study (498/79-19-29 and 499/79-19-29).

During the subsequent inspection it was also learned that Boring 204, near containment building No. 2 encountered loose material near the base of the foundation mat. The extent and thickness of the area of loose material had not been determined as of February 21, 1980 but B&R indicated that this matter was being evaluated. B&R engineering indicated that there had been a slope washout at that location during August 1977 before any backfill material was placed. However, a review of PTL's inspection reports for backfill material placed in the same area met density requirements. The NRC is currently waiting for the Woodward-Lundgren subgrade verification report for that area. Pending receipt and review of this report this item is considered to be unresolved (498/79-19-30 and 499/79-19-30).

4. REVIEW OF WELDING ACTIVITY

a. Review of Welding Procedures

The inspector reviewed the following welding procedures which appeared to meet applicable code requirements which for the STP are contained in the ASME B&PV Code, 1974, with addenda through winter 1975.

A040KPMCEP-1	Qualification of Welders & Welding Operators
A040KPMCEP-2	Field Fabrication and Erection of Structural Steel
A040KPMCEP-4	Field Fabrication and Welding of Piping Systems and Components Nuclear Systems
A040KPMCEP-8	Control of Welding Material
A040KPMCEP-9	Field Welding and Inspection of Instrument Lines
A040KPWCP-2	Administration and Organization of Welding Engineering Department
A040KPWCP-6	Functional Check of Electrode Ovens
A040KSWES-1	Stud Welding
A040KSWES-2	Oxygen Indicators
A040KSWES-4	Field Welding of Aluminum-Bronze Pipes (Inspection Plan)
A040KSWES-5	Instructions for Weld Documentation
A040KSWES-8	Maintenance of Welding Power Supplies
A040KSWES-11	Electronic Alignment, Performance Verification and Maintenance of the Dimetrics Gold Track II Automatic Welding System
A040KSWES-12	Main Coolant Loop Pipe Welding

The inspector identified document control problems during the course of the inspection. Document control procedures in the B&R QA Manual Section 6 states in part: "Documents used for the design, procurement, and construction of code and safety-related items should be distributed and controlled in accordance with approved Project Procedures..."

Contrary to the previously referenced procedure, on January 8, 1980, the inspector identified that the licensee's controlled copies (Nos. 04 and 05) of the contractor's QA manual did not contain the latest issue of interim changes.

Additionally, an NRC inspector noted in a copy of the HL&P STP Project (site) QA manual from the HL&P library that the entire manual contained procedures dated 1976. This copy was compared to the NRC copy, which was current (1979). The library copy was found to be completely outdated. The HL&P Site QA supervisor stated that it should be understood that this manual was uncontrolled since there was no insert to say it was controlled. The NRC inspector stated that it is acceptable to maintain outdated manuals, specifications and drawings, however, such reference material must be clearly marked obsolete, superseded or for information only.

This failure to control documents is contrary to the requirements of 10 CFR 50, Appendix B, Criterion VI. as discussed in Appendix A of the transmittal letter (498/79-19-33 and 499/79-19-33).

b. Welder/Welding Operator Performance Qualification Test (PQT) Records

The inspector reviewed records of examinations performed on welder/welder operator PQT's specimens. The reviews were conducted to determine compliance with regulatory and ASME Code requirements. The contractor's welder qualification procedure, MECP-1, is based on Section IX of the ASME Code "Welding Qualifications" and requirements delineated therein are consistent with those of Section IX. This procedure provides guidance for welding plate and pipe type specimens in positions specified in Section IX. Tension and bend tests or radiographic examination of the welded specimens is required to verify weld quality. Since radiography is the principal examination method employed by the contractor, radiographic documentation was reviewed. Radiographs of plate type specimens and small and large bore pipe of varying wall thickness were selected for review.

Two questionable practices were observed relative to welder/welder operator qualification as follows:

- (1) The methods used for welders qualifying for the 2G position for pipe welding was questioned because the pipe was rotated after welding 180° instead of welding a continuous 360°. The NRC inspector interpreted the Code to mean weld 360° while the contractor interpreted that it could be welded 180° followed by a break then reinitiating the arc and welding the remaining 180°. This practice was used because of the unusual layout of the qualification room.
- (2) Welders' qualification for pipe welding was performed by opening the root gap from 3/8 to 1/2-inch instead of the required 1/16 to 1/8 inch. Also a backing ring was used during the qualification and was not removed prior to radiographing. This is not typical of production welding and the backing ring silhouette may interfere with interpreting the radiograph.

These matters are considered unresolved pending further review. (498/79-19-31 and 499/79-19-31)

Radiographs of PQT pipe specimens 8 inches in diameter and less were observed to contain film side penetrameter(s). The applicable implementing radiographic procedure, ST-NDEP-2.1, which is based on the ASME B&PV Code, Section III, 1974, with addenda through Winter 1975, requires that a source side penetrameter be used, accessibility permitting. Since the inside surface was accessible the inspector questioned the undocumented departure from procedural requirements. Discussions with examination personnel disclosed that site QA management had issued oral instructions contradicting procedural requirements

with respect to penetrameter placement. Reportedly, approximately 152 welders/welder operators have been qualified using these examination techniques. Specific radiographs of PQTs which show a film side penetrameter include the following:

Log No. 1362, Log No. 1889, Log No. 1983, Log No. 2021, Log No. 2024, Log No. 2047, Log No. 2051, Log No. 2054, Log No. 2176, Log No. 2063, Log No. 2138, Log No. 2074, and Log No. 2193.

Paragraph NB-4321 of Section III of the ASME B&PV Code requires that welder/welding operator performance qualification tests be conducted in accordance with Section IX of the ASME Code. Section IX, QW-191, requires that radiography be performed to meet the technique requirements of Article 2, of Section V, of the ASME Code. Paragraph T-263, of Article 2 of Section V, requires the use of a source side penetrameter where accessibility permits hand placement on the source side of the item being examined. The contractors implementing procedure, ST-NDEP-2.1, reiterates these requirements. Contrary to these requirements, the aforementioned radiographs contained a film side penetrameter.

This failure to follow the requirements of Section III of the 1974 ASME Boiler and Pressure Vessel Code and Addenda through Winter 1975 to obtain the correct radiograph technique to qualify welders is contrary to the requirements of 10 CFR 50.55a, Codes and Standards (d)(3) as described in Appendix A of the transmittal letter. (498/79-19-32 and 499/79-19-32).

c. Observation of Welding Activities

(1) Reactor Coolant Pressure Boundary (RCPS) Piping Welding

The inspector observed the welding of steam generator nozzles to hot leg spool pieces for two steam generators located in the northeast and northwest quadrant of Unit 1 reactor containment building. Fitup, cleaning, land dye check, tack welding the insert, purge dam installation and purge, root pass, and hot pass operations were witnessed.

The inspector reviewed the x-ray report, Log #2191, subsequent to completing the weld. This weld was made by welders identified as unqualified in paragraph 4.b(2) above.

(2) Safety Related (Piping) Welding

The requirements to control welding were:

10 CFR 50, Appendix B, Criterion IX, "Control of Special Processes" states in part that: "Measures shall be established to assure that special processes, including welding . . . , are controlled and accomplished in accordance with applicable codes, standards, specifications"

Section 17, of the licensee's PSAR, titled "Control of Special Processes," states in part that: ". . . written procedures and controls be prepared to ensure special processes, including welding, . . . accomplished in accordance with applicable codes, standards, specifications,"

ASME B&PV Code, 1974, Section III, with Addenda through Winter 1975, paragraph ND-4412, "Cleanliness and Protection of Welding Surfaces" states in part, that: ". . . The work shall be protected from deleterious contamination and from rain, snow and wind during welding"

Contrary to the above requirements the inspector observed the following:

- (a) Field weld No. 0011A in a safety injection pipe in Unit 1 Spent Fuel Building, lowest level, was being TIG welded. The consumable insert had been tack welded in place. The inspector observed that a sand blasting operation had occurred above the weld location and cleanup was in progress overhead. A piece of plywood was overturned and the sand/dust descended profusely through the metal grating and covered the weld joint surfaces which had been tack welded. The joint was disassembled to clean. The welding surfaces of field weld No. 0011A were not adequately protected. The joint fit up on this weld was also found to be improper because mismatch was so great that excessive stressing occurred when the clamp was loosened and many of the tack welds cracked. The inspector requested to see a procedure or instruction which describes the use of Dearman clamps to align piping with respect to ovality, maximum offset or out of roundness. No procedure was available.
- (b) Fitup of a carbon steel flued head to carbon steel penetration sleeve No. 27 was in progress in RCB-1 at approximately elevation 18 feet in the northwest quadrant of the building. All tack welds contained porosity. The inert gas line had a leak. Sand blasting operation was in progress nearby during fitup and the supervisor and welder did not take adequate action to protect the joint. The next day welding proceeded and the root pass and hot pass was put in. The torch (rosebud) was lighted to heat the weld joint area up prior to welding. Sand and dust was being ignited and sparks were visually observed by the NRC inspector and the welding personnel. The welding personnel could not understand why sparks were emitted. The inspector observed that sand blasting was again in progress about 20 feet from the welding area. The inspector had pointed out the minor contamination to the welders on the previous day

yet, heavy contamination was observed the next day. A radiograph of the root pass showed incomplete fusion of the insert.

- (c) A six inch diameter 308L stainless steel seamless pipe (schedule 40), Line #AF2004, was being welded to a penetration. This weld, FW005, was located at the base of a building wall in an excavation where loose sand was observed. The inspector questioned the welder as to how the weld would be protected from contamination and wind.

The inspector later observed a make shift method of protection (a lean-to made from polyethylene). This left two ends open and created a wind tunnel effect which was as bad or worse than no protection. A radiograph of the subject weld showed "sugaring" which is usually caused by the loss of cover gas. The cover gas could not be maintained on the weld because of the wind. The welding was not protected from "deleterious contamination and from the wind during welding".

This failure to control welding processes, which are special processes, is contrary to the requirements of 10 CFR 50 Appendix B Criterion IX as discussed in Appendix A of the transmittal letter (498/79-19-34 and 499/79-19-34).

(3) Observation of Welding on Safety Related Structural Steel Supports and Components

- (a) The inspector observed work performed on all of the Unit 1 steam generators. The inspector questioned HL&P and B&R installation and QA/QC personnel about the sequences of alignment of steam generators B and C. The inspector could not determine the following from discussions with construction personnel:
 - (i) The reason the base plate of the upper vertical steel support column was not aligned prior to aligning the steam generator. The inspector observed this sequence of alignment to be unusual in that the base plate is usually leveled prior to the commencement of pipe installation.
 - (ii) The reason the upper vertical steel structural supports were marked with an "N" stamp while the lower vertical steel (H-beam) columns were not marked with an "N" stamp. Licensee personnel stated the lower columns were considered a part of the building structure, not as coded supports.

These matters are considered unresolved pending further review (498/79-19-35 and 499/79-19-35).

- (b) The inspector observed in the Fuel Handling Building (FHB) No. 1 that the end of the fuel transfer tube did not have a ASME Code symbol. As a result, the HL&P QA mechanical engineer was interviewed and he stated it would take approximately two days to get the documentation, from the Houston office, which contained an evaluation which had determined that a ASME Code symbol was not required. He said the tube (code stamped) arrived on site in two pieces; thus the two pieces had to be welded. Additionally, the expansion bellows had to be welded during installation. When these welds were completed a hydro test was performed per ASME code requirements. The welds were made but the authorized Nuclear Inspector (ANI) inspected only one weld and did not witness the hydro test due to a misunderstanding. Subsequently concrete was placed without the required ANI inspection being completed.

Brown & Root personnel requested the ANI to sign the data sheet and the ANI refused because he had not performed the necessary inspection and access was now prevented by the concrete. This matter was referred to B&R engineering for evaluation and engineering directed site personnel to remove the code symbol because the ANI had not signed the data report. This matter is unresolved pending further review to determine if adequate inspections have been performed. (498/79-19-36 and 499/79-19-36).

- (c) Lower steam generator structural steel supports were formerly stamped NDT856, NDT848, and NDT852 but the stamps had been removed as explained in paragraph 4.c.(3)(ii) above. The inspector observed various pipe hangers, clips, gussets, brackets and studs which were welded to these and other safety related equipment supports throughout the entire RCB-1. These columns were post weld heat treated and thus subsequent welding could effect the results of the heat treatment of these supports. The inspector requested to see the weld records for the hangers, clips, etc. and was informed that there are no welding records to document this welding activity. There appears to be no control of the welding of various parts on attachments. This apparently is also the case with other beams, columns and supports located inside containment.

B&R QA Manual Section 9.0, "Control of Special Processes" states in part, "The B&R QA Department shall ensure that special processes are performed in accordance with applicable Project Procedures, Code and regulatory requirements by performing inspections and audit, to verify implementation

of the special process controls. These procedures shall provide a method for the control of special processes and materials, the qualifications of procedures and personnel used to perform special processes and for performance of special processes under environmentally controlled conditions.

This matter is unresolved pending future review during inspections (498/79-19-37 and 499/79-19-37)

- (d) The inspector reviewed a B&R letter, BC-22539, dated 1/16/80 concerning the subject of weld root opening (NF Hangers) (Reference same letter dated 11/26/79) and letter BC-22625. Letter BC-22539 directed the following to the B&R QA Project Manager and was approved by him in BC-22539:

"Root opening shall not exceed 1/8" max. If root opening exceeds 1/8", buttering is required to build-up weld end prep of component. The amount of filler metal deposited for buttering shall not exceed 3/4".

This requirement will be addressed in MCEP-3 and MECP-4. In addition, the size of the fillet leg shall be increased on one side by that amount (1/8") max. See sketch below."

This unauthorized change violated the B&R QA Manual Document Control Procedure, Section 6, and Design Control Procedure, Section 3, in that the letters authorized changes prior to:

- (i) Review and approval of changes to Welding Procedures MCEP-3 and MCEP-4
- (ii) Review and approval of changes to specification A010P002, Piping Erection and Fabrication Criteria; dated 7/18/78.

Furthermore, field welding personnel and inspectors were using these letters as guidance to inspect and weld safety related piping hangers.

The failure to control changes to design documents is contrary to the requirements of 10 CFR 50, Appendix B, Criteria III as discussed in Appendix A to the transmittal letter (498/79-19-38 and 499/79-19-38).

5. NONDESTRUCTIVE EXAMINATION (NDE) ACTIVITIES

a. Liquid Penetrant Examination

(1) Liquid Penetrant Procedure

The inspector reviewed the contractor's implementing procedure titled, "Liquid Penetrant Examination" (Solvent Removable Process Visible and Fluorescent Dye), ST-NDEP-4.1. The review was to determine that procedural requirements met those specified in applicable sections of the ASME Boiler and Pressure (B&PV) Code, 1974, with addenda through Winter 1975.

The inspector determined that the procedure was technically adequate and met the procedural requirements of the 1974 ASME Code, including the 1975 Addenda for Section III and all applicable Subparts, and Section V. Although a recently revised procedure permitted the use of fluorescent material, this revision did not reflect additional training requirements for the liquid penetrant examination. The licensee indicated that no safety related work was being performed or scheduled.

The following are code and NDE procedure requirements relevant to the observation of liquid penetrant examination discussed in paragraph 5.a(2) below:

ASME Code, Section III, Paragraph ND-5351, "Evaluation of Indications" stipulates that any indication which is believed to be nonrelevant shall be regarded as a defect and shall be reexamined to verify whether or not actual defects are present. Surface conditioning may precede the reexamination.

NDE procedure ST-NDEP-4.1 paragraph 5.1.7, "Interpretation of Indications", states in part, "Any indication believed to be non-relevant shall be regarded as a defect until proven otherwise", and paragraph 5.1.8, "Final Cleaning", states in part, "Upon completion of the examination, the penetrant materials shall be removed as soon as possible by an acceptable method. Two acceptable methods are the precleaning method prescribed herein".

(2) Observation of Liquid Penetrant Examination

The inspector observed the performance of activities associated with liquid penetrant examination of Unit 1 steam generator "C" hot leg nozzle cladding, and in the essential cooling water system field weld, FW-0017, line 1205-WT, drawing 3Y361P-3G, sheet 2. During the interpretation of results of the latter examination, the inspector observed the appearance of numerous linear indications adjacent to the weld being examined. Linear indications in excess of the acceptance standards ranging in

length up to 0.5-inch, were randomly dispersed and were oriented parallel to the longitudinal axis and adjacent to the weld. After the prescribed development time had elapsed, the examiner selected and removed a representative indication with his finger and resprayed a thin coat of developer over this small area. This, as explained to the inspector, was to determine the relevancy of this and similar indications in this weld and to determine weld acceptability. The inspector stated that although the indications observed may have been nonrelevant, both the applicable ASME Code and applicable site examination procedure require actions to be taken to verify that the indications are not defects. The inspector added that he also observed that the cleaning had not been done in accordance with the procedure.

The inspector reviewed the liquid penetrant examination report associated with the above described weld. This report only showed the weld to be acceptable and made no reference to whether the observed linear indication was relevant or non-relevant. The report did not describe how the examiner dispositioned the linear indication. Further, the report did not indicate that a second examination was performed. Neither did the report describe what type of mechanical surface conditioning, if any preceded the re-examination.

This is contrary to the requirements of 10 CFR 50, Appendix B, Criterion IX as discussed in Appendix A of the transmittal letter (498/79-19-39 and 499/79-19-39).

This test report did not have a serial number and other examination reports were similar. Documentation of examination results was inadequate. This item is identified as unresolved and will be reviewed and discussed with the licensee during a future inspection (498/79-19-40 and 499/79-19-40).

b. Radiographic Examination (RT)

(1) Review of RT Procedure

The inspector reviewed implementing "Radiographic Examination" procedure ST-NDEP-2.1. The review determined that this procedure generally met the requirements of applicable sections of ASME B&PV Code, Sections III, V, and IX, 1974 Edition including through the 1975 Winter Addenda. The procedure did not adequately describe the method for identifying radiographs to ensure the position traceability back to the weld that was radiographed. This was also identified in Audit BR 29, Checklist M3.1-021, Item No. 4.2. dated October 15-18, 1979. Also the procedure did not adequately describe NDE acceptance criteria, i.e., multi-acceptance standards are included in one specification. Therefore, the Level II interpreter was confused

as to what acceptance criteria were applicable. This was also identified in the previously referenced audit.

The inspector's discussion with licensee/contractor personnel disclosed that no formal procedure to establish dark room practices and controls to ensure acceptable film had been developed. Based on the poor radiographic quality of the radiograph, discussed below, it is necessary that procedures be developed to assure that all final radiographs are readable and meet the quality required by the applicable Code. Additionally, the contractor's procedure, ST-QAP-2.3, establishes minimum retention periods for certain documents. The procedure must consider requirements relative to producing a level in radiographs which will allow maintenance of their quality during the stipulated retention periods.

This failure to provide written procedures to control special processes is contrary to the requirements of 10 CFR 50, Appendix B, Criterion V as discussed in Appendix A to the transmittal letter (498/79-19-41 and 499/79-19-41).

On December 10, 1979, the inspector determined that interim changes are routinely issued which are in force for a period of 60 days as stated on the cover sheet. These changes become void on the expiration date. For example, for NDE Examination Procedure ST-NDEP-4.1, dated May 22, 1979, an interim change was issued on August 30, 1979. However, this interim change to the procedure was still being used by B&R NDE personnel in January 1980. A similar instance was observed relative to RT procedure, ST-NDEP-2.1, dated March 13, 1979.

This failure to provide and/or follow current NDE procedures is contrary to the requirements of 10 CFR 50, Appendix B, Criterion V as discussed in Appendix A to the transmittal letter (498/79-19-41 and 499/79-19-41).

(2) Review of Radiographs

(a) Radiographic Film Quality

The following are requirements relative to radiographic film quality:

Paragraph T-233.2 of Section V of the ASME Code requires that all radiographs be free from mechanical, chemical, or other blemishes to the extent that they cannot mask or be confused with the image of any discontinuity, including fogging, processing defects such as streaks, water marks, or chemical stains.

Paragraph 5.5.2 "Radiographic Film Quality", of NDE procedure ST-NDEP-2.1 states in part, "All radiographs shall be free from mechanical, chemical or other blemishes to the extent that they cannot mask or be confused with the image of any discontinuity in the area of interest of the object being radiographed. Such blemishes include: a. fogging, b. processing defects such as streaking, water marks, or chemical stains, c. scratches, finger marks, crimps, dirtiness, static marks, smudges, or tears".

Paragraph 5.1.2, "Radiographic Sensitivity" of NDE Procedure ST-NDEP 2.1 states in part, "Radiography shall be performed with a technique of sufficient sensitivity to display the penetrameter image, the specified hold, and the identifying numbers, which are essential indications of the image quality of the radiograph. The penetrameter shall be of the thickness specified for the thickness of weld being examined, as shown in Attachment 6-D, or 6-E as applicable."

The inspector reviewed randomly selected site produced radiographs. This review was conducted to determine whether radiographic quality had been achieved and maintained throughout their production. Radiographs of field welds made on 4 inch to 30 inch diameter pipe used both the single and double wall exposure technique. However, the single wall viewing method was employed. The following identified systems/welds were included in this review: CV-1204 - FW-0004, CV-1006 - FW-0015, CV-1086 - FW-0002, CV-1088 - FW-0018, CV-1088 - FW-0023, CC-1189 - FW-0002, CS-1012 - FW-0003, EW-1205 - FW-0042, and EW-1305 - FW-0043. The inspector found the following practices to be contrary to the requirements identified above:

The above radiographs exhibited characteristics indicative of chemical contamination in varying degrees. The radiographs of the two welds in lines EW-1205 and EW-1305 contained views with discolored film. The former radiograph was processed November 28, 1979. In addition, the inspector observed extreme weld image distortion on radiographs of small bore pipe to fitting welds. Also, several radiographs disclosed excessive light fogging in the area of interest.

Radiographs of FW-0018, line CV-1088, had two views (double film) whereby one film was much darker than its mating film and it appeared that the speed of the auto processor was increased to reduce film density one film. Also, all film appeared to be extremely dark on FW-0004, line CV-1204.

The radiograph of the first steam generator nozzle to pipe weld was reviewed by the inspector. The inspector found that the radiograph to be double film and of the same film speed. The nozzle material and associated ramp was much thicker than the adjoining pipe. The radiograph did not clearly show the penetrometer image on the nozzle side. Also, the film was very narrow in relation to the crown of the weld and the outline of the weld was not readily discernible. The licensee representation told the inspector that the film was considered to be informative radiography. Even though the licensee considered the film informational, the inspector considered the radiographic technique and interpretation unacceptable.

This failure to control radiography is contrary to the requirements of 10 CFR 50, Appendix B, Criterion IX as discussed in Appendix A to the transmittal letter (498/79-19-39 and 499/79-19-39).

(b) Radiographic Review - Weld Quality

The inspector reviewed contractor field produced radiographs and associated documentation. This review included portions of shop welds and contractor field welds, and welder/welding operator performance qualification tests (PQTs). This review was conducted to determine whether weld quality met the required quality levels established by the applicable ASME Code section. Radiographs selected for this review had been dispositioned as acceptable on the accompanying interpretation (reader) sheets. The NRC inspector's observations relative to radiographic documentation of welds were based on the following requirements:

Paragraph T-290 of Section V of the ASME Code states in part, "...radiographs shall be examined and interpreted... record on a review from accompanying the radiographs the interpretation of each radiograph and disposition of the material examined..."

Paragraph 5.d.1 of NDE Procedure ST-NDEP-2.1, Report Contents, states in part, "the following items shall appear on the report:.... d. Film interpretation noting discontinuities and including dispositions as to acceptance or rejection".

The inspector observed and reviewed radiographs and reports in the following systems. Conditions described below are contrary to these requirements.

Safety Injection System (SI)

Weld, FW-0003, SI-1101-21B, Drawing 2F-361P, Sheet w.
Observation: There were elongated indications throughout entire length of weld. This weld had been accepted when it should have been rejected.

Welds, FW-0007, SI-1101-UB, Drawing 2F-361P, Sheet 2.
Observation: There were linear indications throughout entire length of weld. This weld had been accepted when it should have been rejected.

Containment Spray (CS)

Weld, FW-0005, CS-1004-PB, Drawing 2C-361P, Sheet 2.
Observation: The radiograph shows root concavity. This condition was noted on the film reader sheet. However, it had not been quantitatively/qualitatively evaluated, i.e., no remarks on this report.

Weld, FW-0003, CS-1012-PB, Drawing 2C-361P, Sheet 1.
Observation: Linear indication in area of interest was not recorded on the film reader sheet.

Chemical Volume Control System (CV)

Weld, FW-0008, CV-1088, Drawing 2M-361P, Sheet 1.
Observation: There was a linear indication between stations 0-2. This indication was not recorded on the film reader sheet.

Weld, FW-0002, CV-1086, Drawing 2M-361P, Sheet 2.
Observation: A linear indication between stations 4-6-0. This indication was not recorded on the film reader sheet.

Weld, FW-0006, CV-1019, Drawing 2M-361P, Sheet 2.
Observation: Original radiograph showed indication between station 6-0. After the repair the reshot (R1) showed that the excavation and repair of weld extended into the next station area between 4-5. The R1 film of stations 6-0 overlapped into station 4-5 and shows a linear indication. This indication was not recorded on the film reader sheet; nor was the entire repaired area/weld reradiographed.

Weld, FW-0018, CV-1088, Drawing 2M-361P, Sheet 2.
Observation: There was root concavity observed between stations 2-4 not recorded on the film reader sheet.

Essential Cooling Water System (EW)

Weld, FW-0032, EW-1202.

Observation: There was an indication in the intersecting longitudinal seam adjacent to the circumferential field weld. This indication was not reported on the film reader sheet. Also, apparent surface indications showed on the film; however, the reader sheet did not identify nor adequately describe the type of surface indications on the OD or ID surface. Also the report did not describe how the indications were observed that is, visually or borescope.

Weld, FW-0016, EW-EW-2305, Drawing 3Y-362P, Sheet 2.

Observation: There were linear indications between stations 3-6 and 15-17 in weld area. Also, a transverse linear indication was in the base material adjacent to weld. Neither of these indications were reported on the associated film reader sheets.

Weld, FW-0047, EW-2205, Drawing 3Y-362P, Rev. 0-B.

Observation: A linear indication was recorded on film reader sheet only as an "elongated indication." However, there was no documentation to describe what the indication was, nor to support its acceptance.

Weld, FW-0032, EW-2302, Drawing 3Y-362P.

Observation: A linear indication between station numbers 5-6 were not recorded on the film reader sheet. Additionally, linear indications between stations 6-9 and 17-0 were reported only as surface indications. However, the reader sheet did not identify which surface (inside or outside) nor does it describe what type indication(s) (file, mark, undercut, etc.). Additionally, the reader sheet did not state how this determination was made (visual examination etc.)

Welder/Welding Operator Performance Qualification Test (PQT)

Log No. 1890.

Observation: There was a faint continuous linear indication in weld area extending between station numbers 2 and 5. This was not recorded on the film reader sheet. In this case the welder was considered qualified/certified however, if the film had had been correctly interpreted, he would not have been qualified.

Based on this review the inspector determined that these welds did not meet the minimum quality requirements of the ASME Code. Discussions with both site and corporate

radiographers, qualified as Level I, II and III, indicated that the radiographic film interpreters had not been adequately trained. One film interpreter said that he was told by a Level III that as long as the image of the required penetrometer hole was observable the radiograph was to be considered acceptable.

The inspector observed that on several occasions the Level II interpreter assisted the Level II radiographer as a Level I radiographer. On many of these occasions poor quality radiographs were produced due to improper techniques or poor processing practices. The film interpreter had been functioning, in the field, as a Level I radiographer. He had been involved in the production of inferior quality radiographs and, therefore, was reluctant to reject radiographs of poor quality. Additionally, the interpreters did not appear to be sufficiently familiar with the unique characteristics associated with the welding of aluminum-bronze material to render a valid radiographic interpretation. Further, several reader sheets recorded elongated indications that had been accepted when they should have been rejected. A review of the associated radiographs showed that these indications exceeded the length allowed by the Code. The radiographer and interpreters stated that they had been orally instructed by a Level III, that unless the indications could be identified as lack of penetration, just to record them as elongated indications and accept the weld. All radiographs exposed prior to November 1979 had been discarded because the Code does not require radiography be performed and these radiographs were considered to be nonessential radiographs. As a result, the review of the EW system consisted of films made subsequent to that date. However, welds in this system (essential cooling water) are Code Class 3 and must meet the requirements of subsection ND of the ASME Code. Since the licensee had determined the weld joint efficiency to be .80, the Code does not require radiographic examination.

Based on the inspector's findings described above the inspector determined that neither the welds nor radiographs were of adequate quality to meet the minimum quality required by the ASME Code.

This failure to control radiography is contrary to the requirements of 10 CFR 50, Appendix B, Criterion IX as discussed in Appendix A to the transmittal letter (498/79-19-39 and 499/79-19-39).

c. Personnel Qualification Records

The inspector reviewed qualification records of contractor personnel performing NDE at the site. The records reviewed identified the

discipline in which the individual had been trained and certified. The associated physical examination records indicated whether or not visual aids were required to meet minimum near distance visual acuity requirements specified in the applicable Code. No departures from SNT-TC-1A (the governing document) recommendations were identified except in the following instances:

- (1) the liquid penetrant examination procedure had been revised to include the use of fluorescent materials. In this instance the training records did not document that additional training had been administered to the individuals certified to perform the examination. However, examinations utilizing the fluorescent material were not being performed on safety-related components.
- (2) the inspector's review of other personnel qualifications later disclosed that no training had been provided for the following:
 - (a) processing radiograph,
 - (b) performing visual examination per AWS requirements;
 - (c) performing radiographic film interpretation, i.e., relative to responsibility, authority and training necessary to read film of thick wall welds and aluminum bronze welds) and,
 - (d) recording information on the examination reports.

The above items are considered unresolved pending a subsequent NRC review (498/79-19-42 and 499/79-19-42).

d. Radiological Safety

On approximately December 6, 1979, the inspector toured the site work area at Brown Minneapolis Tank Co. (BMT) and observed questionable radiographic techniques relative to the safe use of X-ray equipment.

The inspector notified the State of Texas, a reciprocal agreement State, relative to these safety issues such as the area not being roped off, and general lack of knowledge relative to using this equipment. The State immediately performed an inspection and impounded the console which controls this equipment because the equipment had been rented from an Oklahoma company and because BMT had failed to notify the State of Texas relative to their operation at South Texas Project.

6. QUALITY CONTROL PERSONNEL TURNOVER

The Brown and Root Site Quality Assurance Department personnel staffing was reviewed for the period February 1979 through November 1979, for organizational structure and rate of personnel changes. The review was prompted in part by the many comments received during interviews and discussions with site workers concerning low morale and high personnel turnover.

Two QC sections within the site QA department were selected for detailed study to determine personnel changes that occurred during the period February 1, 1979, through November 1979 (10 months). One of the groups selected inspects civil activities and the other inspects mechanical and nondestructive examination (NDE) activities. Protective coatings, soils, and maintenance/storage inspectors as well as clerical personnel were excluded. The civil and mechanical QC groups were selected because the majority of site work in progress involves these disciplines.

The Brown and Root QA department personnel staff reports for February 1, 1979 and November 30, 1979 indicated the following:

a. Civil QC Inspectors

Staff as of February 1, 1979

1	Supervisor
4	Quality Engineers
4	Lead Inspectors (Job Class IV)
29	Inspectors (All at Job Class III)
<u>38</u>	Total in Group

Staff as of November 30, 1979

1	Supervisor
4	Quality Engineers
6	Lead Inspectors
29	Inspectors (Includes two Trainees)
<u>40</u>	Total in Group

Summary of Civil QC Inspection Staff Changes (10 months ending November 30, 1979)

22 of the 38 in the Civil QC Inspection Group as of February 1, 1979 voluntarily terminated, were terminated, or re-assigned.

The Supervisor was replaced

Two of the four original Quality Engineers were replaced

Three of the four original Lead Inspectors were replaced

Two new Lead Inspectors were added

Sixteen of 29 Inspectors were replaced (two of the replacements were trainees)

b. Mechanical/NDE Inspectors

Staff as of February 1, 1979

1	Supervisor
5	Quality Engineers
7	Lead Inspectors (Job Class IV)
<u>27</u>	Inspectors (Includes two trainees)
40	Total in Group

Staff as of November 30, 1979

1	Supervisor
2	Quality Engineers
6	Lead Inspectors
<u>31</u>	Inspectors (Includes five inspectors in training)
40	Total in Group

Summary of Mechanical/NDE Inspection Staff Changes (10 months ending November 30, 1979)

28 of the 40 in the Mechanical/NDE Inspection Group as of February 1, 1979 voluntarily terminated, were terminated, or reassigned

The Supervisor was replaced

All five original Quality Engineers no longer serve

Two of the original five Quality Engineers were replaced

Three Quality Engineers positions were not filled

Two of the seven original Lead Inspectors no longer serve

One of the original seven Lead Inspectors was replaced

One Lead Inspector position was not refilled

Twenty of 27 Inspectors were replaced

Four new Inspectors were added (Trainees)

c. Summary and Conclusions

High personnel turnover:

- (1) Is frequently an indication of poor management or management practice.
- (2) Generally lowers the overall qualification and impacts on the effectiveness of the organization.
- (3) Affects continuity of the work effort.
- (4) Impacts on the audit and surveillance activities needed to assure continued effective implementation of quality program requirements.
- (5) Adds significantly to the orientation and job training needs.

7. NONCONFORMANCE REPORTS and FIELD REQUESTS for ENGINEERING ACTION

Nonconformance Reports (NCRs), Field Requests for Engineering Action (FREAs), Examination Checks (ECs), and other inspection records were reviewed for types of problems identified, repetitive occurrences, resolution of the problems including action taken to identify and correct "root causes", and timeliness of resolution.

The review was conducted as follows: (1) random selection from record files, (2) as part of the document reviews for inspection of on going activities, and (3) in the investigation of specific allegations.

a. Nonconformance Reports

Prior to June 26, 1978, deficient items and conditions were identified in Deficiency and Disposition Reports (DDRs). Starting on June 26, 1978, DDRs were discontinued and since then these items have been identified and documented in Nonconformance Reports (NCRs).

A total of 420 DDRs were issued between December 15, 1975 and June 26, 1978. As of November 27, 1979, 2388 NCRs had been issued. This includes about 125 that involve non-safety related work.

The number of DDRs and NCRs issued to date is not considered abnormal for a two unit plant at this stage of construction.

Each NCR is coded as follows:

S	-	Safety Related
SN	-	Nonsafety Related
G	-	General
M	-	Mechanical
E	-	Electrical and Instrument Control
C	-	Civil/Structural

Thus NCR No. S-CXXX, for example, would involve a safety related structure, component or activity in the civil/structural area. The NCR numbers, a brief description of each nonconformance, dates, and other information is entered in a Log book maintained by the Brown and Root QA/QC Department.

A review of the NCR Log book for the period July 1978 through November 27, 1979 indicated that 202 NCRs had been withdrawn or voided. Thus, about 10 percent of the NCRs initially processed are later withdrawn or voided.

Procedure No. ST-QAP 2.6 Revision dated March 15, 1979, titled "Nonconformances" was the procedure in effect at the time of the investigation. The procedure does not address the processing method, approval chain, record retention requirements or feedback procedures to the originator for the disposition of withdrawn NCRs either in the

body of the procedure or in the attached flow diagram. This matter was discussed with the licensee and is considered to be unresolved pending review of the revised procedure (498/79-19-43 and 499/79-19-43).

Thirty voided NCRs were selected at random for detailed review as to why they were withdrawn or voided. The following summarized the results of the review:

- (1) Four were duplicates of previously issued NCRs.
- (2) Eight were voided for other justifiable reasons such as misinterpretation of drawings, etc.
- (3) One was voided and a Corrective Action Request (CAR) was issued instead. The voided NCR involved the improper disposition of a previously issued NCR (No. 1830), i.e., the required QC inspection was not performed.
- (4) Eleven were voided and FREAs were issued instead. NCRs S-C 2716, S-C 2206, S-C 2207, S-C 3188 and S-C 2225 are typical of these.
- (5) Six appeared to be valid NCRs but subsequent discussions with one or more of the QC inspectors involved in the issuance of these NCRs indicated that they had no problem with the NCR being voided since the condition was either considered not nonconforming or had been corrected to their satisfaction.

Although in the above instances the QC inspectors did not question the NCR being voided, it would appear processing the NCR in some cases would have been more appropriate than voiding it. NCR No. S-C 3147 provides an example of this. The nonconforming condition observed by the QC inspector was "reworked" to bring the installation into compliance with requirements. "Rework" is an acceptable method of dispositioning a NCR under NRC regulations and site Quality Assurance Procedure ST-QAP-2.6.

During discussions with QC inspectors, several commented that they were sometimes thwarted in their efforts to issue a NCR, that the NCR would be "blocked" by a supervisor; usually someone higher than their immediate supervisor (see Allegation 8A, Section E.1.b). This same allegation had previously been investigated by Region IV with the results documented in report No. 50-498/78-12 and 50-499/78-12. This was one of the items discussed in the August 15, 1978 meeting with Houston Lighting and Power corporate management.

A discussion was held with the B&R Nonconformance Supervisor on November 29, 1979 as to how NCRs are processed. The following steps were outlined to the NRC inspector:

July 7, 1979. FREA No. 1-C-0997 was authorized on May 19, 1978 and signed as complete on July 17, 1979. These FREAs involved concrete placements completed by September 20, 1978.

Considerable confusion exists relative to the use of FREAs versus NCRs. In response to questioning, most HL&P and B&R supervisory personnel stated that in regard to civil work an NCR is not used unless a structural deficiency is identified after concrete has been placed. Deficiencies identified prior to concrete placement, such as omitted rebar, improper spacing, etc. are either corrected to meet design requirements without issuance of an NCR or if left "as is" a FREA is used as the authorizing document and not an NCR. Discussions and interviews with QC inspectors indicate they feel strongly that repeated deviations from specifications are allowed by FREAs; that FREAs allow construction to "get away" with work that does not meet requirements.

QC inspection findings relative to placement No. C11-S18, W22E placed on February 24, 1978, provides a good example of this concern. The final QC inspection list dated February 22, 1978 identified nineteen (19) discrepancies. Some of these discrepancies were minor and easily corrected; others concerned fabrication or installation details that did not meet specification requirements and should have been documented on an NCR, even though concrete had not been placed. Records indicate all items were either corrected or accepted "as is" based on Engineering approval obtained via use of FREAs including FREA Nos. 1-C-0713 and 1-C-0746.

Another point brought out in discussions with construction and QC inspection personnel is that the initiation of work that deviates from drawings or specifications is sometimes authorized verbally pending issuance of a FREA. Thus it is possible for the work to be completed before a copy of the FREA is received in the field. These, for example may involve unanticipated interferences etc., where verbal approval is given to deviate to avoid construction delays. Procedural requirements exist to notify the involved QC inspections when such action is taken but this does not always occur. Thus a QC inspector not knowing about the verbal authorization, may issue a NCR if he notes the installation deviates from the drawing. Such occurrences account for some of the voided NCRs. High turnover of QC inspection personnel also contributes to this problem area (i.e., replacement inspectors are not always aware of previous activities; FREAs, etc.)

The NRC inspectors did not identify an instance where verbally authorized FREAs were not subsequently issued in written form.

c. Trending

Documentation reviews and discussions with site personnel were conducted to determine if QA program provisions were being effectively

implemented relative to the identification of repetitive deficiencies/discrepancies, evaluation of "root causes" and corrective action to prevent recurrences. This review was primarily limited to those deficiencies/discrepancies documented on NCRs, FREAs and EC/Inspection Books concerning civil/structural activities.

At the time of the inspection, on November 28, 1979, no formal trend analysis program was being conducted for NCRs nor did approved procedures exist for such a program. The trend analysis supervisor had been transferred to another job in September 1979 and his position had not been filled as of November 28, 1979. One trend analysis clerk was assigned to the group but the experience and education background could not qualify the clerk to review and evaluate deficiencies/discrepancies.

Records indicate that a "preliminary" QA trend analysis report was issued in three parts in March and April 1978. Part One covered DDRs from December 1975 to February 28, 1978, Part Two from January through March 1978 and Part Three covered DDRs issued in April 1978.

The first formal trend evaluation of NCRs/DDRs was apparently conducted for the period May 1 through December 30, 1978, and documented in a report dated March 6, 1979. This evaluation, as were subsequent evaluations was conducted without benefit of an "approved procedure." The second formal NCR trend analysis report dated May 22, 1979 was for the period January 1, 1979 through March 31, 1979. The third dated July 17, 1979 was for the period April 1, 1979 through June 30, 1979. The fourth dated August 6, 1979 was for July 1979 and the fifth dated September 4, 1979, and the last one issued as of November 28, 1979 was for NCRs processed in August 1979.

Except for the first report the transmittal letters for the reports all stated that there were no significant trends to report. The first report indicated that a serious problem existed in the area of documentation and that "it was universal and has existed since day one." These documentation problems primarily involved the material receiving area and this activity was not reviewed during this special investigation. However, a review of Receiving Inspection Report No. 4 dated July 17, 1979, indicated that, although improvement was made, a significant problem with documentation still exists involving some of the same vendors identified in 1978. A review of material receiving activities is planned for future inspections and is identified as an inspector followup item 498/79-19-44 and 499/79-19-44).

Provisions exist for coding NCRs for trend analysis. For example in the Civil/structural area the following codes were established:

- C1 - Excavation/Backfill
- C2 - Preplacement of concrete
- C3 - Concrete Batch Plant Operation
- C4 - Structural/Misc Steel Fabrication
- C5 - Structural/Misc Steel Installation

- C6 - Cadwelding
- C7 - Welding
- C8 - Nondestructive Examination Results
- C9 - Inspection/Surveillance.

A sample review of deficiencies identified in recent NCRs as to how they were coded indicated that the codes are not being applied uniformly, for example deficiencies involving omitted reinforcing steel were coded to C2, C5 and C9 and deficiencies involving cold bent reinforcement steel were coded to C2, C4, C5 and C9.

Descriptions of nonconformances involving the civil/structural area and specifically reinforcing steel (rebar) were reviewed for repetitive deficiencies for the period July 1, 1979 through November 27, 1979. The results of this review indicated the following:

- 34 NCRs concerned omitted rebar
- 35 NCRs concerned cold bending of rebar
- 44 NCRs concerned improper spacing or location of rebar.

A review of Trend Analysis Program - Non-Conformance Reports No 3, 4 and 5 indicated that 9.9 percent of the 161 NCRs processed relative to safety related civil activities during April through June 1979, 28.8 percent of the 45 NCRs processed in July 1979 and 57.4 percent of the 68 NCR processed in August 1979 involved preplacement concrete problems. Neither report No. 4 or 5 identified this as a significant trend.

Available records were reviewed and discussions were held with field design engineers relative to the evaluation and trending of FREAs. The inspector was informed that no trending or evaluation of FREAs was presently in progress and that the last report issued relative to analysis of FREAs (ST-BR-HL-20262) was issued on January 9, 1979. This report was identified by the author as a simple analysis and primarily dealt with number of FREAs issued, number open, whether the site or Houston engineering group approved them, turn around time, etc.

Although information and records were requested it could not be established that a procedure existed for trending FREAs or for evaluating the cumulative effects on structures of the discrepancies and deviations from design authorized by FREAs. The item involving evaluation of cumulative effects of FREAs is considered unresolved pending further review (498/79-19-45 and 499/79-19-45).

A review relative to the evaluation and trending of Examination Check (EC)/ Inspection Books was initiated by the NRC Inspectors. This effort was discontinued when it was learned that B & R QA/QC had already identified the problem encountered by the NRC inspectors. The problem was that very few unsatisfactory ECs were being written; that unsatisfactory conditions were being resolved before completion

of the inspection and completion of the ECs and thus the unsatisfactory conditions were not being documented. Followup review in this area is planned for future inspections and is identified as an unresolved item (498/79-19-46 and 499/79-191-46).

d. Summary and Conclusions

- (1) Considerable confusion exists at all levels within QA, QC, Engineering and construction over use of FREAs vs NCRs
- (2) FREAs are frequently used instead of NCRs.
- (3) QC inspectors feel strongly that repeated deviations from specifications are allowed by use of FREAs. That FREAs are used to avoid construction delays without adequate attention given to why the construction did not meet design in the first place.
- (4) Practice of entering FREA numbers on drawings in the field, lining out the FREA number to indicate construction work is completed and entering the FREA number on the back of the pour card to indicate the work was inspected has a number of weaknesses including:
 - (a) No positive way of assuring all applicable FREAs are listed on all drawings.
 - (b) In many cases work to be authorized by a FREA is initiated verbally
 - (c) Construction sign off in block 20 or 21 has little meaning.
 - (d) No signature blocks provided on the FREA form for craft signoff for completion of work or for QC verification of acceptability
- (5) No effective trending of FREAs is being conducted. This concern is heightened by the large number of FREAs issued in the civil/structural area.

In view of the above and discussions with QC, engineering, and construction personnel it is concluded that a program to identify and effectively prevent repetitive problems adverse to quality was not being implemented on a continuing basis as evidenced in the civil area.

This is considered to be in noncompliance with the requirements of Criterion XVI of 10 CFR 50, Appendix B as discussed in Appendix A of the transmittal letter (498/79-19-47 and 499/79-19-47).

8. PROJECT AUDIT SYSTEMS

a. Scope of Review

The audit systems as implemented by Houston Lighting and Power Co. (HL&P) and the Brown & Root Inc. (B&R) were reviewed for compliance to 10 CFR 50, Appendix B, Criterion XVIII; South Texas Project PSAR, Section 17.1.18; South Texas QA Plan Section 8.0; HL&P QAP-5; B&R ST-QAP-7.1 and applicable ANSI Standards, N45.2 and N45.2.12. The greatest emphasis was on audits of site activities from January 1, 1978 through December 31, 1979; however, the review also covered the audit periods dating back to 1976.

b. Purpose of Review

The purpose of the review was to determine that implementation of the QA program had been audited by HL&P and B&R as required by the PSAR and applicable audit procedures. This included verifying: (1) that the subject audits reviewed objective evidence that the documented program was properly implemented, (2) that the audits assessed the effectiveness of the QA Program, and (3) that program nonconformances were identified and corrected. In order to review this effort, the NRC inspector selected the area of concrete activities to determine whether or not routine and/or supplemental audits were being performed to the depth necessary to assure that the HL&P and B&R site quality procedures were being implemented effectively.

c. Review of Procedures

HL&P STP QA Plan Section 8.0 "Auditing" and QAP5 "Audit Procedure" did not describe the criteria for performing supplemental audits as required by paragraph 17.1.18A of the STP PSAR and paragraph 3.4.3 of ANSI N45.2.12 "Requirement for Auditing of QA Programs for Nuclear Power Plants."

This represents a noncompliance with the requirements of Criterion XVIII of 10 CFR 50, Appendix B, as discussed in Appendix A of the transmittal letter (498/79-19-48 and 499/79-19-48).

HL&P QA Plan, Section 8.0, Auditing, paragraph 8.2.4 states in part: "Other organizations are responsible as specified through purchase order requirements for performing internal and external audits of quality related activities and vendors." Pittsburgh DesMoines contract PDM 35-1197-0011, dated April 30, 1974, contained Quality Requirements: (1) 10CFR50, Appendix B (April 1974), (2) ANSI N45.2 (Reg. Guide 1.28), QA Program Requirements, (3) ANSI N.45.2.9 (Reg. Guide 1.88), Collection, Storage and Maintenance of Nuclear Power Plant QA Records, (4) Reg. Guide 1.19, Revision 1, NDE of Primary Containment Liner Welds, and (5) Reg. Guide 1.57, Design Limits and Loading Combinations for Metal Primary Reactor Containment System Components. The NRC inspector interviewed the licensee's site QA (Lead) mechanical engineer relative to why ANSI N45.2.12 audit

requirements were not included in the contract. The inspector was not able to determine why this commitment was not passed on to the subcontractor. This matter is unresolved pending receipt and review of additional information from the licensee (498/79-19-49 and 499/79-19-49).

d. Audit Requirements

The STP audit system requirements are as follows:

Criterion XVIII of 10CFR 50, Appendix B, states in part: "A comprehensive system of audits shall be carried out to:

verify compliance with all aspects of the QA program...
determine the effectiveness of the program...

The STP PSAR Section 17.0, paragraphs 17.1.18A states in part: "Houston Lighting & Power Company (HL&P) requires in its Quality Assurance (QA) Program, through approved written policies, plans, procedures, and instructions, planned and periodic audits be performed to verify compliance with all aspects of the program. HL&P will perform such audits internally as well as on Westinghouse Electric Corporation (Westinghouse), Brown & Root Inc. (B&R), and others, as necessary, to determine that the QA Program has been developed and documented in accordance with established requirements of 10CFR50, Appendix B and American National Standards Institute (ANSI) N45.2, to verify by evaluation of objective evidence that the documented program has been properly implemented; to assess the effectiveness of the QA Program; to identify program non-conformances; to determine quality progress; and to verify correction of identified non-conformances. The HL&P QA Program places this same requirement and philosophy on the quality activities of the prime contractors to assure they satisfy the above objectives in their auditing.....

Applicable elements of the QA Program shall be audited at least annually or at least once within the life of the activity, whichever is shorter. The frequency of audits shall be accomplished as indicated above with the following additional criteria to be used for modifying the audit frequency:

- (3) When significant changes are made in the QA Program of either HL&P, the Contractor or Vendor
- (4) When it is suspected the safety, performance or reliability of an item is in jeopardy due to deficiencies and nonconformances with respect to the organization's QA Program
- (5) When it is considered necessary to verify implementation of required corrective actions
- (7) When a systematic, independent assessment of program effectiveness or item quality, or both, is necessary..."

The STP PSAR section 17.0, paragraph 17.1.18B states in part:

"Brown & Root, Incorporated (B&R) has established an audit system both for internal and external audits. Internal audits are audits of activities of the B&R organization and external audits are audits of suppliers and contractors outside the B&R organization. Such activities are engineering, design, procurement, construction, fabrication, installation, inspection, and documentation results of all activities. B&R performs audits of all activities affecting quality, including but not limited to the following:

The evaluation of work areas, activities, processes, and items (hardware)

The review of documents and records

An objective evaluation of

- a. Quality related practices, procedures and instruction
- b. The effectiveness of implementation"

HL&P STP QA Plan Section 8 states in part: "HL&P has the responsibility for the overall auditing of quality activities for the South Texas Project. The Quality Assurance Department is responsible for internal and external quality assurance audits performed by HL&P and for ensuring and verifying that audits are performed by the other outside organizations who are responsible for audits. The frequency of audits performed by HL&P is based upon the individual characteristics of the equipment, material or service being provided and are generally as follows:

HL&P Site QA -	Semi-annually
B&R Construction Site QA/QC -	Semi-annually
B&R Construction Site -	Annually"

Houston Lighting & Power Co. (HL&P) Quality Assurance Procedures QAP-5B states in part:

"6.2 Conducting the Audit

6.2.2 Audit Process

6.2.2.2 Objective Evidence. Objective evidence shall be examined for compliance with Quality Assurance requirements. This includes review of Quality Assurance/ Quality Control procedures and documentation which implement the Quality Assurance Program Requirements.

6.2.2.3 Implementation. Selected elements of the quality assurance effort shall be audited to the depth necessary to determine whether or not it is being implemented effectively."

The following details describe five findings which were contrary to the requirements described above.

(1) HL&P Audit of the HL&P Site QA Function

HL&P corporate audits of site QA activities HL-27 (2-23-76), HL-34 (6-28,29-76) HL-37 (10-7-76) HL-47 (6-29, 30-77), HL-51 (12-28,29-77), HL-58 (7-7,13-78), HL-62 (3-12,13-79) and HL-71 (8-20,21-79) were reviewed.

These audits were reviews of objective evidence (records) which documented the following: (1) Site QA Surveillance Schedule, (2) Training Records, (3) Site Discrepancy Administration, (4) Procurement Document Review, and (5) Checklist per Site QAP. Although objective evidence was reviewed, the audits were not performed to the depth necessary to determine whether or not Site Quality for STP were being effectively implemented as required by the STP PSAR Section 17.0, paragraph 17.1.18A, and QA Procedure QAP-5.

That is, the audits referenced above did not identify that concrete surveillance checklists C.2.1 through C.2.5 did not document unsatisfactory conditions as required by PSQCP-C, Revision 1, and PSQP-A3, Revision 9. The HL&P Projects QA Manager was interviewed relative to this subject. The inspector questioned the effectiveness of the subject surveillances. The HL&P representatives stated that unsatisfactory conditions observed during these surveillances had not been documented if B&R had initiated action.

The audits also failed to question the effectiveness of the Surveillance Checklist C.2.1 since only one unsatisfactory condition had been identified since April 26, 1976 (after 184 observations). If the material receiving and storage of cement, aggregate, etc. was always satisfactory, QA management could have reduced the frequency or included additional or more meaningful characteristics to be checked. Thus, surveillance time could have been more profitably spent in areas where problems were known to exist. An adequate audit would have shown this.

This failure to perform adequate audits is contrary to the requirements of 10CFR 50, Appendix B, Criterion XVIII as discussed in Appendix A of the transmittal letter and paragraph E.9.a of this report which describes HL&P surveillance (498/79-19-48 and 499/79-19-48).

(2) HL&P Audit of Brown & Root Site Activities

HL&P corporate audits of B&R's site activities BR-10(10-76)*, BR-11 (8-76), BR-14 (10-76)*, BR-16 (13-77)*, BR-19 (6-77)*, BR-20 (5-78)*, BR-22 (11-78), BR-24 (3-79), BR-26 (6-79)*, and BR-29 (10-79)* were reviewed.

*Denotes all audits of site activities that HL&P identified and submitted to the NRC inspector.

These audits were reviews of objective evidence (records) and were not performed to the depth necessary to determine whether or not the B&R site procedures were being implemented effectively as required by the STP PSAR Section 17.0, paragraph 17.1.18A and QAP-5, Audit Procedure. HL&P had not audited B&R to the frequency specified in the South Texas QA Plan Section 8.0, paragraph 8.5.1.

That is, the B&R ST-QA Procedures (ST-QAP-2.7, 3.1, 3.2, 4.3, 5.3, 5.4, 5.5, 5.11 and 6.1) had not been audited in 1978 and 1979. Furthermore, brief review of the 1976-1977 audits indicated that some of these same procedures had not been audited during those years.

None of the Brown & Root Site construction procedures had been audited during 1977, 1978 or 1979. These included GCP-1 thru GCP-35; PICP-1 thru PICP-5; PMCP-02 thru PMCP-10; CCP-1 thru CCP-7; MECP-1 thru MECP-10, and WCP 2 and 6, less any deleted procedures.

The HL&P Audit Coordinator was interviewed regarding this matter on January 23, 1980. He referred the question to the HL&P QA Manager who explained that HL&P never intended to audit all of the B&R site procedures. Further, he stated that HL&P had committed to perform audits, but it was not necessary for the corporate audit group to do more than was currently being done, i.e., review records only, because of the B&R audits of site and HL&P surveillances of site activities. The HL&P surveillances were stated to be a part of the HL&P audits of site during this interview, but on January 24, 1980, during the NRC exit meeting, the QA manager stated that he now felt that the surveillances were not audits.

The PSAR Section 17.0, paragraph 17.1.18A, STP QA Plan, Section 8.0, paragraph 8.5.1, and HL&P QA Procedures QAP-5, paragraph

6.2.2.3, state that B&R QA/QC Site Organization and Procedures will be audited semi-annually and construction site will be audited annually. The same requirements require in depth audit to assure effective implementation in addition to audit of objective evidence that the documented QA Program was properly implemented.

This failure to perform audits which assure effective implementation of the B&R QA program is contrary to the requirements of 10CFR50, Appendix B, Criterion XVIII as discussed in Appendix A of the transmittal letter (498/79-19-48 and 499/79-19-48).

The inspector found that concrete activities had not been audited since 1976 and the 1976 audits were primarily record reviews. No supplemental audits of the civil (concrete) activity were performed nor was the frequency increased despite the criteria described in the previously referenced requirement.

This failure to perform supplemental audits and/or increase the audit frequency is contrary to the requirements of 10CFR50, Appendix B, Criterion XVIII as discussed in Appendix A of the transmittal letter (498/79-19-48 and 499/79-19-48).

(3) Brown & Root (Houston) Audits of B&R Site

B&R audits of site ST-08 (11/8-10/77), ST-09 (4/4-5/78), ST-10 (5/4-5/78), ST-11 (6/13-15/78), ST-13 (7/11-13/78), ST-14 (8/8-9/78), ST-17 (10/24-26/78), ST-19 (1/29-2/1/79) ST-21 (3/19-21/79) and ST-26 (7/30-8/8/79) were reviewed.

These audits were primarily an audit or review of objective evidence (records) and were not performed to the depth necessary to determine whether or not the B&R site activities were being implemented effectively. These audits of site activities were considered inadequate. The site surveillances performed by Brown & Root site from September 1979 were the exception. Prior to this date, the site group had been performing highly effective surveillances since August 31, 1978. B&R management apparently had recognized the inadequacy of their audit system and slowly strengthened their audit process. Interviews with B&R personnel confirmed that the audit system was very weak because of inadequate manpower. The audits were acknowledged to be "arm chair" audits, i.e., primarily QA record reviews.

This failure to perform audits which assure effective implementation of the QA program is contrary to the requirements of 10CFR 50, Appendix B, Criterion XVIII as discussed in Appendix A of the transmittal letter (498/79-19-48 and 499/79-19-48).

B&R (Houston) did not schedule or perform supplemental audits, or increase the frequency of audits as described in PSAR Section 17.0, B&R QA Procedure ST-QAP 7.1, paragraph 5.3 or as required by ANSI N45.2.12. That is, additional audits were not performed even though site surveillances of concrete and SIS 12 and SIS 12.1-12.5, identified serious repetitive deficiencies. Continuing allegations of substandard construction and inspection activities in the civil area should have triggered supplemental audits. Recent program changes should have also caused additional audit effort.

This failure to perform supplemental audits or increase the audit frequency is contrary to the requirements of 10CFR 50, Appendix B, Criterion XVIII as discussed in Appendix A of the transmittal letter (498/79-19-50 and 499/79-19-50).

The followup of previous audits ST-10 and B&R-27 was an action item listed in audit plan ST-13, but was not documented in the issued audit report, ST-13. A letter was subsequently found for followup on ST-10, but B&R-27 followup was not documented. Followup should have been documented in the audit report. This matter is unresolved pending receipt and review of the revised procedure (498/79-19-51 and 499/79-19-51).

Design Control was not audited in 1978 after audit ST-12 was cancelled; that is, it (design control) was not rescheduled for audit in 1978. In general, B&R Checklists did not reference the procedure audited; therefore, the NRC inspector could not readily correlate and determine whether all B&R procedures had been audited. This matter is unresolved pending receipt and review of a matrix from B&R which will cross index procedures audited to the audit report and checklists (498/79-19-52 and 499/79-19-52).

9. PROJECT SURVEILLANCE SYSTEM

The Quality surveillance system is described in HL&P Project Site Quality Procedures. QA Procedure QAP-8 defines quality surveillance as a continuing review, observation, or inspection for the purpose of verifying that required actions have been accomplished. HL&P surveillances are described as scheduled and unscheduled. The former uses checklists with characteristics to be checked as satisfactory/unsatisfactory.

a. HL&P Surveillance

(1) Scheduled Surveillance of Concrete Activities

Material Receiving and Storage Surveillance Checklists C.2.1-001 (3-31-76) through C.2.1-046 (12-5-79) were reviewed. Five characteristics were checked during each surveillance and a total of 184 observations were made during these surveillance activities. C.2.1-002 dated 4-26-76 was the last time an unsatisfactory condition was observed.

Measuring, Mixing and Transporting Equipment Surveillance Checklists C.2.2-001 (4-4-76) through C.2.2-045 (11-15-79) contained approximately 12 characteristics per surveillance and a total of 540 observations were made during this period. Only six unsatisfactory observations were reported. No unsatisfactory conditions were reported from C.2.2-031 (9-21-78) through C.2.2-045 (11-15-79).

Concrete Preplacement Surveillance Checklists C.2.3-001 (4-22-76) through C.2.3-057 (11-6-79) contained approximately six characteristics per surveillance for a total of 372 observations during the period checked. Only five unsatisfactory conditions have been identified. No unsatisfactory conditions were found in surveillance No. C.2.3-022 (1-13-78) through C.2.3-057 (11-6-79).

Concrete Placement Surveillance Checklists C.2.4-001 contained approximately twelve characteristics per surveillance for a total of 754 observations for all surveillances. Only twelve observations were found to be unsatisfactory. No unsatisfactory conditions were identified in surveillances C.2.4-027 (2-2-78) through C.2.4-062 (12-7-79).

Curing and Formwork Surveillance Checklists C.2.5-001 (4-29-76) through C.2.5-050 (12-11-79) were composed of approximately ten characteristics per surveillance and a total of 500 observations were made. Three unsatisfactory conditions were identified. No unsatisfactory conditions were identified from C.2.5-017 (6-22-77) through C.2.5-050 (12-11-79).

The results of these surveillance activities did not correlate with recent NRC inspection findings, B&R surveillance activity (SIS 12, 12.1-12.5, and 26) and the stopwork order issued as a

result of voids in Unit 1 reactor containment wall Lifts 8 and 15. This lack of correlation was discussed with the HL&P Projects QA Manager and Lead Civil Engineer. They agreed there was a lack of correlation and explained that the personnel conducting the surveillance activities recorded unsatisfactory conditions as satisfactory if B&R personnel initiated appropriate action. As a result of this policy, actual surveillance results were not documented.

HL&P Site Quality Procedure PSQCP-C, Revision 1, paragraph 8.2, states in part: "All checklists shall be completed in full. Any discrepant item or deviations from specifications shall be marked unsatisfactory and discussed in the "Remarks" Section. Paragraph 8.3 states: "The QA surveillance personnel shall document all nonconformances and deficiencies according to PSQP-A3". Site Quality Procedure PSQP-A3, Revision 9, states in part:

"7.1.4 Notification of Brown & Root Site QA

Whenever a discrepant item or condition for which B&R or a B&R subcontractor is responsible is identified by HL&P QA, Brown & Root site QA shall be notified immediately. The notification may be by one of the previously mentioned HL&P Discrepancy Notification Documents or orally. If immediate and acceptable action and recurrence control (as applicable) are implemented by B&R pursuant to oral notification the item may be closed out on the checklist itself if a checklist was used. Reference should be made on the checklist as to the corrective action.

7.1.7 Discrepancy Analysis

Discrepancies of serious or repetitive nature will require analysis to determine the causative factors. This analysis is the responsibility of B&R."

Contrary to the above procedures: (1) surveillance results were not documented, (2) corrective action was not recorded and formally monitored and (3) discrepancy analysis was not accurate because of this lack of documentation.

This failure to follow the procedures to document unsatisfactory conditions and corrective action is contrary to the requirements of 10CFR 50, Appendix B, Criterion V, as discussed in Appendix A of the transmittal letter (498/79-19-53 and 499/79-19-53).

(2) Unscheduled Surveillance

This activity was reviewed by examining all Site Discrepancy Memos (SDM), Concern Memos (CM), and Speed Memos (SM) generated

in 1978 and 1979. Five SDMs, three CMs and eight SMs were written. Almost all of these dealt with the sign off of inspection records. The policy of not documenting unsatisfactory conditions also appeared to apply to unscheduled surveillances and should be considered when corrective action is taken on the scheduled surveillance inadequacies discussed in the above paragraph.

(3) HL&P Surveillance Effectiveness

The NRC inspector reviewed only a portion of the site surveillance program since the primary emphasis was placed on civil areas where problems were known to exist. That is, areas where continuing allegations of substandard construction and inspection activities, NRC inspection/ investigation findings, B&R Site Internal Surveillance findings, and reported construction deficiencies have indicated problems in concrete activities.

The current NRC Investigation Team observed unsatisfactory conditions relative to concrete activities which were continuing. Interviews with B&R personnel indicated the problems referenced above had not been corrected. Considering this, the effectiveness of the site surveillance activities was not apparent. Even if these surveillance activities did informally identify discrepant items or deviations from specifications, the problems were recurring.

The HL&P audits failed to identify this apparent ineffectiveness because the audits were mainly reviews of objective evidence (records). The audits should have identified the following:

- (a) Repetitive reporting of satisfactory results did not correlate with NRC inspection and B&R internal surveillance findings.
- (b) No unsatisfactory conditions were identified since September 1978. Some of these surveillance activities had documented only satisfactory conditions back to 1976 when the surveillance was first performed.
- (c) If surveillance was satisfactory, then the frequency should have been changed or additional/more meaningful characteristics should have been added.

The above findings are a part of the noncompliance described in this report under HL&P Audit of the HL&P Site QA Function.

b. Brown & Root Site Internal Surveillance (SIS)

- (1) Organization - This group was organized in early 1978 and started performing the surveillance function on August 31, 1978.

The group has had no charter or approved procedures until September of 1979. At this time they became a recognized site audit group, headed by a Lead Resident Auditor. During the current inspection, the NRC inspectors were informed that the B&R QA organization chart will be revised to reflect this new audit group change.

- (2) QA Audit/Surveillance Records - These records were not stored in the QA records vault but were in a file cabinet in the Lead Resident Auditor's office. The vault personnel refused to accept these records because they were not on an approved list. At one time, they did accept these records; therefore, they only had a partial file. The licensee agreed to immediately transfer the subject records to the QA vault and the inspector verified on January 31, 1980, that the records had been moved to the vault.

The same audit files contained responses to the subject surveillances. In several cases the cognizant organization's response was inadequate. In most cases the close out of items in dispute were closed by a letter documenting the meeting and the closing of the item, but did not document the basis for closing. That is, it did not indicate either the final corrective action or if the finding had been withdrawn. Since many of the personnel involved are gone, the main concern at this time is to assure that the bases for closing current and future items is recorded. A different method of closing items out should be devised. This matter is unresolved pending review of licensee's corrective action (498/79-19-54 and 499/79-19-54).

- (3) B&R Site Internal Surveillances

The inspector reviewed surveillances SIS Nos. 12, 12.1, 12.2, 12.3, 12.4, 12.5, 18, 26 and 32. The main purpose of the review was to evaluate those surveillance activities pertaining to concrete activities or those which had not received timely or adequate responses.

The surveillance of concrete activities (12, 12.1, 12.5) identified significant deficiencies. The response to the findings was inadequate about 50% of the time. SIS-26 (Special Surveillance of Concrete Activities) was performed in October and November 1979. The responses were being evaluated by the personnel who performed the subject surveillance. SIS-26 identified several repetitive items relative to concrete activities. The responses were considered inadequate by the surveillance personnel.

Surveillance SIS-18 (FREAs) and B&R letter No. STQ-5153 dated November 12, 1979 were two examples where responses were long overdue and there was no evidence that the unsatisfactory conditions had been corrected. Management was sent copies of this correspondence and thus was aware of this situation; however, the problems were not escalated for resolution.

This failure to take appropriate corrective action is contrary to the requirements of 10 CFR 50, Appendix B, Criterion XVI as discussed in Appendix A of the transmittal letter (498/79-19-55 and 499/79-19-55).

c. Auditor Qualification

B&R (Houston) and (Site) auditor's qualifications were reviewed and appeared to meet the requirements of ANSI N.45.7.23 and applicable procedures.

F. SUMMARY OF ITEMS

1. NONCOMPLIANCES

<u>Tracking No.</u>	<u>Noncomp. No.</u>	<u>Report Section</u>	<u>Page No.</u>	<u>Subject</u>
79-19-03	13	E.1.b.	37	Failure to take corrective action when Cadwelders needed requalification
79-19-08	1	E.1.d.	49	Lack of QA/QC freedom, independence and sufficient, well-defined authority
79-19-10	7	E.2.b. E.2.c.	53,54 56	Failure to take corrective action on improper vibrator and conc. placement practices
79-19-11	20	E.2.b.	53	Failure to inspect reinforcing steel for loose rebar prior to conc. placement
79-19-16	8	E.2.c.	58	Failure to follow procedures with regard to qualification of civil and conc. QC inspectors
79-19-18	2	E.3.a.	61	Failure to complete backfill compaction in accordance with a qualified procedure
79-19-21	4	E.3.a.	61	Failure to establish procedures for systematic sampling as part of soil testing program
79-19-22	3	E.3.c.	64	Failure to take prompt corrective action when test apparatus failed, halting testing
79-19-24	5	E.3.d.	65	Failure to document soil lift thickness and no. of passes of equip. as QA records
79-19-27	16	E.3.f.	67	Failure to control the use of a nonconform. hammer for soil penetration tests

<u>Tracking No.</u>	<u>Noncomp. No.</u>	<u>Report Section</u>	<u>Page No.</u>	<u>Subject</u>
79-19-28	17	E.3.f.	67	Failure to control the dimensions of the split spoon in soils test control
79-19-32	22	E.4.b.	70	Failure to follow ASME B&PV Code per 10 CFR 50.55a for radiography qualification technique
79-19-33	9	E.4.a.	69	Failure to control documents in that the contractor's QA Manual copies out of date
79-19-34	10	E.4.c.(2)(c)	72	Failure to control welding as a special process with regard to cleanliness
79-19-38	21	E.4.c.(3)(d)	74	Failure to control design changes in root openings and weld dimensions
79-19-39	11a	E.5.b.(2)(a)	79	Failure to control radiography, a special process, in that radiograph quality was poor
79-19-39	11b	E.5.b.(2)(b)	82	Failure to control radiography, a special process, in that interpretations were incorrect
79-19-39	11c	E.5.a.(2)	76	Failure to control liquid penetrant exam., a spec. process in that indications weren't reexamined
79-19-41	12	E.5.b.(1)	77	Failure to follow procedures in that a procedure was used after an expiration date
79-19-47	6	E.7.d.	94	Failure to take corrective action in control of NCRs and FREAs
79-19-48	18a	E.8.c.	95	Failure to provide procedures for supplemental audits as part of the HL&P QA plan and audit system

<u>Tracking No.</u>	<u>Noncomp. No.</u>	<u>Report Section</u>	<u>Page No.</u>	<u>Subject</u>
79-19-48	18a	E.8.d.(2)	100	Failure of HL&P to perform supplemental audits of B&R site activities
79-19-48	18b	E.8.d.(1) E.9.a.(3)	99 104	Failure of HL&P to perform adequate audits in that unsatisfactory conditions were not observed
79-19-48	18c	E.8.d.(2)	100	Failure to perform audits on the prescribed frequency
79-19-48	19	E.8.d.(3)	100	Failure of B&R to perform in-depth audits of site activities
79-19-50	18a	E.8.d.(3)	101	Failure of B&R to perform supplemental audits of B&R site activities
79-19-53	15	E.9.a.(1)	103	Failure to follow procedures to document and correct unsatisfactory conditions
79-19-55	14	E.9.b.(3)	106	Failure to take corrective action in a reasonable time and management did not get the conditions corrected or the problem resolved

2. UNRESOLVED ITEMS

<u>Tracking No.</u>	<u>Report Section</u>	<u>Page No.</u>	<u>Subject</u>
79-19-01	E.1.a Allegation 12	24	Licensee is correcting discrepancy found in traceability of embedded steel plates
79-19-02	E.1.b Allegation 10A	35	Licensee is correcting problems found in the resolution of old NCRs on Storage/Mainten.
79-19-09	E.2.a	51	Need for additional controls in procedures addressing prepour, constr., curing of conc.
79-19-12	E.2.b.	54	Recheck on conc. transit trucks standing or in-transit w/o agitation
79-19-13	E.2.c.	57	Final inspections on completed placements not adequately controlled and up to date
79-19-14	E.2.c.	58	Sampling of pumped concrete and the lack of correlation program
79-19-15	E.2.c.	58	Conflict of personnel qualification req'ts for concrete placement (ANSI vs ASME)
79-19-17	E.2.c.	59	Need for systematic program to assure that training is given to all on spec/proc. revs.
79-19-19	E.3.b.	63	Compaction of upper part of last lift which may remain below Cat. I bldgs; B&R literature
79-19-20	E.3.b.	63	Retest fill section completed with excessive number of passes by double roll overlap
79-19-23	E.3.d.	65	Records of fill lifts vs. location in order to reconstruct fill placement procedure lacking
79-19-25	E.3.e.	66	Decrease in relative density (bulking) of compacted mat'l in wet state under vibration

<u>Tracking No.</u>	<u>Report Section</u>	<u>Page No.</u>	<u>Subject</u>
79-19-26	E.3.e.	66	Discrepancies in min-max relative densities of materials used vs. reported is SAR for liquefaction
79-19-29	E.3.f.	67	Attempt to correlate Std Penetration values to those from oversized, blunt spoon & nonconforming hammer
79-19-30	E.3.f.	67	Boring 204, loose mat'l near base of fnd. mat of RCB Unit 2 - Aug. '77 washout area
79-19-31	E.4.b.	69	Details of welder qualification procedures - work stoppage; root gap & backing ring in question
79-19-35	E.4.c.(3)(a)	73	Alignment procedures on S. Gen. B&C and Code stamp on lower S. Gen. supports considered now as bldg.
79-19-36	E.4.c.(3)(b)	73	No Code inspection by ANI on weld now embedded in concrete on the fuel trans. tube
79-19-37	E.4.c.(3)(c)	74	Control of attachments on material post-weld heat treat. - lower SG supports & others
79-19-40	E.5.a.(2)	76	Test reports of liquid penetrant examination not serialized and documentation of examinations inadeq.
79-19-42	E.5.c.	83	No training for QC personnel in liq. pene. by flourescent mat'ls, processing & reading radiographs, visual AWS, recordkeeping
79-19-43	E.7.a.	88	Procedure for NCRs lacks processing, approvals, feedback & records retention details
79-19-44	E.7.c.	92	Review of documentation involved with Receiving documentation for some vendors
79-19-45	E.7.c.	93	No procedures for trending FREAs and reviewing cumulative impact of all changes

<u>Tracking No.</u>	<u>Report Section</u>	<u>Page No.</u>	<u>Subject</u>
79-19-46	E.7.c.	94	Unsatisfactory conditions found during ECs not being documented
79-19-49	E.8.c.	96	Audit requirements of ANSI N45.2.12 not part of the PDM contract
79-19-51	E.8.d.(3)	101	Audit B&R-27 followup not documented and procedure to require this in general is being written
79-19-52	E.8.d.(3)	101	Question of whether all B&R procedures have been audited by B&R Houston. Design control not audited in 1978
79-19-54	E.9.b.(2)	105	Inadequate responses to surveillance findings in that bases for closeout lacking
79-19-58	E.3.a.	61	Resolution of why spec was revised from 12 to 18" lifts that was counter to the B&R cog. engr.

3. OPEN ALLEGATIONS

<u>Tracking No.</u>	<u>Report Section</u>	<u>Page No.</u>	<u>Subject</u>
79-19-04	E.1.b. Allegation 12A	39	Vertical cracks in structural steel clips in the boron injection room of RCB Unit 1, El. 36'
79-19-05	E.1.b. Allegation 13A	40	Pipe sleeve weld defect 1/4" deep at Az. 300°, El. 8' in RCB Unit 1 near work panel 15
79-19-06	E.1.b. Allegation 14A	41	Classification of containment polar crane
79-19-07	E.1.b.	42	Storage of elec./mech penetrations and lack of understanding by warehouse electricians of Megger tests on motors
79-19-56	E.1.b. Allegation 16A	43	Curing of the conc. intake structure on which an NCR was written
79-19-57	E.1.b. Allegation 17A	44	NRC told of voids in concrete with no definite closeout or resolution
79-19-59	E.1.b. Allegation 19A	46	Missing 3 horiz. rebars

4. OPEN ITEMS FOR REFERRAL

<u>Referral To</u>	<u>Report Section</u>	<u>Page No.</u>	<u>Subject</u>
OIA	Allegation 1A	26	Falsification of a conc. curing record admitted by an individual
OIA	Allegation 18A	45	HL&P/B&R obtain information on who allegers are from the NRC

APPENDIX 1

Listed below are the NRC report numbers, dates and brief summaries of the results of investigations into previous allegations concerning construction practices at the South Texas Project.

Report No. 50-498/79-14; 50-499/79-14

Dates of Investigation: September 4-7 and 11-14, 1979

On August 8, 1979, the licensee reported alleged intimidation of QC inspectors by construction personnel. Subsequently, allegations of QA/QC program irregularities were received from confidential sources.

Results of Investigation: Four of the ten allegations were substantiated, resulting in a deviation (improper record entry) and an item of noncompliance (violation of a stop work notice). Four of the allegations were not substantiated and the other two could neither be substantiated nor refuted. In regard to the alleged intimidation, the QC inspectors involved perceived statements of five construction workers as serious threats meant to hinder their performance as QC inspectors. The construction workers denied making threats or using abusive language in direct conversations with inspectors.

Report No. 50-498/79-09; 50-499/79-09

Dates of Investigation: May 15-18 and 22-23, 1979

On May 1, 1979 and other dates in May 1979, an individual alleged: (1) that the responsible QC inspector refused to sign the concrete pour card for Lift 5 of the Unit 2 containment building because of discrepancies he had identified, and that subsequently the card was signed off by his supervisor, and (2) there were widespread discrepancies in Cadweld "as-built" location records.

Results of Investigation: Both allegations were substantiated. However, it could not be established whether or not the final cleanliness of the Lift 5 placement area was acceptable (reason for the inspector's refusal to sign the pour card) since concrete had been placed and the area was thus inaccessible for inspection. In regard to the second allegation, it was determined that the licensee was aware of the record discrepancies and was actively engaged in measures to correct them.

Report No. 50-498/79-01; 50-499/79-01

Dates of Investigation: January 23-26, 30 and February 2, 1979

An individual on January 13, 1979 and other dates in January 1979, alleged irregularities in the civil construction and QA Program. The six specific allegations concerned installation and inspection of Cadwelds.

Results of Investigation: Two of the six allegations were substantiated, resulting in an item of noncompliance. The substantiated allegations involved: (1) copying over of Cadweld Examination Checklists (ECs) and as a result another person entered the field inspectors initials on the record copy. (At the time, procedures did not prevent this and the practice was considered acceptable) and (2) a Cadweld was accepted although QC records indicated the existence of excess voids in the filler metal. (Records indicated that the Cadweld was acceptable based on an evaluation in a "Field Request for Engineering Action", considered an acceptable method of resolving such matters).

Report No. 50-498/78-15; 50-499/78-15

Dates of Investigation: September 11-14, 1978

An individual on September 9, 1978, alleged irregularities in the civil construction and QA program. Eleven (11) of the thirteen (13) specific allegations concerned installation and inspection of Cadwelds; one concerned mislocation of Unit 2 structures and the last was that Brown and Root foreman can neither read nor write.

Results of Investigation: Four of the thirteen allegations were substantiated, resulting in two items of noncompliance. The substantiated allegations involved: (1) loss of a field sketch, (2) application of centering marks to rebar after Cadweld was fired, (3) lack of second shift QC coverage of Cadwelding, and (4) that only three inspectors are available for Cadweld inspection. The allegation regarding the inability of foreman to read or write was not reviewed by communication problems will continue to be the subject of future inspections. The possible mislocation of Unit 2 structures had already been identified by the licensee.

Report No. 50-498/78-14; 50-499/78-14

Dates of Investigation: August 22-25, 1978

Brown and Root representatives on August 17, 1978 alleged a bribery attempt by a QC inspector.

Results of Investigation: The allegation that a QC inspector offered to expedite acceptance of construction in exchange for material favors could not be substantiated. The allegation was denied by the inspector. No witnesses were present during the alleged bribery attempt.

Report No. 50-498/78-12; 50-499/78-12

Dates of Investigation: July 25-28, 1978

An individual reported on July 17, 1978 an alleged breakdown in the civil QA program. Allegations included: (1) inadequate training on new procedures, (2) inadequate nonconformance reporting system, (3) inadequate support of QC

inspectors, (4) inaccessibility of upper management and (5) undue pressure from construction on QC inspectors.

Results of Investigation: In general, the allegations were not substantiated or only substantiated in part. The investigation did indicate apparent low morale of some QA/QC civil inspectors and weaknesses in the civil QA program.

A special meeting was held on August 15, 1978 with Houston Lighting and Power Company (HL&P) corporate management relative to the investigation findings, and it was agreed that the licensee would pursue these matters to bring about program improvements. The meeting is documented in Report No. 50-498/78-13; 50-499/78-13. A HL&P letter dated October 3, 1978 to the NRC Region IV office documents the licensee response to the allegations presented in Report No. 50-498/78-12; 50-499/78-12.

Report No. 50-498/78-09; 50-499/78-09

Dates of Investigation: May 16-18, 1978

An anonymous individual on May 15, 1978 alleged falsification of Cadweld records concerning lack of qualification of QC inspectors and pressure on QC inspectors to violate procedures and not hold up construction.

Results of Investigation: No evidence was found to indicate Cadweld records had been falsified or that QC inspectors were not properly qualified. Interviews with QC inspectors indicated that while there was normal pressure to get the job done, there was no undue pressure for them to forego hold orders (i.e. violation procedures). One QC supervisor stated his "holds" had sometimes been overruled by higher authority but he stated this was their prerogative and did not result from construction pressure.

Report No. 50-498/77-08

Dates of Investigation: July 6-8, 1977

An individual on July 1, 1977 alleged QC inspectors were threatened if they identified unacceptable items during concrete placement.

Results of Investigation: Two incidents involving threats to QC inspectors did occur on June 30, 1977. Interviews with ten (10) civil QC inspectors indicated six had experienced some harassment; several indicated they felt QC inspectors were not receiving enough management support and that an inordinate amount of friction had developed between QC and construction. All the inspectors questioned stated that they had not overlooked unacceptable inspection items.

Report No. 50-498/77-03

Dates of Investigation: February 2-3, 1977

The licensee reported on February 1, 1977 that a Pittsburgh Testing Laboratory employee was alleged to have falsified concrete material test records.

Results of Investigation: Allegation was substantiated; however, there was no effect on concrete quality as other tests established that material met requirements.

APPENDIX 2SUMMARY OF STATEMENT BY A1 AT BAY CITY, TEXAS

In the fall of 1979, A40 stated in a meeting that he would know if anyone went to the NRC, and insinuated that action would follow or words to that effect. I interpreted this to mean that the person would be fired.

QC Inspectors are frustrated through harassment and threat from construction personnel and lack of support of QA personnel, particularly in the last 30 days.

A3 and A6 told me that during a post placement meeting A50 threatened A3 during the meeting. I believe this occurred over the placement of a concrete wall.

As an example of A50 knowingly violates the specification: In the spring of 1979, an incident occurred wherein a concrete placement was in process. I observed that too much freefall and excessive lateral movement was going to take place in violation of specification that only allowed a 5 foot lateral movement. I complained to A45 to stop the process. A50 started to place concrete although he knew that I wanted it stopped. A2 was also present at this time. I notified my boss, A30, who arrived after the placement started. I told him of my concern and A50 who was present asked me if I measured the distance. I said no, but it was about 10 feet; A50 said 3 feet. A30 said if you didn't measure you don't know. I checked consolidation and it was OK. Later the specification was changed to allow the lateral movement.

A45 told me about 2 months ago that lift #3 (RCS-1 Shell wall) was worse than lifts 8 and 15 combined. I asked A45 "How do you know." He said, "I was there and construction practices weren't very good back then."

An error in judgment was made wherein concrete personnel placed concrete in two foot lifts with proper consolidation, and at that time the specification only authorized 18" with an occasional variance of up to 24". A35 and A30 found out about it. A50 offered to lie and report that the lifts were proper. Now the specifications have been changed. Proper consolidation was assured and the remainder of the placement was changed back to 18" lifts.

About 8 months ago QC inspectors started losing support from QC supervisor A35. He has the reputation that if QC inspectors will not sign off a job, then A35 will arrive and sign off the job. I have heard A45 say if QC inspectors don't sign off the placement, then A35 will. A45 told me Lift #5 (RCB-2 shellwall) was dirty. I believe that NRC investigated this.

During a QC/QA staff meeting in early November 1979, A40 said every time you call NRC we get a call telling us who called them. NRC is getting tired of your complaints. After the meeting, A35 told me "You don't have much time left, if you're smart, you will keep your mouth shut."

This is just another example of QA supporting construction. Also, QC does not regularly go into the field. Also, A20 has walked into QC shacks and threatened to pull out the air conditions because too many people (QC) were in the shacks. QA did not stand up to construction.

It is my opinion that morale is very low because of the above.

It is my opinion that QC inspectors should have two-way radios to report problems. "It is hard to ask a construction foreman if I could use his radio to place him on report." A35 refused to provide me a radio when I asked for one.

Also inspectors are having problems with doing their inspections because of lack of a set of prints in the field.

About one month ago A9 told me that during a placement, a concrete foreman left for about 1 hour during the placing and the concrete construction personnel would not correct improper procedures.

Recently, A2 said that concrete personnel told him they were going to throw him off the wall.

A5 said that one time a carpenter threatened to hit him with a crescent wrench, over a water curing dispute.

A12 said that during a recent vendor surveillance, he noticed someone using a halogenic marker to mark stainless steel items and believed that a non-halogenic marker should be used. Also a vendor was packing carbon steel and stainless together (touching).

A25 said that traceability of embeds was lost after leaving the receiving section. Also, he wrote a CAR (Corrective Action Request) but it was turned down. Supposedly the NRC was aware of it.

I have made this statement because I am afraid of the indifference towards Quality Control. I believe that the safety of the public is not in jeopardy, but the danger is in the trend to lessen the effectiveness of the quality control program.

I have read the foregoing statement consisting of two typewritten pages. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A1

SUMMARY OF STATEMENT BY A2 AT BAY CITY, TEXAS

About 2/3 month ago I went to Unit 1 elevation 60' on a wall to relieve A10. While I was there I told A45's crew they made a QC inspector very upset! One of the construction men, last name unknown, said to me "don't give us any trouble, we'll throw you off the wall and you can pick the side." I said OK "Friar Tuck" and looked him straight in the eye. He did not say or do anything. I did not report this to anyone because I did not take him serious.

To the best of my knowledge, A45's crew was giving A9 a hard time, by not listening to A9 and violating placement procedures. A45 told me that he put in a 4' lift on A9 when a 18" lift was the most allowed.

In the fall of 1979, A35 said during a QC meeting that A45 used to violate specifications and procedures behind QC inspectors back, but now he will do it in front of the inspectors.

I do not feel that intimidation is a problem at the site but I feel most of the QC people are harassed!

A45 said on two different occasions that he does not worry about any serious problems because A56 would back him up or support him.

During the spring of 1979, I recall A45 and his crew were placing a wall. A1 and I were present when A45 started to place the wall. A1 and I could see that there was going to be more than a 5 foot lateral movement of concrete because the trunk was not long enough. A1 and I stopped them but A50 got down inside the wall and ordered the crew to use vibrators to move the concrete more than 5 feet. A30 arrived and we told him what had happened but he did not support A1 and myself.

I do not know of any intimidation of myself or other QC inspectors other than what I have written herein above.

I have read the foregoing statement consisting of two handwritten pages. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A2

SUMMARY OF STATEMENT BY A3 AT SOUTH TEXAS PROJECT

In the fall of 1979, I noticed an improper concrete placement technique at four places, in that the freefall exceeded the 42" max. The tremies were cut approximately 10' above the previously placed concrete (worst case observed of the four tremies). I told A45 that the freefall exceeded the max and was unacceptable. He said and did nothing. I then told A50 and he did nothing to correct the situation immediately. I then told A50 I was leaving the placement. A50 then stopped the job and corrected the situation.

During a subsequent meeting A50 said there was a problem in placing the concrete, however, he corrected the situation as soon as he was informed. At this time I told A50 that I disagreed with that comment. A50 then said Quote: are you calling me a liar... I come across that table... Unquote. Before he could finish A35 told A50 Quote: we don't need any of that here. Unquote. A50 calmed down. I felt threatened and humiliated, intimidated. I did not feel that my supervisor supported me and did not take a strong stand against construction people. I do not know of any direct intimidation by QC supervisors or construction supervisors, but do feel that there is a lack of support from QC supervisors.

I have read the foregoing statement consisting of two handwritten pages. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A3

SUMMARY OF STATEMENT BY A4 AT SOUTH TEXAS PROJECT

In the fall of 1979, I discovered that an Examination Check (E. C.) for curing performed had not been completed. I brought this to the attention of A31. A31 told me that it would be taken care of Monday and to sign off my own inspection. I signed my inspection off for Saturday and left the other item on the E. C. blank.

There was a QA/QC staff meeting called by A40. At this meeting A40 said, to the best of my knowledge, the following: AS FAR AS GOING TO NRC OR HL&P, I WILL INFORM YOU PEOPLE THAT WE WILL KNOW WHO AND WHEN, SO DON'T FEEL YOU'RE DOING ANYTHING BEHIND ANYBODY'S BACK. I interpreted this to mean, a warning, that QC inspectors would get into some kind of trouble.

I believe that two-way radios are needed for curing inspections, especially on weekends. Also, they are sometimes needed for placements. I also feel that QC inspectors need specifications, procedures, and ACI Codes in the field.

I have no knowledge of intimidation of QC inspectors, or defective structures, components or materials. I have not altered any records or do I know of anyone else who has altered records except as mentioned above. Also I have not been intimidated or threatened, but upon occasions have been harassed by construction.

I do not feel that QA/QC management is giving QC inspectors total back-up. I have never written an NCR.

I have read the foregoing statement consisting of two handwritten pages. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A4

SUMMARY OF STATEMENTS BY A5 AT SOUTH TEXAS PROJECT

This fall I observed an improper watering practice (curing) of a concrete wall. For some reason a carpenter had turned off the water. I told the carpenter to turn the water back on. The carpenter said "Do you want a crescent wrench along side of your head." I just walked away. I do not know if the carpenter turned the water on but I did report the incident to A31. I do not know what happened about the incident and I do not believe that I could identify the carpenter if seen again. Also I do not know the carpenter's name.

This fall I have signed off curing examination checks as inspected when I did not actually inspect the curing. I did this because A31 told me that someone else had inspected the curing and it was OK. A31 did not tell me who had inspected the curing. I took off one-half day and when I returned the following day I was told to sign off on the curing of a wall that I only inspected during the morning hours. Another time I was off work and when I came back A31 told me to sign off on curing for the dates I was off. I have signed my name to the quality assurance department examination checklist, and have placed my initials next to the dates where I had signed off but had not inspected.

I believe that all placing of concrete should be done when the QC inspector has a two-way radio. It is very difficult to stop a placement once it has started. Also I believe that all QC inspectors should have access to a set of prints and specifications.

I believe that most of the QC inspectors are frustrated because of a lack of support from QA supervisory personnel. As an example:

- A. I can only submit a draft of an NCR.
- B. I never find out the results of an NCR that I have submitted.
- C. To the best of my knowledge my QA Supervisor has never supported me on an NCR.

I have always performed my job to the best of my ability, in spite of a lack of support from my supervisors.

Also I do not have any knowledge of any defective structures, components or materials.

I have read the foregoing statement consisting of two typewritten pages. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A5

SUMMARY OF STATEMENT BY A6 AT SOUTH TEXAS PROJECT

During a post placement meeting this fall, A3 disagreed with A50. At this time A50 got mad and said, "Call me a liar and I'll come across the table." Then A35 said, "Before this goes any farther we need to get settled down," or words to the effect. I believe A50 thought that A3 had insulted him in front of his supervisors.

I have not witnessed any QC/QA person that was being intimidated or am I aware of any defective structures, components or materials. I have never altered records nor do I know of anyone who has altered records.

In early November 1979, during a QA/QC staff meeting A40 said words to the effect that if you go to NRC, we have ways of finding out, people will tell us. I took this to mean a warning and, that a person would get into trouble if he talked to NRC.

I believe that two-way radios should be with QC placing inspectors on all complex placements and others where problems could occur. I also believe that prints and specifications should be in the field.

I also believe that QC supervisors could give more support to QC inspectors. It appears to me that they do not want to make waves with construction.

I have read the foregoing statement consisting of 2 handwritten pages. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A6

SUMMARY OF STATEMENT BY A9 AT SOUTH TEXAS PROJECT

Early this fall I was inspecting a concrete placement at an approximate time of 10:30 a.m. During the placement I mentioned to A45 that his men were vibrating excessively in one place. A45 became upset upon this comment and stated, "Would you like to be fired instead of my concrete workers if honey-combing occurs."

Later, about 11:45 a.m., A45 left the placement leaving no one in charge to my knowledge. The placement ended at 12:45 p.m. It was reported to me later that A45 was bragging about placing a 4 foot lift. This comment was bragging in my opinion since I had monitored the placement thoroughly and would not have hesitated to write an NCR if a specification requirement had been violated. The placement was considered structurally sound although I was pushed to the limit as for acceptance within the specification and procedures. No specification requirement was violated, therefore, no NCR was not written. Procedural violations were documented on the preplacement examination checklist.

I have no knowledge of defective structures, components, or materials. I have never altered records or know of anyone who has falsified records. I have not been intimidated or threatened.

I believe on a concrete placement that a two-way radio should be present with the QC Inspector.

In area MEA 1 we have two (2) sets of prints and specifications.

My supervisors have backed me up, however, I believe I may be an exception because I have heard and seen other QC inspectors not being backed up on minor areas.

I have read the foregoing statement consisting of 1 typewritten page. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A9

SUMMARY OF STATEMENT BY A11 AT SOUTH TEXAS PROJECT

I do not feel that QC supervisors back up the QC inspectors and that is one of the reasons I am quitting. As an example, A20 will go to the QC supervisor or upper management when he disagrees with a Q.C. Inspector and get things changed or corrected to his thinking.

In early November 1979, during a QA/QC meeting, A40 stated, "I am tired of people calling NRC about things, NRC is getting tired of hearing it and NRC is telling us who is talking," or words to that effect. It is my feeling that A40 is warning the inspectors that if anyone talked to the NRC then that person would get into trouble.

I have not been intimidated or do I know of any defective structures, components or materials on this site. I have not altered or know of anyone that has altered any records.

I have read the foregoing statement consisting of one typewritten page. I have made any necessary corrections and have initialled them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A11

SUMMARY OF STATEMENT BY A14 AT SOUTH TEXAS PROJECT

In the fall of 1979, I was inspecting a pre-placement area consisting of a one-foot thick wall, to be placed in an eight foot lift. After I completed my inspection I signed off on the concrete pour card with the exception of the bottom line. I did not sign the bottom line because of a memo, signed by a former QC assistant supervisor who worked for A35. This memo states that the bottom line should not be signed off until a QC placement inspector is present. This memo is still in effect because it is posted in my QC shack. When I refused to sign off on the card, A50 became upset and stepped into a nearby engineering shack that had a telephone. A few minutes later, A50 told me that A35 wanted to talk to me on the phone. I picked up the phone and A35 told me to sign off on the bottom line of the concrete card and take the place of the QC inspector for placement until he arrives. I tried to explain to A35 my side of the problem but he told me to "get up there and watch the pour." I feel that A35 did not support me in this matter and totally supported construction. Later when I returned to my lead (inspector) A17, he told me that A35 had called him and told him that he did not want A14 to talk back to him which I interpreted as I cannot explain my position when construction calls him.

I am not aware of any defective structures, components or materials. I have never altered or know of anyone who has altered records. Except for A50, I have not been harassed or intimidated by anyone nor do I know of anyone who has.

I also feel that the use of typical drawings instead of detail drawings cause the inspector to be in doubt as to what rebars should be placed in what location and what rebar spacing should be in relations to other rebars, embeds, etc.

Also that all QC inspectors on placements should have two-way radios for quick access to supervisors.

I have read the foregoing statement consisting of 1 typewritten page. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A14

SUMMARY OF STATEMENT BY A16 AT SOUTH TEXAS PROJECT

In November 1979, during the morning hours, A35 said words to the effect "you know the NRC is here." I said "yes." He said "They'll be here for 6 weeks. It is a congressional investigation. It is my opinion that if QC Inspectors don't straighten up they'll be hitting the gate." Due to the tone of his voice I interpreted it that management would get rid of QC personnel who talked to the NRC.

It is my personal belief that the QC inspectors that are in danger of losing their jobs are those who are first to talk to NRC. (Understood to mean those first inspectors who talked to the NRC during this investigation are in danger of losing their jobs)

I believe that A35 is a highly qualified man. However, the QC inspectors have given a nickname because he signs off and overrides QC inspectors. I have no knowledge of a job he did not sign off when asked by construction.

I have read the foregoing statement consisting of 1 handwritten page. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A16

SUMMARY OF STATEMENT BY A17 AT SOUTH TEXAS PROJECT

In the fall of 1979, one of the QC inspectors noticed an improper procedure (work activity) and called it to my attention. I concurred and started to write a NCR. During this time I also notified A53. A53 became upset with me and said "one of these days I'm going to stomp your ass." This comment was made in my office and overheard by a senior civil engineer. I was more embarrassed than scared. I continued to write the NCR. I reported this comment of A53 to my boss and he informed A53's boss.

About 6 months ago I discovered three horizontal bars missing from a wall and brought this to the attention of B10. He became upset with me for not finding the problem earlier and said to me "lying --expletive deleted-- son of a bitch." I believe that this response was due to the fact that the previous day I told B10 I thought everything was OK with the wall. About one month ago one of the inspectors, A14, was told by A50 to sign off on a pour card that A14 felt was improper. A50 became upset when A14 refused to sign off on the card and called A35, who is not in our chain of command, and complained about A14 holding up work. Later I received a call from A35 who is not my boss, and told me to tell A14 that he (A35) is still his boss and he does not want his orders questioned. I passed the message to A14 and later I learned that had happened from B8 who was present during the A50/A14 confrontation. At this time A35 admitted that he acted without having the full story. In my opinion A50 should never have bypassed A14's chain of command (supervisor).

In addition, I do not know of any defective structures, components or materials. I have not altered or known of anyone who has altered records. I believe all placing inspectors should have 2-way radios.

I have read the foregoing statement consisting of 1 typewritten page. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of knowledge and belief.

Signature by A17

SUMMARY OF STATEMENT BY A18 AT SOUTH TEXAS PROJECT

In the fall of 1979, during the morning hours I rejected three of four loads of concrete to the STP site, because of high slump. During the afternoon a test load came and I allowed B&R Construction to fill a bucket with two yards of concrete because the slump looked OK. During this test I discovered that the air content was below the specifications of PTL, but within the specifications of B&R and therefore, the B&R engineer accepted the load. About this time, A50 learned of test results by way of a two-way radio and wanted to add 10 gallons of water to the load. I told A50 that if he would put the test load (bucket) back into the truck and then add the 10 gallons then I would consider it. At this time A50 became upset and asked me over the two-way radio what my location was. After I told him, he A50, showed up a few minutes later and said to me "You long haired hippie get your shit together or I'll kick your ass." I was more suprised than scared. I told A50 that he was yelling at the wrong man, because I just test it, not make it (concrete).

I believe that A23 was present and overheard A50's comments to me.

I have read the foregoing statement consisting of 1 ty-written page. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A18

SUMMARY OF STATEMENT BY A21 AT SOUTH TEXAS PROJECT

In early November 1979, during a QC meeting with A40, he made a comment, words to the effect of he did not want people going and talking to the NRC. He wanted people to come to him first, and if they didn't, he said we have means of finding out who leaked the information. He then indicated that there would be consequences. I interpreted this to mean that QC inspectors would get into some type of trouble with management.

I have worked with numerous foreman and have not had any difficulty with the exception of one person and that is A50. This occurred during the summer of 1979. At this time I mentioned to A50 to be sure that he did not get ahead of the other adjacent lifts per engineering instruction. A50 said to me words to the effect of, "You must be new here, I place concrete the way I want to." I then reported this incident to my supervisor, B7 (who is no longer present on site) and he subsequently received word from the design engineer who restated that the placement should be completed as instructed.

I have not been intimidated nor do I know of any other QC inspector who has been harassed, or intimidated. I have not altered any records, nor do I know of anyone who has. Also I am not aware of any defective structures, components, or materials.

I would also like to comment that friction between QC and engineering is partially caused by Field Procedure Book, Quality Construction Procedure A040KPGCP-21, Rev. 8, Appendix A, Paragraph 25. This paragraph does not give QC inspectors the ability to identify and question procedural violations and/or deviations from design drawings and/or specifications.

I have read the foregoing statement consisting of 1 typewritten page. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A21

SUMMARY OF STATEMENT BY A23 AT SOUTH TEXAS PROJECT

In early November 1979, I witnessed a confrontation between A50 and A18. At approximately 4:00 p.m., we began placing a very congested 12" wall. The first load batch for this wall was a scheduled "test" load and A18 performed the plastic tests involved.

The slump was 3-3/4" with a specified range of 3"-5", the air content was 3.5% with a specified range of 4%-6%. A18 called me to see if I would accept the low air content which was within my allowable $\pm 1\%$ "buy" range. I told him I would and headed toward the placement to sign the test ticket.

A50 overheard the test results on the radio and called me to see if I would add the 10 gallons of available water in order to raise the slump to 5" to facilitate placement of the wall. I asked A18 to go ahead and add the 10 gallons but he said that too much concrete had already been discharged to consider the load as "full" and that we couldn't add the water, because he couldn't verify the exact amount of concrete remaining in the load. By then, I had arrived at the placement and began to discuss A18's decision with him. A50 arrived at the placement very angry about A18's decision and started to protest loudly.

A50 indicated that he had heard that PTL and Champion were having conflicts with each other and that all their "Goddamned silly games" were costing Brown & Root a lot of time and money, and that "If you and all your long-haired hippie sons-of-bitches don't get your shit together, I'll kick the dog-shit out of you." A50 walked off with A18 not having said anything.

It is part of my job to monitor Champion's and PTL's operations and I had determined that Champion was not intentionally batching erratic concrete and that PTL was performing all their tests according to specifications.

A50 has an aggressive personality and at times will attempt to intimidate people to motivate them or persuade them. He was upset on the day of the incident due to several loads of concrete being rejected as too wet or dumped as too dry.

I personally have not been threatened or intimidated on this job. I am not aware of any defective structures, components, or materials. I have not altered or falsified records or know anyone who has altered or falsified records.

I have read the foregoing statement consisting of 2 handwritten pages. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A23

SUMMARY OF STATEMENT BY A27 AT SOUTH TEXAS PROJECT

I would like to state that the QC supervisors are not supporting the QC inspectors in the field. The following are examples:

In November 1979, I was the pre-placement inspector and during this time, I discovered a 3" RODOFOAM II seismic material, between the fuel handling building 2 and MEA building 2, to have been burned by a torch. I brought this to the attention of B11, that the thickness of the RODOFOAM had been decreased due to shrinkage caused by the burn. According to drawings the seismic joint is to be 3" with no tolerance given. B11 inspected the problem and then called B12. B12 arrived a few minutes later and inspected the joint. At this time both B12 and B11 advised me that there was not significant problem and asked me to sign off the pour card. I then said I would check with A17, who initially told me not to sign off. Later A17 said to go ahead and sign off but make a comment/ note on the back of the pour card, which I did. Within minutes A17 called me and said HOLD IT, A35 said B12 does not have the authority to authorize comment on the pour card. A little later A35 arrived. However, the bulk head was completely in place and it obstructed the questionable area. At this time, A35 looked through the mesh and said to construction go ahead and place. No NCR or FREA was written.

Later on the same placement while monitoring the placement along with A6 it was noted that the vibrator crew was observed running the vibrator to a depth of 5 feet from the top of the newly placed concrete. A6 and I felt that this was a violation on concrete specification in CS0288, CCP-4 and ACI 309-72, paragraph 7.1. A6 brought this to the attention of B13 (last name unknown), who indicated he would take care of it. Later A6 again mentioned to B13 that this crew was running the vibrator too deep but nothing was done. The placement rate of this wall was 2 feet per hour which was no problem. However, as the placement progressed it became evident that the forms were moving and this was verified by the field engineers. B14 and B11 decided to halt the placement. I believe that at this time B5 and A50 were told to stop the placement by B14. At this time the placement was stopped. B11 left the area, about 2:30. Later, about 5:00, B5 and B14 told me they wanted to start the placement up again and asked me if I had any problems with this. I said yes, that too much time had passed and I was worried about a cold joint. Then A35 arrived and said that the specification did not apply to this case and authorized B5 to start the placement. A35 told me that I was not to interpret specifications, and was not qualified to make engineering comments. I tried to explain that I was only using common sense and A35 told me not to. I then left the placement.

Later the forms were removed and there was evidence of a cold joint.

Within the next day A46 took polaroid pictures of the wall. Later I believe that B15, B8 and B11 all inspected the wall and I was told that some cores would be drilled.

The above is an example of non-support of QC management to QC inspectors. I have never seen or heard from other QC inspectors that A35 or A40 when

confronted by construction on any controversy or procedural interpretation supported QC. At all times QC supervisors have backed or favored construction.

In the late summer of 1979, during a training class A26 said when we got into the field, that we were going to be on our own, and NOT TO EXPECT ANY SUPPORT FROM OUR SUPERVISOR BECAUSE YOU'RE NOT GOING TO GET IT. I did not fully believe him, but now I do.

In early November 1979, during a meeting A40 stated words to the effect that every time you people go to the NRC or news media, that we have ways of finding out who talked, adding that action would follow

Also I believe that all placement QC inspectors should have a 2-way radio during a placement.

I am not aware of any defective structures, components or materials. I have not altered my records nor do I know of anyone who has altered records. I have performed all required inspections within my area of responsibility.

I have read the foregoing statement consisting of 2 typewritten pages. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A27

SUMMARY OF STATEMENT BY A30 AT SOUTH TEXAS PROJECT

During the spring of 1979, A50 was placing concrete with excessive freefall. The QC inspectors on the site tried to stop A50 but they were unsuccessful and I was called in. When I arrived one pass had occurred and the second pass was in progress. When I measured the freefall on the second pass the freefall was within limits, but would have been in excess during the first pass, but because my QC inspectors had not actually measured the freefall distance, I told them in the future to measure the freefall when in doubt, instead of eyeballing the distance. Also because the placement was not critical I allowed the placement to stand without an NCR. I cannot recall if any paperwork was written up on this placement. I am aware that A50 has allowed excessive freefall in the past. A50 will not always listen to QC inspectors and stop a placement when requested to do so by a QC inspector. It is allowable for concrete to be moved over five feet provided that the flow is natural before inserting vibrator. During this placement another problem was mentioned that lateral movement was more than five feet, however, my inspectors A1 and A2 did not measure the lateral movement and again I had to remind them to measure distances before stopping the placement. Again I do not recall if any paperwork was completed.

During the past two years I have been threatened at least three times.

1. A construction person threatend to hit me with a shovel, by picking it up and walking towards me. I picked up some rebar to defend myself and we finally resolved the problem.
2. Again, the same construction person became upset with me for not passing his work and he told me that the would be waiting for me in the parking lot with a .357 magnum. I became worried that he was serious and about a month later I finally told my supervisor, A35. We discussed it and I decided not to pursue it any further. I later learned from the construction person that he was under a lot of pressure from construction bosses to get concrete placed.
3. A construction civil engineer took a swing at me on one occasion and as a result he was transferred to another area by Brown & Root.

The cause of the voids in lift 15 (RCB-1 shell wall) in 1978, occurred when there was an equipment breakdown for an extended period of time, wherein the concrete began to harden in the slick line. This low slump concrete was released and pumped from the line after hammering the slick line with a hammer and rebar to free the concrete. This problem goes back to the construction supervisor because they were not ready to place; there was insufficient backup equipment. The equipment broke down many times during the placement.

It is my opinion that construction is almost never ready to make a placement the first time. As a result, QC inspectors almost always find things at the last minute and QC persons get blamed for holding up the placement. Also it is my opinion that another reason that voids occur is the improper vibration. I have heard from vibrator operators (ID unknown) that they were told by their

bosses, when they are behind to just vibrate the outside face first and forget about the middle. This could have happened in the past but not now, because in the past QC only had two QC inspectors on the placement, and now QC has six inspectors on the placements.

Also, during the spring of 1979, I became aware via a two-way radio that some forms were moving during the placement. Since the placement was one of my concerns I went to the placement site. At this time, A1 told me that he had a 4' lift and to save time construction made two 24" passes, instead of the normal 18" placement as per specifications. The specifications do allow for a 6" over/under. As a result of the weight of the concrete the forms moved about 1 to 2", however, the forms were repaired. Also A35 arrived and talked to A1. I believe that A45 and A50 were present. Construction wanted to complete the placement because their concrete finishers were present. I do not believe any paperwork was made because Construction got the forms back in line.

Also, at Lift #5 (RCB-2 shell wall) I was asked by A35 to inspect a portion of the lift to insure that the lift was clean. At this time I checked the northwest corner (area) to the southwest area. Also B1 checked the east side earlier. When I finished the inspection my side was clean. A35 talked to B1 and then B1 walked away. I saw A35 inspect some (one or two) areas and then sign off on the placement. To the best of my knowledge the east side was never 100% checked before the concrete was placed, A35 just did not have enough time to inspect it before the placement started. I would also like to state that I saw A35 have construction remove debris at two locations that he reinspected after B1 left the area.

I have read for foregoing statement consisting of 2 typewritten pages. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A30

SUMMARY OF STATEMENT BY A31 AT SOUTH TEXAS PROJECT

All QC placing inspectors have temporary stop work authority, by letter dated September 30, 1977, from QA management. I have no knowledge of procedural or other Brown & Root instructions to this effect.

To the best of my knowledge only one placement foreman has ignored instructions, by QC inspectors, to halt placing operations. This foreman is A45.

All QC inspectors have the authority to write an NCR. For clarity, NCP's are drafted, then written (typed) on numbered forms.

I have no knowledge of anyone signing a curing report without actually inspecting the placement.

I have never instructed a QC inspector to sign a curing report that they did not inspect. Curing inspection is required at least once each day.

I check all curing cards at least twice each week for proper entries. I believe I would notice anyone signing a curing report if they did not make inspection. I also know the inspectors who work weekends as I make those assignments.

I am not aware of any defective structures, components, or materials. I am not aware of any altered records. I have never been threatened, assaulted or intimidated.

I have read the foregoing statement consisting of 2 handwritten pages. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A31

SUMMARY OF STATEMENT BY A33 AT SOUTH TEXAS PROJECT, WADSWORTH, TX

I was present on the Lift #5 containment shell placement (RCB-2 shell wall). B1 was the lead QC civil inspector. I was with B1 as he made his cleanliness inspection before the placement and saw all of his areas of concern. Although I didn't agree with any of his concerns, with the exception of one area, I had all of the areas recleaned and personally reinspected all areas myself. All areas were reinspected by other QC Inspectors, with the exception of the 0° to 160° segment, which I'm not positive was reinspected by QC. Concrete was then placed on the lift. I feel that the complete placement area was clean as I did inspect it myself and found it meeting all requirements.

In the fall of 1979, some of the Cadweld splices were rejected by QC for not passing visual inspection and a NCR was written. I disagreed with their interpretation of the specification and continued production Cadwelding while this question was being resolved. As it turned out my interpretation was correct. However, in the future I would not continue to work when QC believes they, or we, have a problem. I believe this because if I have the authority to disregard QC's concern, then QC's effectiveness has to be questioned. Supervisors at my level should have to respect all of the QC department's concerns; not ignore them and continue work.

I feel that one way this situation could be remedied would be to have the design engineers on site look at these problems face to face. They could then make the necessary decisions and work proceed in the field. As it is now, when QC and construction disagree, we have to try to explain the problem over the phone, to the design engineer in Houston. This causes considerable time delays and often unintended misinterpretation of the true situation. The present P.S.E. program is not now effective because the engineers are reluctant to make a decision, however minor, without first consulting the engineers in Houston.

I have read the foregoing statement consisting of two handwritten pages. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A33

SUMMARY OF STATEMENT BY A40 AT SOUTH TEXAS PROJECT

I was aware of the first incident between A50 and A3 and that construction management reprimanded A50 for his unprofessional attitude.

I was aware of the second incident with A50 and A18 and that Construction Management warned A50 that they would condone no more incidents.

I was not aware of A53 threatening to beat up on an inspector; a carpenter threatening to hit an inspector with a crescent wrench; the threat to throw an inspector off the dome; the threat to hit an inspector with a shovel and get him later in the parking lot with a .357 magnum.

I am not aware of modifications made in the NCR program wherein the draft NCR is not serialized.

I do not condone the alleged type of action that was described relating to the conversation between A50 and A35 and the alleged direction given to the QC inspector as a result of that conversation.

I am not aware of nor do I condone any statement "After the NRC finishes, we have to get rid of some of our people" indicating that people would be terminated for talking to the NRC.

During an "all hands" QA meeting I made the following statement: "Every time you go to the NRC we find out," meaning they immediately arrive on site to investigate. I also said "Going to the NRC they are probably getting tired of all the calls." This is my personal opinion.

I did not, as alleged, infer that if anyone went to NRC that action would follow.

I have read the foregoing statement consisting of 1 handwritten page. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A40

SUMMARY OF STATEMENT BY A44 AT SOUTH TEXAS PROJECT

I was working on Lift 5 (RCB-2 shell wall), with B1 and A49, both QC inspectors. We arrived at the site about 6:15 in the morning. At that time, B1 told me that he and A49 were going to check the inside shell wall and told me to check the outside shell wall between the reinforcement and form work. It took me about 1-1/2 hours to check the spaces and it took B1 and A49 about 2 to 2-1/2 hours to check their spaces. My spaces were clean after I had some minor loose material removed. When I saw B1 and A49, B1 told me that his spaces were very dirty. I was present when B1 told A33 that the spaces he checked were dirty. At this time B1 again went down into the wall to check some more. A little later A33 asked me to point out the area that B1 had said was dirty. I pointed out one area that B1 had told me was dirty. At this time A33 went down into the area and returned about 15 minutes later, did not say anything but just walked away. A short time later B16 arrived and talked to B1. I did not hear the conversation. About 10 to 15 minutes later A35 arrived and went down into the wall. About 30 minutes or less later he came out, but did not say anything to me. Later B1 told me that A35 had signed off the placement.

It is my opinion that the placement was dirty because B1 told me it was dirty and A35 only spent about 30 minutes or less inside the wall.

I have read the foregoing statement consisting of one typewritten page. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A44

SUMMARY OF STATEMENT BY A45 AT SOUTH TEXAS PROJECT

In the spring of 1979, I was placing concrete and two of the QC inspectors complained that the concrete was dropped too far and I had vibrated too much laterally. As I recall A30, a QC supervisor, arrived and determined that the two QC inspectors did not measure the drop or the lateral movement. I recall that the drop was okay but that I did move the concrete more than the allowed five feet. I believed that I vibrated the concrete about 7 feet. Presently, there is no restriction on the movement of concrete with a vibrator.

It is also possible that I made a comment to the effect that Lift #3 (RCB-1 shell wall) was worse Lifts #8 and #15. The reason that I may have made a statement to that effect was that during the early days when concrete was being placed the slump was 2" which is lower than it is now. Now the slump is about 4 to 6 inches. Also the QC is better than it was back in 1976.

On Lift #5 (RCB-2 shell wall), I did make a comment that the lift may have been dirty, because when I was placing the concrete I noticed a top of a can float to the side next to a form. (It was not removed) I also recalled that B1 a QC inspector refused to sign off on the placement, because he allegedly believed it was dirty. I knew that construction wanted to make the placement and I believed that A35 would sign off the placement if it was close to being clean. I may have made a comment to someone to this effect. I have worked with A35 for about 3 years.

I instruct my men to vibrate for about 30 sec. to 1 min. This was not acceptable to one of the QC inspectors and they told me to stop because I was over vibrating. I did not stop because around June 1976 one time I under vibrated and honeycomb occurred. Also during a recent placement I left the placement to attend a meeting. I was gone about one hour. I left one of my men in charge of the placement and gave him my two-way radio. I did not tell the QC inspector who was present I was leaving or who was in charge because whoever had the radio was in charge.

In the fall of 1979, during a placement I had cut the tremie off too short and two of the QC inspectors told me to stop, but I did not stop at that time. I had planned to stop after I finished the placement at the end near the form. At this time the QC inspectors threatened to walk off the job and A50 told me to stop, which I did. In the future, I have decided that any time QC inspectors request me to stop, I will stop.

I have never stated that I made a 4 foot lift when a QC inspector was not looking nor have I done anything like this.

On the secondary shield wall I have made about 90% of the placements, all of which have been complex.

I have never threatened, harassed, or intimidated anyone during my work on the job site. I do not know of any defective materials, components or structures. I do not know of any altered records.

I have read the foregoing statement consisting of 1 typewritten page. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature By A45

SUMMARY OF STATEMENT BY A49 AT SOUTH TEXAS PROJECT

B1 and I arrived at Lift #5 (RCB-2 shell wall) because this placement was assigned to me. I had asked B1 to help me because it was a big placement. Also present was A44, who I believe was a trainee. I inspected one half of the area and B1 agreed to inspect the other half which had the most penetrations. I finished my inspection in about three hours. I found some dirty areas and had them cleaned up. B1 told me that his half was very dirty. B1 said that when construction attempted to removed debris, sand and tie wires, the pressurized water was unsuccessful because some areas were inaccessible and the material was entrapped between penetrations. According to B1 it was impossible to clean without removing the forms. I would like to add that the day before I had inspected the area that B1 had inspected and I found the area to be dirty. I recall that I told construction people to clean the area, and they told me that it would be taken care of.

I believe that construction could have cleaned the area up without removing the forms if they did it a certain way, wherein one of the construction people would have to go into the dirty area with a bucket and clean the debris out by hand. This may have taken extra time. B1 spent about 2-1/2 to 3 hours inspecting the area.

I worked for B1 about 4 to 6 months, and to the best of my knowledge he has always been honest with me.

I saw A35 talking to B1 after I finished my inspection. Also, I saw A50, A56, and B17 of construction at the site (lift 5). I recall that these construction personnel appeared to be very upset and wanted to make the placement as soon as possible (if QC approved).

I do not know of any defective structures or materials used during the building of this site. Also I do not know, nor am I aware, of any false records maintained or executed at this site.

I have read the foregoing statement consisting of 1 typewritten page. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A49

SUMMARY OF STATEMENT BY A50 AT SOUTH TEXAS PROJECT

In the fall of 1979, while making a placement, I was notified by A3 that the tremies were too short. When I realized the problem I ordered the foremen to stop the placement. I was not aware that QC inspections had asked the foreman to stop the placement before it was brought to my attention. Later during a post placement meeting at which time we were discussing the placement, A3 overheard my description of the problem that occurred on the placement when it was stopped. A3 stated words to the effect, "No, that's wrong." I then got mad, lost my temper and said to A3 words to the effect "Don't call me a liar or I'll come across the table ..." I did not continue this statement.

Last year I recall that I learned that a placement (forms) had moved after concrete was placed. I arrived at the scene and to the best of my knowledge, the concrete foreman and QC inspector agreed to place two 24" lifts on a 4' lift instead of 18" lifts. When I arrived I took immediate corrective action and checked the placement to insure that it was completed correctly. After A35 arrived, I told A35 that construction was responsible for what had happened and not necessarily A1.

Also, I recall that during the spring of 1979, A1 and A2 claimed that the concrete that was being placed was freefalling in excess of five feet and that the vibrators were moving concrete more than the allowable five feet. (Presently, it is okay to move concrete over five feet.) I called A30 to the placement site and told him that neither A1 nor A2 had measured the distance. A30 agreed with me and the placement was allowed to stand. I do not believe that the lateral movement was more than five feet.

In the fall of 1979, while placing concrete in Unit 2, a QC inspector told me not to get ahead of other adjacent lifts. I told the QC inspector that I knew how to place concrete. I called B7 over and discussed the situation with him. I do not recall if the placement was stopped before or after B7 arrived. However, I did stop the placement and conformed to the engineering specifications, of which I did not have a copy.

In the fall of 1979, I recall that a QC inspector signed off a pre-placement card. I then ordered the concrete. Later after the concrete arrived I learned from the same QC inspector that had signed the pre-placement card that the placement QC Inspector would not be arriving for about 20 minutes. I then asked the present QC Inspector if he would watch the placement, at which time he said "no." I then called A35 on the phone, told him the problem and asked him for support. A35 said to put the QC inspector on the telephone, which I did and as a result the QC inspector watched the placement, until the placement QC inspector arrived.

Whenever a foreman or general foreman is hired by B&R, who does not have nuclear construction experience, then that person should be sent to an indoctrination school to learn about QC specifications, the Nuclear Regulatory Commission, and the importance of building safety into the job. It took me a couple of years to learn about all these things.

I now realize that I have not always followed the chain of command in the past when dealing with QC inspectors and other inspectors, and I believe that this can create problems. I now believe that a chain of command should be followed by all foremen, and all personnel on the site and should be supported by all management level personnel.

I also recall an incident that happened wherein PTL had started to refuse to accept concrete loads from the Champion Concrete Company. I believe it was a problem between the PTL QC inspector and the Champion personnel in that the PTL inspector was allowing a personal problem to interfere with construction. I questioned the PTL QC inspector and received a smart answer, lost my temper and said words to the effect... "Long hair hippie, I could kick your ass". The comment I made to him was wrong and we got together later and straightened things out. This problem between PTL and Champion is one that has occurred over a two week period, and needed to be resolved before it affected the quality of construction.

I have read the foregoing statement consisting of two typewritten pages. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A50

SUMMARY OF STATEMENT BY A52 AT SOUTH TEXAS PROJECT

The investigator has asked me if I know of any problems concerning the QC program at the STP Project. I would like to state that generally QC inspectors have only limited problems with the construction personnel but have numerous problems with the QC management in the area of receiving support.

In the fall of 1979, some Cadwelds were rejected on various personnel (Cadwelders). As I recall there were two bad Cadwelds in a series of 15 splices. B&R procedures (2A010CS028, paragraph 5.3.3.6) state that Cadwelders who make 2 or more bad Cadwelds should be requalified. QC inspectors pointed this out to A33, on a NCR, at which time he was told that until the disposition is received from B&R in Houston, the Cadwelders should not continue to splice. A33 decided that he would disregard the QC directive and I was told to flag each splice but not to do a final inspection, until the reply from B&R Houston was received. As it turned out the resolution was in favor of the splices, but my concern is that Cadwelders will continue to operate regardless of restrictions placed on them by QC inspectors.

Another example of lack of QC support to the QC inspectors occurred at the containment dome shell wall. I rejected the weld because I was not informed that witness marks on a 12" spacing was exceeded by 1". The B&R procedures state that I should be notified. I discovered the excess during my inspection and rejected the weld, because I could not determine the spacing between the rebars. Later about 4 to 5 days, A39 told me that he had talked to A33 and that the weld appeared to be OK, because A33 claimed that I was notified of the excess. At this time A39 told me to sign off on the weld, which I did. I knew that A39 and A35 were close friends and it would be of no use to complain. I personally feel that the weld is OK, but my concern is the lack of support of my management when it comes down to my word and the welders' words.

I am not aware of any defects to structures, materials, and have no knowledge of any altered records.

I have not been threatened or harassed by anyone on this job site, nor do I know of anyone who has, during my presence.

In my opinion there may be some construction foremen that are not fully qualified.

I have read the foregoing statement consisting of 1 typewritten page. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief.

Signature by A52

APPENDIX 3

SUMMARY OF RESULTS OF INTERVIEW WITH A8 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A8 stated that he had attended a QA meeting in November 1979 and that the meeting had gotten out of hand. There were a lot of questions, many repetitions, and many gripes. He thought some of the inspectors were demanding respect from Construction when it really must be earned.

A8 considered the quality of work at this site to be as good as at other sites where he had worked.

A8 expressed two concerns relative to construction defects: (1) he had noted vertical cracks in structural steel clips in RCB-1, E1.36, Boron Injection Room FA. He thought that this had been reported to QC on November 7, 1979; (2) he had observed a weld defect approximately 1/4-inch deep in a pipe sleeve weld at azimuth 300, E1.8 in RCB-1 near work panel 15.

A8 stated he was not aware of:

- A. Any threats or intimidation.
- B. Any defective structures, components, or materials except as stated above.
- C. Any altered records.

End of Summary of Results of Interview of A8.

SUMMARY OF RESULTS OF INTERVIEW WITH A10 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A10 commented that he believes that QC concrete placing inspectors should be provided with two-way radios when observing a placement. In addition, A10 stated that a copy of blueprints and specifications should be located in the field. A10 remarked that the method of processing an NCR is as follows:

1. He writes an NCR in rough draft.
2. His supervisor (Lead QC inspector) must approve the draft NCR.
3. The draft NCR is then forwarded to the QC supervisor who then, if he agrees, will serialize the NCR.
4. If the draft is disapproved, then it is thrown away.

A10 stated he was present when A40 said at a recent meeting, "I get hollered at every day. You are at a construction site not in an office environment. The NRC is getting tired of petty complaints."

A10 feels that the curing of concrete is not controlled.

He also gave one instance where he questioned the effectiveness of the curing inspector. Dry concrete noted during curing inspection is not written up on an NCR because the specification allows adding days to the required curing period.

A10 witnessed one instance where an inspector held up a concrete placement because the mud had not been cleaned off the stainless steel as required by procedure. Construction supervisors came to the scene as well as an engineer and they said it did not matter. The inspector still refused to sign off the placement. A10 remarked that they argued so long that the time limit for ordering concrete had expired and as a result they had to scrap the placement. He believed it would have taken only a few minutes to clean the steel but Construction was too stubborn to clean it.

A10 stated that he heard A40 threaten to fire inspectors who constantly refuse to sign off placements. A10 felt that inspectors should have a way to question conditions differing from design.

A10 felt that FREAs and NCRs are being used interchangeably thereby allowing the writing of NCRs to be avoided.

A10 stated he was not aware of:

- A. Any threats or intimidation.

- B. Any defective structures, components, or materials not previously reported and investigated by NRC.
- C. Any altered records.

End of Summary of Results of Interview of A10.

SUMMARY OF RESULTS OF INTERVIEW WITH A12 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A12 explained that during a September 1979 vendor surveillance he assisted in the inspection at Capital Pipe Company in Pearland, Texas. At this time, A12 stated he observed possible irregularities wherein a marker possibly containing halogenic material was used on stainless steel. In addition, he also observed sloppy storage, wherein carbon steel was stored in contact with stainless steel. A12 remarked he advised his supervisor of these observations who in turn notified the vendor. A12 advised that he overheard the vendor instruct an employee to "clean up the pipes before shipment is made." A12 knew of no other irregularities.

A12 stated he was not aware of:

- A. Any threats or intimidation.
- B. Any defective structures, components, or materials.
- C. Any altered records.

End of Summary of Results of Interview of A12.

SUMMARY OF RESULTS OF INTERVIEW WITH A13 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A13 advised that during a vendor surveillance (Capital Pipe Company, Pearland, Texas) he witnessed a few markings potentially containing halogenic material on stainless steel and reported this to his supervisor and the situation, to the best of his knowledge, was corrected. A13 stated he also observed stainless steel and carbon steel stored together (touching), but advised that a plastic bag holding the stainless steel had broken open and some of the stainless steel items had come in contact with carbon steel items. A13 stated he reported this immediately and the vendor agreed to correct the situation. A13 advised that to the best of his knowledge a vendor surveillance report was written which is filed in Houston.

A13 remarked he is not aware of:

- A. Any threats or intimidation.
- B. Any defective structures, components, or materials.
- C. Any altered records.

End of Summary of Results of Interview of A13.

SUMMARY OF RESULTS OF INTERVIEW WITH A19 at SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A19 stated he opens the majority of shipments received from various vendors and is responsible for getting them properly stored. A19 recalled opening shipments from Capital Pipe Company and on a few occasions had found stainless steel and carbon steel items packed together. A19 stated that when this occurs he immediately returns the shipment to the company. A19 claimed that most of the time stainless steel and carbon steel items are packaged in separate boxes.

A19 stated he was not aware of:

- A. Any threats or intimidation.
- B. Any defective structures, components, or materials.
- C. Any altered records.

End of Summary of Results of Interview of A19.

SUMMARY OF RESULTS OF INTERVIEW WITH A20 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A20 stated that during the summer of 1979, he observed a number of construction personnel spending too much time in the air-conditioned shacks. A20 claimed that he decided to go into all of the shacks and determine if he needed to pull the air conditioners out in order to get the personnel out on the job site. A20 remarked that while going to the shacks on site he also entered the quality control department shacks. A20 pointed out that he removed air conditioners from various shacks where he thought it was appropriate. A20 could not recall if he pulled any air conditioners out of QC shacks.

A20 stated that it is not the policy or the position of B&R to encourage intimidation, threats, or harassment toward anyone in order to get the job completed. He maintained that when incidents of threats have happened and that have been brought to his attention he has taken proper action by either terminating the individual or warning him that threats would not be tolerated by himself or other management personnel.

A20 stated he was well aware of the chain of command of construction and QC personnel and stated he was unaware of anyone bypassing their supervisor and dealing directly with supervisors in other departments and/or disciplines. He explained when construction and quality control personnel have a conflict and cannot resolve their differences, then the matter is forwarded to the design engineers in Houston, Texas, where it will be resolved. A20 stated that the design engineering representatives located on the site are not a sufficient staff for the amount of NRCs and FREAs generated and are therefore bypassed.

In response to questioning, A20 said there was considerable pressure on cost and scheduling; overall, he felt QC was doing a good job but some inspectors lacked experience.

A20 stated he was not aware of:

- A. Any threats or intimidation other than mentioned above.
- B. Any defective structures, components, or materials.
- C. Any altered records.

End of Summary of Results of Interview of A20.

SUMMARY OF RESULTS OF INTERVIEW WITH A22 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A22 stated that the method of processing an NCR is as follows:

1. He writes an NCR in draft form.
2. The NCR is then submitted to the QC Supervisor's secretary for typing and to be serialized.
3. The draft NCR is thrown away.

He stated that he is not aware that he has stop work authority.

He stated that he has seldom seen Brown & Root QA personnel in the field. He also stated that typical drawings are occasionally a problem.

A22 stated he was not aware of:

- A. Any threats or intimidation.
- B. Any defective structures, components, or materials.
- C. Any altered records.

End of Summary of Results of Interview of A22.

SUMMARY OF RESULTS OF INTERVIEW WITH A25 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A25 stated that there is some mistrust of the NRC because he heard that B18, a former QC inspector, had told an NRC inspector something about voids in concrete. A25 was unaware that this had been investigated, because he had never seen an NRC report. He also thought B18 had never seen the NRC Report. A25 said that some inspectors are reluctant to talk to the NRC because of this.

A25 claimed in the fall of 1979, he performed surveillance and found that concrete QC inspectors did not know about stop work authority and were afraid to stop placements. The surveillance also identified there were no stop work procedures. He implied that he had recently turned in a surveillance report that identified significant findings, but could not provide any details.

A25 stated there is no traceability after materials (embeds) reach the lay down yard.

A25 stated he had been told that the PSAR was no longer in effect. A25 stated that an audit identified problems with the polar crane but that the findings were ignored.

(A25, after extensive interview, could not provide any further pertinent information amplifying details of the above comments).

End of Summary of Results of Interview of A25.

SUMMARY OF RESULTS OF INTERVIEW A26 AT BROWN & ROOT, INC., HOUSTON, TEXAS

Prior to the interview the NRC investigator and inspector properly identified themselves.

A26 recalled a vendor surveillance of the Capital Pipe Company, Pearland, Texas conducted September 24-28, 1979. A26 explained that a number of problems were identified during the surveillance including the storage of stainless steel and carbon steel together. A26 provided a copy of the B&R corrective action report and the Vendor Surveillance Report for Capital Pipe Company. A26 emphasized that no items with identified deficiencies were released for shipment from Capital Pipe Company during this time frame, adding that corrective action by the vendor would have to be accomplished and inspected again by B&R before shipment.

A26 stated he was not aware of:

- A. Any defective structures, components, or materials being shipped to STP.
- B. Any altered records at STP or B&R Houston offices.
- C. Any threats or intimidation by B&R or HL&P employees.

End of Summary of Results of Interview of A26.

SUMMARY OF RESULTS OF INTERVIEW WITH A28 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A28 stated that the B&R training classes that he conducts usually last about four to five days depending on the engineering discipline involved. A28 maintained that included in his instructions to concrete inspectors is an explanation of the QC inspectors' temporary stop work authority. A28 also maintained that he emphasized to each QC civil inspector that:

1. They must know their scope and purpose.
2. They will be working alone on many occasions.
3. That there will be times when no support from their management (supervisor) is immediately available.
4. That many times construction personnel will not agree with them and they will have to prove their position to construction personnel without support from their supervisors.

A28 remarked he did not explain why QC inspectors would be acting alone but reasoned that one supervisor cannot be at 20 or 30 activities at one time and that experienced QC inspectors would know this.

A28 commented that one way to bring QC in closer contact with their supervisors would be to utilize two-way radios, operating on a separate channel.

A28 stated he was not aware of:

- A. Any threats or intimidation.
- B. Any defective structures, components, or materials.
- C. Any altered records.

End of Summary of Results of Interview of A28.

SUMMARY OF RESULTS OF INTERVIEW WITH A29 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A29 stated that a large number of NCRs are written because of, in his opinion, poor design of the spent fuel pool liner. A29 explained that NCRs are written in the rough and if approved by QC supervisors they are serialized. However, if the draft is not approved then the draft is destroyed.

A29 stated he was not aware of:

- A. Any threats or intimidation.
- B. Any defective structures, components, or materials.
- C. Any altered records.

End of Summary of Results of Interview of A29.

SUMMARY OF RESULTS OF INTERVIEW WITH A32 SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A32 stated that the method of processing an NCR is as follows:

1. He verbally informs his lead QC inspector of the problem.
2. If the lead agrees with the inspector, then the lead inspector writes an NCR and submits it to the QC supervisor.
3. If the lead disagrees, then nothing is written.

A32 remarked he was not aware of:

- A. Any threats or intimidation.
- B. Any defective structures, components, or materials.
- C. Any altered records.

End of Summary of Results of Interview of A32.

would sign off placements, because it is undermining his authority and credibility. A35 claimed that A50 agreed to talk to his men.

A35 remarked that he was also aware that a construction person, A33, had disregarded a written NCR and continued to allow Cadwelding by Cadwelders requiring requalification.

A35 commented that a construction person, A20 attempted to apply pressure to the QC program by trying to remove air conditioners from QC spaces, however, this approach was unsuccessful.

A35 described another example of pressure by construction personnel on inspectors is the scheduling of the placement of concrete. Construction would give notice that a placement was ready to be inspected. After QC had inspected the placement and signed the pour card, the concrete was ordered. However, before the concrete arrived, anywhere from three to 24 hours later, the inspector would identify additional problems or discover that someone had inadvertently changed or altered forms or dropped debris into the placement. Construction would try to pressure inspectors to accept these conditions because of the time and money it would cost to correct the situation. If construction was unsuccessful and the placement was stopped, then it always seemed to be QC's fault.

A35 recalled an incident that occurred on RCB-2 shell wall lift #5, wherein a QC inspector refused to sign off the lift as clean, claiming the lift was dirty. A35 remarked he went to the lift to try and resolve the issue, pointing out that the concrete had to be ordered within a few hours and a large number of construction personnel including construction top site management were standing by to begin the placement. A35 claimed that he personally checked out a couple of suspected dirty areas, and had them cleaned out, however, he added that even with a number of QC inspectors assisting him the lift was not 100% checked out. A35 indicated on a sketch the area that neither he nor his assisting inspectors had inspected. This area was approximately between azimuths 130 and 160 degrees. A35 stated that he signed off the necessary documents to get the placement underway due to the critical time frame for ordering the concrete. A35 added that one of the QC inspectors, B1, walked off the placement site after claiming there were numerous dirty areas remaining. A35 explained if the same type of situation occurred again he would not sign off the placement, but would have notified his supervisor.

A35 remarked that about eight months ago A1 had allowed construction personnel (A45) to place a complete 24-inch lift instead of the specified 18-inch lift and the placement forms started to shift. He stated he immediately went to the area and emphasized to A1 that he was to follow the specification and not to be swayed by A45.

A35 pointed out that A45 has tried to make placements incorrectly in the past and maintained that he (A35) personally went to A54, a HL&P supervisor, and complained that A45 has been identified by his inspectors as a foreman that

cannot be trusted, adding that in the past A45 has knowingly violated procedures and specifications when no one was observing and has just recently started to violate procedures and specifications directly in front of the inspectors. A35 cited examples of excessive freefall, lateral movement, placement rate, and overvibration. A35 remarked that A54 indicated that A45 was very close to being removed from the site.

A35 advised that A45, A50 and A53 are all still present.

A35 admitted that during mid-November 1979, after NRC began this investigation, he made the comment, "after NRC is finished investigating, we need to get rid of some people." A35 emphasized that his intention was to get the message across to people that if they were not performing their jobs in the proper manner they would be relieved. A35 said as a supervisor he is not responsible for the way people interpret his comments, explaining he does not have time to explain his comments to everyone.

A35 denied he ever told anyone to keep their mouth shut when talking to NRC. A35 maintained that all of his QC inspectors should be aware of their temporary stop work authority, because they are taught this in their training sessions. He stated that he has stopped more placements than anyone else since 1977.

A35 advised that the lack of two-way radios for his inspectors does cause a problem, but it is a problem that inspectors work around. He stated radios have been requested, but that the client turned the request down.

A35 stated that he supports his inspectors at all times when they are right and pointed out the large number of NCRs that are written as an indication of his support. A35 stated that NCRs made in draft and if not approved and serialized, they are destroyed.

A35 stated that he was familiar with the problem that occurred between A50 and A14. A50 was trying to get a placement inspector to the area to keep from holding up a placement. A50 called me and told me that he wanted A14, and an inspector, to stay for 15 minutes and watch the placement since it was ready to begin. A35 acknowledged that he was not A14's supervisor but had ordered A14 to stay, and felt if A14 misunderstood the intent he could not help that. A35 explained that his intention was to provide inspection so the placement could begin - not to side with A50. The way A50 went about it was not correct. I support my people but I can't support them when they are wrong.

A35 stated that B&R Procedure GCP-21 had caused inspection problems because this makes the engineer "God." The site PSE (site design engineer) makes the final decision on interpretations. He stated that he did not know if this was detrimental to the quality or safety of the structures. All quality control does is inspect per drawings and specifications. There is no formal system to require the PSE to give quality control an answer or feedback in writing.

A35 stated he knows of no material traceability problems since traceability to receiving is all that is required by the Code.

A35 stated that punchlists are to be used by construction engineering and quality control but he felt that quality control ends up putting down most of the problems. Most of the "weight" is on QC inspectors not on construction to perform good work.

A35 recalled that on one occasion B20 and B21 were the inspectors on RCB-1, a shield wall placement where no lights had been installed by the electricians. A50 came to A35 and asked that the placement be stopped because of the lighting. Toward the end of this placement, the pumping equipment broke down and stayed down for two hours. The concrete left in the lines was low slump and dry. The inspectors saw concrete crewmen beat the lines to free up the flow of concrete when the pumping resumed. One of the problems was the vertical rebar. It had been run up too far ahead and this prevented detection of problems and proper consolidation. He stated that he contacted the inspectors after the placement and they reported everything was alright. Because the QC inspectors did not document the above problems on the examination checklist, the QC inspectors received three days suspension for inadequate inspection practices.

A35 stated he had never instructed inspectors not to go to the NRC. In fact, claimed that he personally had made reports to the NRC by calling Arlington, Texas.

A35 stated that A5 is an inspector who needs to be fired because he makes \$9.50/hr., but can hardly do Level I work, yet, makes more money than Level II inspectors who are more highly qualified.

A35 stated he was not at the first QA meeting held by A40 on November 9, 1979. He claimed he was at the second meeting on that same day and recalled A40 remarked that the NRC is getting tired of getting involved with inspectors bringing in petty things and said they should go through the chain-of-command first and then go to the NRC if supervisors do not solve the problem. A35 said he did not hear A40 say that he would find out who was talking to the NRC. A35 indicated there were about 50 people at the meeting.

A35 stated that getting qualified people is a real problem since many sites in more desirable locations pay more. This is evidenced by the high turnover rate.

A35 stated that a major problem exists with construction management; that they only think of quality as a necessary evil and emphasized that this is true at least up to A20's level, if not further. There is much controversy over cost overruns and not meeting schedules.

A 35 advised he was unaware of any defective structures, components, or materials or any altered or false records.

End of Summary of Results of Interview of A35.

SUMMARY OF RESULTS OF INTERVIEW WITH A36 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A36 explained that the method of processing an NCR is as follows:

1. The inspector writes the NCR in draft form.
2. The NCR is reviewed by engineering.
3. If engineering approves the draft, then the draft is serialized.
4. If engineering does not approve, then the draft is returned to OC inspector, marked disapproved and filed.

A36 remarked that because of the large amount of NCRs written over the year that, presently, emphasis is now placed on writing corrective action reports (CARs). Under this system, CARs must be answered in 10 days and then they are filed. A36 stated that there are no instructions as to what action to take on CARs over 10 days old and as a result they just stay in the files.

A36 stated that former QA/QC supervisors had disapproved the submission of A36's NCRs in the past but has received support recently on NCRs written.

A36 explained that his repeated request for assistance in the area of direction and guidance from QC management has not resulted in any support.

A36 believes there are problems with electrical/mechanical penetrations, however, A-36 did not specify details of the problem.

A36 believed that there are megger test problems because electricians do not understand the test.

A36 explained that he had received a threat in the past, but the NRC had investigated the incident and the individual who made the threat had gone out of his way to be nice since the incident.

A36 was not aware of:

- A. Any defective structures, components, or materials.
- B. Any altered records.

End of Summary of Results of Interview of A36.

SUMMARY OF RESULTS OF INTERVIEW WITH A37 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A37 stated he and two other inspectors are currently working on straightening out Cadweld records. A37 advised that some Cadweld locations were not recorded on records adding that the Cadweld records system was not the best since some inspection records may be lost. A37 pointed out the number is quite small considering 37,000 Cadwelds had been made to date. He stated he knew of no cases where records had been falsified.

A37 stated that in August 1979, a controversy had developed between QC inspectors and construction over poor lighting and congestion during a placement in the reactor building. A37 advised that the QC supervisor overrode the QC inspector and signed off the placement, and this has led to a feeling among the QC inspectors that QC management is nonsupportive.

A37 was unaware of threats or harassment of QC inspectors.

End of Summary of Results of Interview of A37.

SUMMARY OF RESULTS OF INTERVIEW WITH A38 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A38 stated that all incoming items at the B&R warehouse are inspected and stored properly. A38 remarked that he inspects all items that are issued and to the best of his knowledge he has not issued any defective items. A38 explained that he has discovered improper or defective items and has segregated them in an isolated area and executed an NCR in accordance with site procedures. A38 stated he had written an NCR regarding Capital Piping Company of Pearland, Texas concerning markings potentially containing halogenic materials on stainless steel items.

A38 stated he was not aware of:

- A. Any threats or intimidation.
- B. Any defective structures, components, or materials at STP other than the ones he has identified.
- C. Any altered records.

End of Summary of Results of Interview of A38.

SUMMARY OF RESULTS OF INTERVIEW WITH A39 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A39 stated that there had been problems with the capping of tendon sheathing (part of the containment post tensioning system). He stated that the problem had now been solved. A39 said he would take a little harder line than some inspectors. He indicated that the specification had been changed to provide for alternate means of sealing the sheathing.

A39 stated that the November 9, 1979 Q₁/QC meeting was mostly a gripe and bitch session.

A39 remarked that he had not been advised by any supervisor that inspectors would be "canned" if they talked to the NRC. However, A16 had complained to him of receiving a phone call from A35 who indicated that if inspectors talked to the NRC they would be "canned."

A39 believed that there should be a formal method of documenting minor deficiencies. He said that the present examination checklist was not properly doing the job.

A39 stated he believes in backing up his men, and that he has received very good support from his supervisor (A35) although they did not always agree.

A39 stated he had not been threatened but had heard that there had been many confrontations with construction. A39 stated he knew of no falsified or altered records.

A39 stated that in October 1979, A33 had refused to stop work (Cadmium welding) after A52 discovered a possible specification violation. A39 explained that an NCR was written concerning this matter and about six weeks later the NCR was resolved. A39 expressed concern over the fact that A33 refused to stop work when confronted by QC supervision and a written NCR.

End of Summary of Results of Interview of A39.

SUMMARY OF RESULTS OF INTERVIEW WITH A41 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A41 stated he has not been threatened, but routinely gets a lot of static from construction. A41 remarked he will not sign off on an inspection until requirements have been met. He stated that his supervisors sometimes sign off over his objection when it is a matter of interpretation. A41 explained that A35 is his civil QC supervisor.

A41 stated he witnessed an incident in August or September 1979 in the MEAB #2 when B19, rebar general foreman, knocked off A27's hard hat because A27 put an item on the punchlist. A27 reported it and the foreman was counseled by his management. He believed this incident was caused by pressure to place concrete.

A41 stated he received adequate support from his supervisors.

A41 stated he is required to write an unnumbered draft NCR and to submit it to his supervisor for proper disposition.

A41 stated he was not aware of:

- A. Any defective structures, components, or materials.
- B. Any falsified or altered records.

End of Summary of Results of Interview of A41.

SUMMARY OF RESULTS OF INTERVIEW WITH A42 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A42 stated that he is responsible to ensure that all mechanical work under his discipline is performed in accordance with procedures, in order to build a safe plant. A42 remarked he regularly visits the field to personally observe the work and also relies on four personnel in his department to visually observe the construction.

A42 stated that he knew the weld rejects rates were high but did not feel they were any higher than at other plants. He stated he was aware of the difficulty in attracting and retaining good welders at South Texas Project.

A42 stated he was not aware of:

- A. Any threats or intimidation.
- B. Any defective structures, components, or materials.
- C. Any altered records.

End of Summary of Results of Interview of A42.

SUMMARY OF RESULTS OF INTERVIEW WITH A43 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A43 stated it is not uncommon for construction (concrete) personnel to swear at him or other QC inspectors when they are told to halt their work for corrective action. A43 explained that experienced QC inspectors should expect strong words from construction, but it should not affect the quality control work. A43 stated problems with construction are just part of the job.

A43 advised that the method of processing an NCR is as follows:

1. The inspector writes a rough draft.
2. The draft is then sent to a QE (quality engineer).
3. If the QE approves the draft, then the draft is sent to the QC supervisor for a serial number and typing.
4. If the draft is not approved, it is returned to the inspector and discarded.

A43 recalled a meeting in early November 1979 that he attended along with other QC inspectors, wherein A40 stated words to the effect that the NRC is tired of hearing complaints and implying that they would know who went to the NRC and that some type of action would follow. A43 remarked he just wanted to do his job and to stay out of the way of management.

A43 stated this is the worst job he had even been on, as far as turnover is concerned. He stated he worked at several nuclear projects.

A43 stated there are many in-house problems between managers, claiming A35 and A40 are the biggest problems in QA/QC. A43 did not specify or detail the problems, however, he added that A35 was a good inspector.

A43 stated he was not aware of:

- A. Any threats or intimidation not reported to NRC.
- B. Any defective structures, components, or materials.
- C. Any altered records.

End of Summary of Results of Interview of A43.

SUMMARY OF RESULTS OF INTERVIEW WITH A46 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A46 stated that he makes daily trips to the field to observe construction progress to ensure that all procedures are being followed. A46 explained that in the past six months only three or four site discrepancy memos (SDM) had been written by him or his department. A46 claimed that he has never identified a SDM but has been notified by B&R personnel of discrepancies and took immediate action. A46 remarked he spends much of his time trying to resolve problems with B&R counterparts before they become discrepancies.

A46 commented that during the RCB-2 shell wall Lift #5 controversy over whether or not the lift was clean, only the QC inspector(s) originally identifying the foreign material could have known where all the debris was located, unless the lift was 100% inspected by other inspectors.

A46 stated that A20 told him about an anchor bolt problem. This problem was audited and traceability was found to be a problem, and is documented in a report to HL&P.

A46 stated he was not aware of:

- A. Any threats or intimidation.
- B. Any defective structures, components, or materials at STP that were not reported.
- C. Any altered records.

End of Summary of Results of Interview of A46.

SUMMARY OF RESULTS OF INTERVIEW WITH A47 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A47 stated that whenever construction falls behind in placing concrete, that QC inspectors seem to always get the blame. This feeling is expressed at upper management level meetings and in general conversations.

A47 feels that the two major problems are as follows:

1. Improper scheduling between the construction and QC departments, explaining there is no liaison between the two.
2. A lack of understanding by construction personnel of the specifications that QC inspectors must inspect against. A47 stated recently he held a small training meeting with some of the construction general foremen and foremen where he provided a brief explanation of QC specifications. The construction personnel were surprised at the QC specification requirements. A47 suggested that additional training sessions for construction personnel (supervisory) in the area of QC procedures and specifications would give them a better understanding of the mission of QC and of NCRs.

He stated that poor scheduling has been a problem since the beginning of the project because construction always says they are ready when they are not. A47 believed that at one time QC had a 24-hour period to do their inspection. However construction scheduling pressures gradually reduced this inspection period.

A47 stated he was not aware of:

- A. Any threats or intimidation not reported or investigated by NRC in the past.
- B. Any defective structures, components, or materials.
- C. Any altered records.

End of Summary of Results of Interview of A47.

SUMMARY OF RESULTS OF INTERVIEW WITH A48 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A48 advised he attempts to get out into the field once a day explaining his job is to ensure that B&R engineering, construction and QA/QC departments are conforming to required specifications, procedures and codes.

A48 stated that he feels that B&R has an effective QA program and does not believe that construction personnel would actually threaten QC personnel. A48 remarked he has heard rumors of threats but has disregarded them and did not investigate or report these things to this supervisor.

A48 claimed he personally, within the past month, reviewed the B&R NCR program and found it to be working correctly. A48 remarked he went to the B&R QC supervisor and asked if any problems existed in the NCR program and he was assured that everything was working well. A48 observed NCRs being typed and serialized and is confident that the procedures are being followed.

A48 stated he was not aware of:

- A. Any threats or intimidation.
- B. Any defective structures, components, or materials.
- C. Any altered records.

End of Summary of Results of Interview of A48.

SUMMARY OF RESULTS OF INTERVIEW WITH A51 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A51 stated he had observed falsification of records relative to grouting of the lower lateral support secondary shield wall, Unit No. 1. B7 recorded the temperature of the grout without actually taking the temperature. A51 informed his supervisor and the man got chewed out and a letter was placed in his file. B7 later quit and went to another job.

A51 was familiar with the problem of QC inspectors refusal to sign inspection records on a Unit 1 west secondary shield wall blackout placement. He was involved and stated that the problem was inspectors said they could only see the upper three feet of a ten (10) foot wall placement. One foot was placed before the problem was corrected. Holes were cut at the bottom so inspectors could see.

A51 stated he had heard the nickname for the QC person who seemed to side with construction but did not agree with the implication.

A51 knew of no threats or harassment first hand.

End of Summary of Results of Interview of A51.

SUMMARY OF RESULTS OF INTERVIEW WITH A53 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A53 advised that recently he was preparing to make a large concrete placement and had previously answered three NCRs to the satisfaction of QC inspectors. A53 explained that shortly before he was ready to place concrete he received another NCR from A17. A53 admitted he lost his temper and threatened A17 by stating, "I ought to stomp your ass." A53 explained that he did not intend to hurt anyone but was frustrated in not being able to make the placement. A53 said, "I had A20 and 2000 yards of concrete on my back." A53 remarked that he does not harbor any ill feeling towards A17 and indicated he has never lost his temper and threatened people in the past, adding he is sure that he won't in the future.

A53 concluded that the STP construction is much more difficult than the Comanche Peak construction, stating that STP does not have as many highly skilled personnel as Comanche Peak, and therefore the man hours/cubic yard of concrete is higher than previous projects.

A53 pointed out that many STP laborers are Mexican-American or other nationalities and do not speak or understand English as well as the laborers at Comanche Peak. A53 stated that field construction personnel (workers) should be trained so they would know QC's function.

A53 stated he was not aware of:

- A. Any threats or intimidation other than mentioned above.
- B. Any defective structures, components, or materials.
- C. Any altered records.

End of Summary of Results of Interview of A53.

SUMMARY OF RESULTS OF INTERVIEW WITH A54 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A54 remarked that he feels that the QC program of B&R is effective and is working appropriately. He stated that HL&P QA department is effective and is sensitive to the problems in building a plant of this size.

A54 stated he is aware of the threats by A50, however, is confident that B&R management has given him proper counseling. A54, when told by NRC of five suspected threats by B&R construction personnel towards B&R QC inspectors, explained he was not aware of all threats, however, added that he did not believe they will have any effect on the B&R QC program.

A54 commented, a few months ago he approached A35 and asked him if the QC program personnel were having any trouble with construction personnel. A54 stated that A35 answered him claiming that A45 could not be trusted to place concrete to meet specifications, however, adding that they were keeping a close eye on him. A54 advised he was not aware that A45 is involved in about 90% of the complex placements on the interior shield walls.

A54 further claimed he was unaware of any bypassing of supervisors into other departments or areas and was also unaware of any irregularities concerning the processing of B&R NCRs.

A54 remarked that he felt that the plant is being built safety and correctly, and that his personnel are keeping him informed of pertinent information.

A54 concluded that both the B&R Construction and QC management have kept him informed of problems of interest to him.

A54 stated he felt that the B&R QC people go to the NRC to get something they want that they otherwise would not be able to get. When asked, A54 was unable to give an example.

Other than as noted above, A54 is not aware of any threats or intimidations at STP, any defective structures, components, or materials at STP; or any altered records at STP.

End of Summary of Results of Interview of A54.

SUMMARY OF RESULTS OF INTERVIEW WITH A55 AT SOUTH TEXAS PROJECT (TELEPHONIC)

Prior to the interview the NRC investigator properly identified himself.

A55 explained that he was formerly employed by Brown & Root in Houston, Texas. A55 advised that by education he is an engineer, however, when working for Brown & Root he was considered an expert in cost accounting and overruns. A55 advised that he worked as a technical assistant to the senior construction manager for all of Brown & Root projects. A55, when asked if he had any knowledge of any irregularities concerning the construction site of the South Texas Project, answered by stating that his concern is with the cost overruns only, claiming that in his opinion, they are the worst in America. A55, when asked for specific details, advised that "This is none of NRC's business." A55 declined to provide specific details of this problem explaining that it is a Brown & Root internal problem. He repeated that it was none of NRC's business and he did not want to comment further. A55 did comment that he felt that the NRC was in error in requiring background experience only for QA and QC personnel, but not for construction workers/laborers (male and female). A55 did not elaborate on this comment but felt that the NRC should require equal background experiences in all areas of construction as well as in the QA/QC program.

End of Summary of Results of Interview of A55.

SUMMARY OF RESULTS OF INTERVIEW WITH A56 AT SOUTH TEXAS PROJECT

Prior to the interview, the NRC investigator and inspector properly identified themselves.

A56 advised that he was aware that one of his personnel, A50, had made two threats to quality control inspectors in November 1979. A56 explained that on the first occasion, he had counseled A50 and told him that this type of action would not be tolerated. A56 advised that his boss, A20, had counseled A50 on the second incident. A56 further commented he was aware that A50 had bypassed his own chain of command as well as the quality control chain-of-command and had also counseled A50 that this type of activity would not be tolerated. A56 admitted that A50 may have followed his example, explaining that in the past, when he was a superintendent, he (A56) confronted various QC inspectors personally and went directly over their heads to the QC inspector's supervisor in order to get the inspector to change his mind on a question concerning concrete. A56 quickly pointed out that QC supervision has complained to him on at least two occasions of using rough language towards QC inspectors and in swearing in their presence in order to get the inspectors to change their minds. A56 admitted that his conduct was not proper and had assured QC supervisors that he would refrain from this type of activity in the future.

A56 remarked that A50 had probably picked up some of his habits but pointed out that A50 is one of the best men he has ever had working for him. A56 explained that he has not put out any policy or directions to his general foremen or foremen to ignore QC inspectors or to bypass their chain-of-command. He claimed that he had conducted a meeting with his personnel about temper flares, indicating to them that loss of tempers would not be tolerated on-the-job. A56 denied the rumor wherein construction personnel were told to either hit QC inspector with vibrators or drop concrete on them to get rid of them and get them out of the way. A56 stated that A45 conducts about 75% of the complex placements on the site adding that he has not received any complaints about his (A45's) work. A56 commented that during a concrete placement that his foreman must be present during the placement and that if any foreman walked away from the placement, that would be grounds for termination. A56, when reminded that one foreman identified as A45 had walked away while a placement was in progress, quickly explained that that particular incident was caused by one of his superintendents calling a meeting and requiring A45 to be present. A45 was merely following orders. A56 advised that he has since asked his personnel not to conduct any meetings that require foremen or general foremen to leave a concrete placement that is in progress. A56 was not aware of any altered records at STP.

End of Summary of Results of Interview of A56.

SUMMARY OF RESULTS OF INTERVIEW WITH A57 AT SOUTH TEXAS PROJECT

Prior to the interview the NRC investigator and inspector properly identified themselves.

A57 stated that he currently works for B&R with job responsibilities in the area of site auditing. He stated that a site surveillance group not shown in the B&R organization charts or described in B&R procedures was formed in early 1978. By August 31, 1978 the group was performing a surveillance function. As of January 1, 1980 this group became officially known as the Site Audit Group. The group had scheduled surveillance of concrete activities for mid-1980. QA records are being audited on a monthly basis. When asked why concrete activities were not reviewed earlier and more frequently, A57 stated that audits of concrete activities have been given lower priority due to serious problems in QA records vault.

A57 indicated that information in surveillance report SIS-26 from special surveillance of concrete activities performed in October 1979 and into November 1979 was revised by management after disagreements over the findings.

End of Summary of Results of Interview of A57.

The Light company

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

March 24, 1980
ST-HL-AE-433
SFN: V-0100

Mr. Karl Seyfrit
Director, Region IV
Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76102

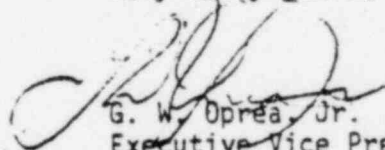
Dear Mr. Seyfrit:

South Texas Project
Units 1 & 2
Docket Nos. STN 50-498, STN 50-499
First Interim Report on Damage to
The Steel Liner Plate in the
Unit 2 Reactor Containment Building

In a previous letter (ST-HL-AE-429), Houston Lighting & Power Company committed to provide a first interim report on the liner plate bulge by March 28, 1980. The attached logic for the liner bulge repair is provided in response to this commitment. A second interim report will be submitted by June 6, 1980.

Should you have any questions, please contact Mr. Shawn Rodgers at (713) 676-7953.

Very truly yours,



G. W. Oprea, Jr.
Executive Vice President

MP:bf
Attachment

CC: E.A. Turner
D.G. Barker
C.L. McNeese
H.R. Dean
R.L. Waldrop
G.B. Painter
A.J. Granger
R.A. Frazar
M.D. Schwarz (Baker & Botts)
R. Gordon Gooch (Baker & Botts)
J.R. Newman (Lowenstein, Newman, Reis, Axelrad & Toll)
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Citizens for Equitable Utilities
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Washington, D.C. 20555

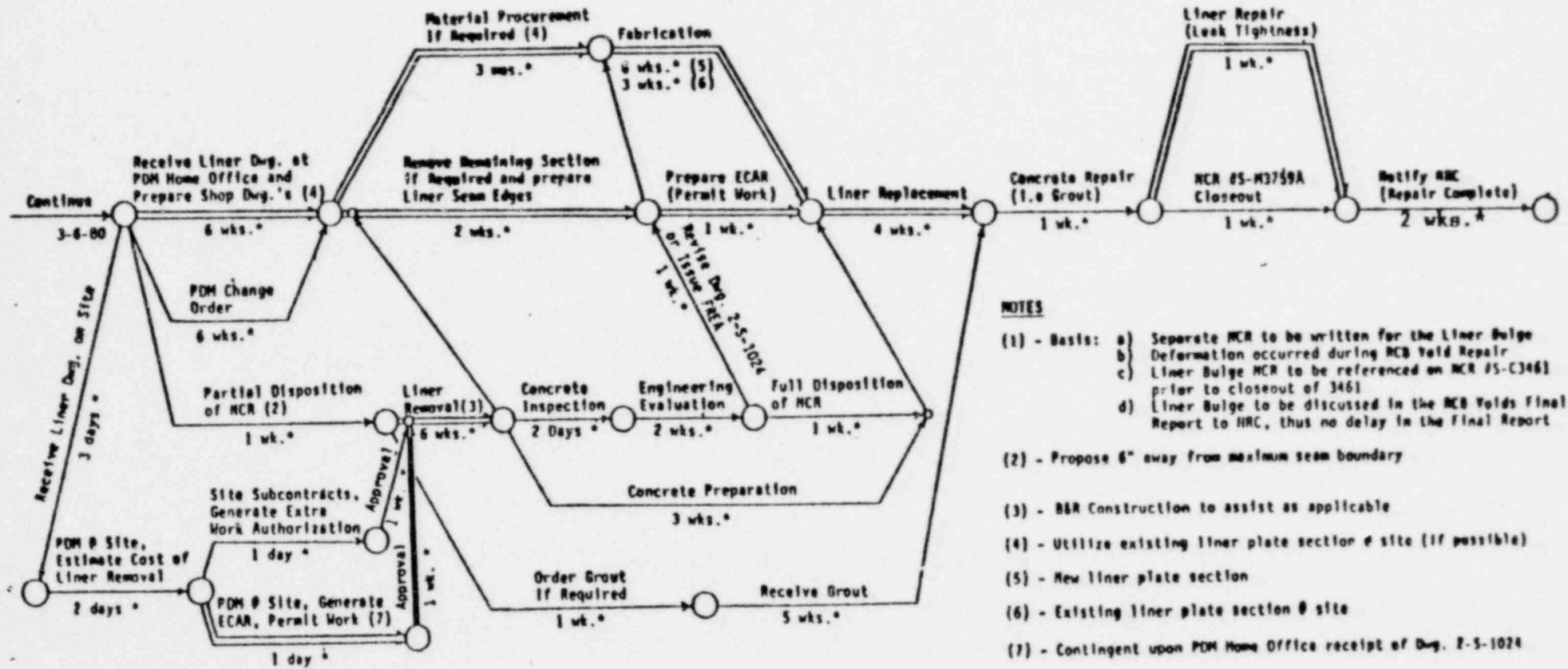
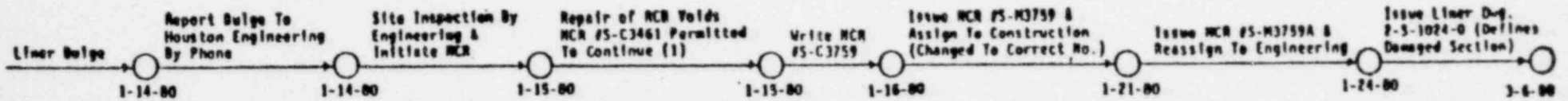
— B&R Activity

== PDM Activity

* Estimate

LOGIC

Liner Bulge Repair, MCR 2 Shell Wall



NOTES

- (1) - Basis: a) Separate MCR to be written for the Liner Bulge Deformation occurred during MCR Void Repair b) Liner Bulge MCR to be referenced on MCR #S-C3461 prior to closeout of 3461 c) Liner Bulge to be discussed in the MCR Voids Final Report to HRC, thus no delay in the Final Report
- (2) - Propose 6" away from maximum seam boundary
- (3) - B&R Construction to assist as applicable
- (4) - Utilize existing liner plate section @ site (if possible)
- (5) - New liner plate section
- (6) - Existing liner plate section @ site
- (7) - Contingent upon PDM Home Office receipt of Dwg. 2-S-1024

POOR ORIGINAL

AGENDA

**BROWN & ROOT CONSTRUCTION AND
QA/QC SEMINAR**

STP JOBSITE

JANUARY 4, 1980

- I. INTRODUCTION**
- II. THE ROLE OF QC PERSONNEL AT SOUTH TEXAS PROJECT**
- III. CONSTRUCTION SUPPORT FOR STP QA PROGRAM**
- IV. CONCLUSION**

**Implementation of the
Brown & Root
Quality Assurance Program
at the
South Texas Project Jobsite**

I. INTRODUCTION

The South Texas Project Quality Assurance program, to be fully effective, must be understood, accepted and fully implemented by each employee on this Project.

The purpose of this meeting is to reiterate Brown & Root Management policy regarding the responsibilities and duties of Brown & Root Construction and QA/QC personnel in implementing this QA program.

The Project QA Manager will describe in detail the role QA/QC personnel play on this Project, their duties and responsibilities, and standards of performance and conduct expected by Brown & Root Management.

The Project Construction Manager will describe how Construction personnel support the Quality Assurance program and what standards of performance and conduct are expected from Construction personnel.

**J.R. Geurts
Vice President & General Manager
South Texas Project**

II. THE ROLE OF QC PERSONNEL AT SOUTH TEXAS PROJECT

A. INTRODUCTION

In the past year due to events like Three Mile Island, public attention was focused on the safety aspects of nuclear power plants, and the effectiveness of the Quality Assurance programs under which they are built and operated. This attention has caused increased pressure and tensions among all involved parties, the Nuclear Regulatory Commission, the HL&P and Brown & Root. Therefore, with the eyes of the world upon every move, it has become evident that we re-examine and restate the purpose and the function of the Quality Assurance/Quality Control program and personnel within the framework of the Brown & Root team.

B. REGULATORY FRAMEWORK

First, let us briefly review the role of the Nuclear Regulatory Commission. The United States Congress through the Atomic Energy Act charged the Commission with the responsibility to oversee the compliance with safety standards through the process of licensing responsible public utility companies to plan and construct nuclear power plants and later to operate these plants when completed. Thus the NRC is responsible for reviewing, inspecting and approving all aspects of the design, construction and operation of the plants. This regulatory power is exercised through the licensing process directly upon the utility company as licensee. Thus the licensee is directly responsible to the NRC for nuclear safety. The licensee can be fined or denied a license because of failure to comply with regulatory standards or to promptly report to the NRC anything that could or might possibly affect safety.

C. BROWN & ROOT'S TOTAL RESPONSIBILITY

The licensee has placed a tremendous confidence in Brown & Root as the engineers, constructors and project general managers at South Texas Project. The safety of this plant is of paramount importance to Brown & Root. This responsibility for safety is the responsibility of every Brown & Root employee. Each of us has a role to play on the

team, and it takes the full coordination of effort of everyone on the team, working together, to accomplish the objective of a safe nuclear power plant.

D. ROLE OF QA/QC

Now let us examine specifically the role of the QA/QC organization in regard to safety. It is the responsibility of QA/QC to verify that this project is constructed in compliance with the applicable design documents. This is an important and specific role in assuring nuclear safety, but QA/QC does not carry the sole and total responsibility for safety. Safety is a responsibility shared with Construction and Engineering. It is Construction's responsibility to build the plant in accordance with applicable design documents. Engineering also shares in the responsibility for safety in that the design must satisfy all of the applicable federal and industry codes and standards.

It is also the responsibility of the QA/QC organization to ensure that this verification is carried out in a timely cost effective manner. It is important that each of us place his own responsibility in proper perspective with the concurrent responsibility of the engineers and construction forces. QA/QC like construction and engineering starts with plans, specifications and other documents specifying requirements and procedural methods. In verifying the acceptability of the erection and fabrication it is expected and required that we follow the design documents, specifications and procedures strictly as written by the engineers.

The QA/QC organization while carrying out their required function in a timely and cost effective manner shares another Brown & Root team responsibility of completing the project on schedule within the projected cost estimate. Time of completion is of great importance to the owners and to the public. However, Quality is the top consideration for Construction as well as in QA/QC. Thus the ultimate goal of the Brown & Root team is a safe plant, constructed on schedule at the lowest possible cost.

E. NECESSITY FOR ATTITUDE OF RESPECT AND COOPERATION

If the Brown & Root team is to succeed in meeting their ultimate goal, a safe plant at the most economic cost and shortest possible schedule, it is necessary that an atmosphere of mutual respect and understanding be maintained at all times. It also means that QA/QC must perform inspections promptly so that work does not progress wastefully. It means that Construction must be willing to correct deficiencies whenever found.

This is not to imply that Construction must accept every QA/QC rejection of its work without question. The QA/QC personnel are not the final word on the acceptability or unacceptability of any given item or circumstance.

F. OTHERS HAVE A ROLE IN THE REVIEW AND APPROVAL PROCESS

The Brown & Root team is divided necessarily into a team of specialists. The QA/QC is but one element of that team and is not expected by anyone to be capable of making the ultimate decision on every concern of acceptability. It is the function of the QA/QC organization to document the as-built condition of the plant. It is the responsibility of engineering to disposition departures from the applicable design documents that will not be reworked to conformance. It is important to realize that even the engineer's disposition is subject to review and approval by the owner and the Nuclear Regulatory Commission's design review prior to issuing the owner an operating license for this plant.

G. INDEPENDENCE OF QA/QC

The QA/QC organization, although a full fledged member of the Brown & Root Project Management Team, enjoys a unique organizational status in that it also reports directly to the top executive management of Brown & Root Power Division. This independence is provided to assure that undue pressures cannot be applied to cause nonconforming work to be accepted. There are even higher authorities in the owner's organization and the NRC to resolve questions of such serious nature as

cannot be more easily resolved. The QA/QC organization while independent must recognize that higher authorities do exist who have total responsibility for design, construction and safety.

H. QA/QC DECISIONS CAN BE CHALLENGED

We all have pride in our work, and it is an injury to our pride when our work is questioned or criticized. All Brown & Root team members must realize that they are not the final word, and that their decisions are subject to challenge and that it is appropriate for higher authority to make decisions upholding or rejecting their work. Too often people feel that a challenge of their decision is an abuse, an attempt to discredit them, an attempt to undermine their authority, or an attempt to cover up shoddy and unacceptable work. Perhaps this attitude results from the lack of understanding the responsibilities others share in the design and construction of a nuclear power plant.

I. INTERNAL STRUCTURE OF QA/QC

The Project QA/QC is made up of a number of specialized groups and functions. Each QC inspector has a clearly defined area and scope of work, and he has the responsibility to inspect the work in his jurisdiction to assure that it is performed according to plans and specifications. The inspector has the responsibility and absolute authority to prevent the work from proceeding until the work is satisfactory. This is a power which must be exercised with a high sense of responsibility. It is a power and authority which is not absolute or final, but which may be subject to challenge and review by others vested with even greater authority and responsibility. It is never easy to accept a reversal of one's decision, but it should help if we realize that a reversal of such a decision may not mean, and probably does not mean, that the decision was wrong or that it was an abuse of authority to refuse to "sign-off" work which a higher authority later approves. It may not be immediately apparent to you why such a reversal of the decision does not mean that the decision was wrong, but let's examine that and I think you will understand that what I am saying is correct.

J. SUCCESSIVE LEVELS OF DECISIONS TO APPROVE DEVIATIONS

It is correct that the QC Inspector is not allowed to exercise discretion in waiving deviations from strict and literal compliance with plans and specifications and he must refuse to "sign-off" any work which does not conform exactly to the drawings, specifications and/or procedures. There are higher authorities within the QA/QC and Engineering organizations who are allowed broader discretions and greater authority to approve work not within strict and/or literal compliance with the drawings or words of the specifications, but which are within the real intent of the design engineer. It is entirely proper for these authorities to have and to apply a broader degree of discretion in approving, as satisfactory, a literal deviation which is within the intent of the plans and specifications. But even they are restricted in their discretion, and they are not permitted to approve deviations if they could possibly involve a departure from the intent of the design engineer. The design engineer may, of course, interpret, clarify, or change the design documents to permit the acceptance of the work as it has been performed. If you realize that you are part of a large team, with a very important but limited scope of authority and responsibility, and that no one is the final word, it should be easier to accept the idea that Construction has a right to question QA/QC decisions, and that a question or even a reversal is not necessarily discrediting or undermining authority.

Should there arise a case in which the matter is so serious that it indicates incompetence or bad faith or bad judgement or even misunderstanding on the part of your immediate supervisor who reviewed the matter and allowed construction to prevail over your rejection, you have the duty to pursue the matter further until you are satisfied that competent authority within Brown & Root at the highest level, if necessary, has received notice, considered the matter and found it safe. And further, if you still feel you are right, you have a duty to report the matter to the Nuclear Regulatory Commission.

K. QUALITIES REQUIRED OF QA/QC PERSONNEL

All of this adds up to one big job for QA/QC personnel — a very demanding responsibility requiring a lot of skill and a lot of special personal traits of character. First, of course, is technical expertise required to interpret the plans, specifications and other requirements and standards and to evaluate the compliance with these requirements of the construction work performed. We have a highly skilled group of QA/QC personnel, and all of you have demonstrated your qualifications in these areas. The personality traits and character traits required are more subjective and require identification and close considerations. Let's look at them one by one.

1. Integrity, Honesty and Candor

These are so closely related they may be treated as one. Obviously we cannot have reliability in the assurance of safety and quality unless the QC inspections and all QA/QC personnel are trustworthy and reliable to a degree that inspires complete confidence and allows no suspicion. Any doubt in this area would require replacement of such person.

2. Support of Nuclear Power

QA/QC personnel have great responsibility for accomplishing the purposes of constructing a safe nuclear plant at minimum cost and on schedule.

3. Loyalty to Brown & Root

You have a responsibility to your employer as a part of the Brown & Root team responsible for building this plant. As a member of this team you are expected to pull for the team and that means all of the team, including the construction crews. That means you must have respect for your team, and realize that an absolutely safe plant is the primary objective of the entire organization, not just QA/QC. There is no room here

for a QA/QC man who lacks confidence in the management or in his fellow workers on the Brown & Root team. There is no room for a man who would seek to embarrass or harm his company when he could instead help his company do its job right.

4. Devotion to Duty

QA/QC personnel must be dedicated to the vital safety and quality assurance function they are hired to perform and they must be unwilling to become a party to unacceptable practices just to save their job. The inspector who would charge that violations had occurred in the past and that he participated and failed to report them because he "was making good money," is contemptible, and has no place at Brown & Root.

5. Team Spirit

QA/QC personnel are expected to approach their work with a team spirit. You are not here to catch and punish violators, but to assist other team members to perform their work correctly. You are expected to check and assure that mistakes are detected and corrected at the proper time before their correction becomes too costly. You are expected to do a difficult and sometimes unpleasant job with tact and diplomacy. Be helpful and go the extra mile to help expedite and simplify corrective measures.

6. Responsiveness to Authority

Each employee has a boss and responsiveness to the directions of one's supervisor is an essential part of the discipline necessary to make any organization operate effectively. In QA/QC work this means responsiveness to technical as well as the administrative decisions of your superiors. Your supervisor is the proper authority to evaluate your decisions and to relax them where required.

L. SUMMARY AND CONCLUSION

What I've been talking about is of vital importance to all of us here today — to each of us individually, to the organization unit which we represent, to our company, Brown & Root, and to the public and our country. It is important that we all understand our proper function in helping to solve our Nation's energy problem.

In summary, let us emphasize the vital and important points.

1. QA/QC is but one element in ensuring that the facility we are involved in building will be safe when it is finished and placed in operation.
2. QA/QC is but one member of the Brown & Root team commissioned to build this nuclear power plant, each member having his share of the total responsibility for the cost and timely completion of a facility which will be safe to operate.
3. All Brown & Root employees here on this nuclear project operate within an organizational structure where supervisors have greater responsibility and authority than those whom they supervise. The supervisors have the responsibility to review technical decisions and modify or reverse them where needed, and to enforce discipline, including the duty to reprimand or discharge those who are not performing in accordance with the established system.
4. Within the QA/QC organization we have a special responsibility for ensuring that the plant is constructed in accordance with the design. The ultimate responsibility for the safety of the plant rests with the Power Division Management.
5. We all, individually, have a responsibility to the NRC. If anyone feels that the system has failed in its paramount objective of safety, he has a duty to report his concern to the NRC, after first being sure that responsible Brown & Root officials are aware of the situation.

This is a complex subject which requires mature judgement and understanding. Within the QA/QC organization you have the capacity of such understanding. If you have any questions, take them to your supervisor individually and he will explore them in depth. If you still have questions or concerns, I will be on site several days a week and maintain an "Open Door Policy" to discuss any other matters with you.

Project QA Manager

III. CONSTRUCTION SUPPORT FOR STP QA PROGRAM

The Project QA Manager has spoken to you this afternoon about the duties and responsibilities of QA/QC at STP. I emphasize the responsibilities of Construction on building a safe nuclear power plant. We are that part of the team charged with erection of the engineer's design.

How do we go about this effort and remain cost effective? Number one - we have to plan our work in such a manner that we can build the plant one time as near as possible to the plans and specifications. We have to have engineering approval for any deviations. There has been in the past history of this project some differences of opinion between the construction foremen and the QC inspectors over what constituted a deviation from the drawings and specs. The Project QA Manager has pointed out that the QC inspector has very limited latitude when an interpretation is required. When the construction foreman does not agree with the QC inspector, at this point they should call in their immediate supervisors to resolve the dispute. Construction Management on this project will not tolerate verbal or physical harassment of QC inspectors by construction employees and such intimidation will be grounds for termination.

In many cases it will be more cost effective to correct the deviation than call in several layers of management to get involved in the problem. We need at all times to strive to keep our pride out of a decision that could add additional cost and delays.

There is exhibited on this project at the supervisory level a spirit of cooperation and team effort. I feel with added communication we can have this same team spirit throughout the ranks. We are developing a program to familiarize all construction foremen with the requirements and duties of the QC inspectors.

Quality is not inspected into any product. We build quality products, then inspect them to assure we have maintained a quality product.

Construction Management on this project recognizes and supports our QA/QC Department as an

integral part of the total project organization. Given my choice I would prefer to have Quality Control on any project that I am associated with in the future.

I would like to close with this statement. I have an "Open Door Policy" and will be available to discuss your problems with you at any time that you cannot get a satisfactory response from your supervisor.

Project Construction Manager

IV. CONCLUSION

In conclusion, I want to say we still have a big job ahead of us in completing the South Texas Project. Complete cooperation from all contributing groups is required and intimidation and harassment from any quarter will not be tolerated. We will be taking a number of steps in the future to followup and reemphasize the Brown & Root dedication to quality that you heard today. I have every confidence in our Brown & Root team, in our ability to recognize the importance of each contributing group of people and in our ability, working together, to build a safe nuclear power plant of great importance to Brown & Root and to our Client, Houston Lighting & Power. I appreciate your attention and thank you for coming.

**J.R. Geurts
Vice President & General Manager
South Texas Project**

STP-PGM-02
REVISION 0

PROCEDURE FOR RESOLVING DISPUTES
BETWEEN
CONSTRUCTION AND QA/QC PERSONNEL

January 7, 1980

J.R. Geurts 1/7/80

J.R. GEURTS DATE
STP PROJECT GENERAL MANAGER

1.0 PURPOSE

The purpose of this procedure is to state Brown & Root policy regarding the implementation of the South Texas Project QA programs, and to define the method for resolving disputes between Brown & Root Construction and QA/QC personnel.

2.0 SCOPE

The scope applies to the resolution of differences of opinion on technical or procedural requirements that cannot be resolved by the Construction and QA/QC personnel directly involved.

3.0 DISTRIBUTION

Distribution shall include:

1. Project General Manager
2. Engineering Project Manager
3. Construction Project Manager
4. Project Controls Manager
5. Project Material Manager
6. Project QA Manager

Other copies shall be distributed, as required, in order to assure complete compliance with this document.

4.0 PROCEDURE

4.1 Policy

Brown & Root is dedicated to furnishing high quality, reliable plants and services. All work shall comply with applicable design documentation and good construction practices.

Ordinarily a rejection of construction work by a QC Inspector should be immediately accepted and the work corrected immediately. In cases where genuine and substantial differences of opinion arise, and the matter cannot be easily and speedily resolved at the working level, extended arguments should be avoided by prompt referral of the matter for resolution by higher QA/QC authority.

To implement this policy the following procedure has been adopted. To be fully effective, this program must be understood, accepted and fully implemented by each employee. Therefore, all supervisors in the Engineering, Construction, and QA/QC organizations shall cooperate to assure complete compliance.

4.2 Procedure Details

If differences of opinion on technical or procedural requirements between a Construction supervisor and a QC inspector cannot be speedily resolved between them at the working level, the decision of the QC inspector shall prevail subject to the following procedure:

1. If the Construction supervisor wishes a review he shall contact his own direct supervisor who shall in turn contact his counterpart supervisor in the QA/QC organization. The decision of which interpretation is correct will be made by the QC supervisor in consultation with the Construction supervisory personnel. The QC supervisor will utilize whatever technical assistance he deems necessary to supplement his own knowledge in making this decision.

The QC supervisor's decision and the justification will be documented on the appropriate report, and the QC inspector will be furnished a copy thereof. Other involved parties will be given a copy if requested.

2. If there is still disagreement, the differences will be referred immediately to the highest level of Brown & Root QA/QC supervision then present at the site for review and final decision and documented as provided above.

The decision of the QC inspector shall be compiled with by the Construction organization unless that

decision is changed through the foregoing procedure.

Differences of opinion between Brown & Root Construction and Brown & Root QA/QC personnel on technical or procedural requirements are to be resolved promptly and in a businesslike manner. Violence, threats of violence, or harassment by any Brown & Root employee of any other Brown & Root employee will not be tolerated. An offended employee should bring such conduct to the attention of his own immediate supervisor. All such complaints shall be reviewed immediately by the Brown & Root Project Management for proper action which may include termination of employment of the offending employee. This is a normal function of the "Open Door Policy" which allows any employee to bring any job related problems to the attention of his successive supervisors and ultimately to company officers without fear of retaliation or intimidation.

5.0 REFERENCES

None



Transcript of Proceedings

NUCLEAR REGULATORY COMMISSION

BRIEFING ON INVESTIGATION OF QA-QC PROBLEMS
AT SOUTH TEXAS NUCLEAR PROJECT

(Closed to Public Attendance)

Tuesday, April 15, 1980

Pages 1 - 72

Prepared by:
C. H. Brown
Office of the Secretary

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BRIEFING ON INVESTIGATION OF QA-QC PROBLEMS
AT SOUTH TEXAS NUCLEAR PROJECT
(Closed to Public Attendance)

Room 550 East-West Towers
Bethesda, Maryland

Tuesday, April 15, 1980

The Commission met, pursuant to notice, at 2:55 pm,
John F. Ahearne, Chairman of the Commission, presiding.

PRESENT:

- Chairman Ahearne
- Commissioner Hendrie
- Commissioner Bradford

ALSO PRESENT:

- W. Dircks
- K. Cornell
- M. Malsch
- J. Murray
- V. Stello
- C. Seyfrit
- W. Hayes
- R. Herr
- H. Phillips
- R. Shewmaker
- H. Thornburg
- R. Fortuna
- Seidel
- J. Hoyle

PROCEEDINGS

1
2 CHAIRMAN AHEARNE: The Commission meets in a closed
3 meeting.

4 MR. STELLO: We are here to discuss with you this
5 afternoon the results of our enforcement difficulties for
6 the construction activities in the South Texas Project.

7 There is a long history associated with the
8 South Texas Project that goes back, I guess a couple of
9 years ago, and even some recent allegations we have
10 received as recently as day before yesterday.

11 So that the issue on the advisability on the
12 problems involved with the quality control at South Texas
13 has been quite high. It has been the subject of considerable
14 news media interest, it was on the national television
15 and the problems have been ---

16 CHAIRMAN AHEARNE: This was also a result of
17 Mr. Gonzalez's amendment wasn't it?

18 MR. STELLO: Mr. Gonzalez did request an FBI
19 investigation into the issue.

20 CHAIRMAN AHEARNE: I think it is also what
21 led him to put in an amendment, making it a crime to try to
22 impede into quality control inspectors.

23 MR. STELLO: It wasn't clear.

24 COMMISSIONER BRADFORD: Do you look on this as
25 one continuing investigation or have there been 5 or 6

1 different investigations?

2 MR. STELLO: There have been 5 or 6 different
3 investigations, and there are still some on-going. OIA
4 for example, was still looking in to some of the issues as
5 the result of the investigations in the effort with the
6 FBI work, and the results of the work that the Region did.

7 The briefing, and the purpose of the briefing, to
8 get that up front, is I think at the point we are going to
9 decide: what's the appropriate enforcement action, based
10 on what we have found as documented in the draft report
11 that we sent to you. We think that we are at the point
12 now where it is time to take some sort of action.

13 We are going to be describing to the Commission,
14 at least in general terms what course of action seems to
15 be warranted, based on what we understand today. I will
16 make the point that things continue to move, and we continue
17 to get more information, and as this new information comes
18 in, we might decide to change our minds and take a different
19 course of action, but based on what we know today, to
20 stop shop today, hopefully we could conclude to brief
21 you as to what we understand and can describe to you the
22 kinds of enforcement action we feel is appropriate, and
23 hopefully, have some sort of agreement, at least in principle,
24 that this is the correct way to go or if we need to do more,
25 to have some understanding of what that more might be.

1 With that introduction, let me ask Bob to go
2 through the briefing now. I would prefer not to use
3 that overhead, which I think would be a distraction to
4 everybody, and to just pass out copies of the slides if
5 that would be easier.

6 CHAIRMAN AHEARNE: I'm presuming the people back
7 here have copies?

8 MR. SHEWMAKER: I think we have enough. We
9 brought 25.

10 CHAIRMAN AHEARNE: Bob, you are?

11 MR. SHEWMAKER: Bob Shewmaker.

12 Okay, the Attachments you got that is Appendix
13 5, in the advanced copy of the report that we sent, we
14 didn't have a clean copy of that document when it was
15 printed.

16 CHAIRMAN AHEARNE: I'm going to suggest that
17 Mr. Stello could identify for I&E a certain kind of
18 marking pencile that would be able to be xeroxed and be
19 legible. I find that so far, this is a second in a series
20 of documents in which the outlines of things are
21 unreadable in them.

22 MR. STELLO: Some of the documents we get are
23 marked that way and it becomes difficult. I think the
24 previous documents you are referring to were copies that
25 we received from others, and that's the way they were marked.

1 MR. SHEWMAKER: Okay, the purpose of the
2 investigation was ticked off, the most recent investigation,
3 was one of two fold. First, was to address the allegations
4 that dealt with harassment/intimidations of quality control
5 inspectors at the site, and the allegations basically were
6 that the construction personnel were causing this pressure
7 and creating these situations.

8 CHAIRMAN AHEARNE: The allegations came through
9 from where?

10 MR. SHEWMAKER: They came from one individual
11 on the 2nd of November, and those were characterized and
12 broken down into 12 specific allegations.

13 CHAIRMAN AHEARNE: Did that individual represent
14 himself, or did he represent a group of quality controllers.

15 MR. SHEWMAKER: He represented himself, but in
16 the allegations that he made, it covered things that had
17 happened to other people. So he had characterized,
18 generally what he felt had been going on and the things
19 that he had heard and talked to other people.

20 MR. STELLO: Do you mean Swazie (phonetic)?

21 MR. SHEWMAKER: No. The most recent is ---

22 MR. STELLO: Because there are two Februaries.
23 The first was in February 1977, was by Swazie and we are
24 going to cover that a little bit and the background. The
25 most recent ones that were behind the present investigation

1 was February of this year. Maybe we ought to use some
2 of these names so we can keep the two separated.

3 MR. PHILLIPS: My name is Phillips, I'm the
4 Resident Inspector for South Texas. Just a little bit
5 of clarification.

6 This individual did represent four other
7 inspectors.

8 CHAIRMAN AHEARNE: Thank you.

9 MR. SHEWMAKER: Maybe we can add in right
10 here, the total of the previous investigations has been
11 something, 11 separate investigations that have been carried
12 on before this big investigation was kicked off this
13 November. So there was a series and we will go in to the
14 background.

15 The second part of the investigation was to
16 review the current, at the time, November of '79,
17 effectiveness of the quality assurance program as it was
18 being implemented at the site. The concept there was
19 pick enough areas where work is currently going on, look
20 and see if the QA program is functioning, we have got to
21 get sufficient sampling and enough detail to be able to
22 draw a conclusion.

23 So those were the two basic goals and aims of
24 the investigation.

25 What we are going to do now is give you a brief on

1 what the findings were so you have the bottom line a little
2 bit early as we go through.

3 In the QA/QC area, the findings, the ones that
4 we consider really critical were against three of the
5 criterion Appendix B.

6 The first being -- the first criterion which
7 deals with freedom of the QC organization to function. And
8 we identified the lack of independence on their part of
9 a cost and schedule and the freedom to identify problems.

10 CHAIRMAN AHEARNE: Now, is that an explicit
11 criterion in our ---

12 MR. SHEWMAKER: Yes, the words cost and schedule
13 are used in the criteria; and freedom to identify problems.

14 What we found in the investigation -- we sort of
15 broke it down in to five areas, and we have findings and
16 examples of production pressure ---

17 CHAIRMAN AHEARNE: I'm sorry to stop you, but
18 could you be a little more -- tell me what exactly the
19 linkage -- the independence of cost and schedule is in
20 our criteria? Obviously I'm asking, because having
21 read this I'm quite interested in it.

22 MR. STELLO: Maybe it would be easier to read
23 it.

24 "Criterion I, the Applicant shall establish,
25 at the earliest practical time, consistent with the
schedule for accomplishing the activities, a QA program

1 which implies to Criterion I," which is a little ambiguous.
2 There are five parts which gets to the cost and schedule,
3 do you want to hear everything?

4 COMMISSIONER HENDRIE: Somebody call CP&L and
5 ask them to print a copy for Vick.

6 (Simultaneous discussions.)

7 MR. MALSCH: It is in Criterion I.

8 MR. STELLO: What does it say, Marty?

9 MR. MALSCH: It says --

10 MR. SEYFRIT: It says: "Such persons and
11 organizations shall have sufficient authority in
12 organizational freedom to quality problems, initiate
13 recommend or try to provide solutions and verify implemen-
14 tation of solution." It doesn't have the words ---

15 MR. MALSCH: "Such persons or organizations
16 performing quality assurance functions shall report to a
17 management level such that this required authority and
18 organizational freedom, including sufficient independence
19 from cost and schedule when opposed to safety considerations,
20 are provided."

21 CHAIRMAN AHEARNE: Including -- say it again?

22 MR. MALSCH: Including sufficient independence
23 from cost and schedule when opposed to safety..."

24 CHAIRMAN AHEARNE: Fine, thank you.

25 COMMISSIONER HENDRIE: That's correct. Criterion I.

1 CHAIRMAN AHEARNE: I'm sorry, go ahead.

2 MR. SHEWMAKER: What we had done was group the
3 examples that we found in the five groups, production
4 pressure, lack of QC management support, which has been one
5 of the things that came out of the allegations, harassment,
6 intimidation and threats, physical threats against the
7 person, and we will go in to the details of this.

8 Under Criterion 15, we basically -- which
9 deals with non-conformance of how one tracks and handles
10 those, these will not be the exact words out of there,
11 but I will try to characterize them. They fail to control
12 and monitor the trends of the nonconformances. They
13 would identify a single nonconformance, but to look and
14 see how the total of those affect what is happening at
15 the safety of things was not being done.

16 On Criterion 18, which deals with the audit,
17 the fact that you need the audit function, we found that
18 they had failed to adequately utilize the audit function
19 in performing the total of the QA program, things like
20 that. Audits were not completed as specified in the
21 schedule. The audits weren't in depth sufficient to
22 find the kinds of problems that we sought.

23 So in looking at the QA/QC program, really the
24 finding is that we see it impaired the QA/QC programs.

25 CHAIRMAN AHEARNE: There is nothing implicit then,

1 in the criterion that would cover hassling, intimidation.

2 MR. STELLO: What it is, it says that the
3 people who have the responsibility to construct the
4 plant are putting too much pressure on the QA people
5 and you really don't have the freedom to go ahead and stop
6 the conflict or get QA activities corrected.

7 MR. SHEWMAKER: One of the other things that we
8 didn't cite here, that I think comes out in this is the
9 fact that the person who initiates or identifies an item
10 of noncompliance is supposed to be on the end of the
11 chain after it goes up in resolution state, so that he
12 understands how it was resolved or if it was washed away
13 or whatever happened. And that was not happening. So
14 this is why, then, we saw some of these people continually
15 bringing these allegations up, but they never knew what
16 happened to the things that they identified.

17 CHAIRMAN AHEARNE: I guess what I'm trying to
18 get at or your answer is that it is covered under
19 organizational freedom. I could see that on one set,
20 the lack of a system being set up, and for example the
21 point that you just made, it is more of a systematic
22 problem.

23 On the other hand, I can see physical
24 intimidation competing with the organization, looks as
25 though it has gotten -- you are saying they both are

1 covered under that.

2 MR. SHEWMAKER: Criterion I would be really, the
3 only one that would address the kinds of things like
4 harassment, or at least that was our assessment.

5 MR. STELLO: There are what, 18 criterion
6 independent of B? The first one gets to this issue
7 pretty well. I don't think that there is a great debate
8 that clearly says the kind of thing you saw would have
9 been harassment/intimidation, the subtleties of the system.
10 That clearly is not what you would anticipate as a health
11 criteria.

12 CHAIRMAN AHEARNE: I wasn't implying that I
13 thought it was a health situation.

14 MR. STELLO: No, no. Those kinds of things
15 are spoken to.

16 MR. SHEWMAKER: In the second major category
17 on findings, we put in what we call safety, and there were
18 two items there and we will describe in detail why we
19 have these there.

20 We ended up with questions concerning the
21 adequacy of safety related backfill, and as Vick indicated,
22 there have been some developments that are happening right
23 now, and we will try and bring you up to date on those
24 when we get to the back of the briefing on the related
25 soils area.

1 Then there is a group of unresolved safety items
2 that came out of the investigation team. We had to end
3 it some where and there are items identified that have to
4 be followed up, which are the normal kinds of things we
5 find on inspection investigations.

6 Now, we will turn to the next page and cover
7 the area -- I will give you some more background on this --
8 regarding the scope of the previous allegations.

9 CHAIRMAN AHEARNE: But as far as any of the
10 other -- such as the concrete and that stuff, you
11 concluded there were no safety issues?

12 MR. SHEWMAKER: We will address the ones that
13 we think are still to be resolved as the result of this
14 investigation. I just wanted to sort of give you an
15 overview of the end point before we got there.

16 CHAIRMAN AHEARNE: But your end point seems to
17 be, that as far as adequacy of safety related items, the
18 questions, at least in your presentation, it is only on
19 the soil backfill or at least that was my interpretation,
20 that you had concluded that the areas such as the concrete
21 was adequate.

22 MR. SHEWMAKER: Okay, let me clarify that.

23 What we are saying is, for the scope of this
24 investigation, out of the allegations that this team
25 pursued, we found no items that would lead us to believe

1 that there is a safety problem.

2 Now, we are still looking at things from the
3 past that weren't covered in this investigation.

4 The first allegations on this plant were back
5 in February of '77, and as we indicated, there was a
6 series of allegations coming in and there were a series
7 of investigations to come of those as they came in. There
8 were a total of 11 separate investigations carried out by
9 Region IV. Something on the order of 53 allegations, which
10 is a matter of how you cut them up sometimes, but on that
11 order of the magnitude of allegations.

12 About 14 or a number like that, 14 or 15 of those
13 we substantiated. Now, while these were being conducted
14 by the Region, they did not have authority to take sworn
15 statements. We did find that one of these individuals
16 was talked to both by Region IV in the earlier allegations,
17 and as the result of these sworn statements taken in this
18 investigation the story has changed. Whether that
19 happened in other cases, we really haven't really
20 examined that at this point.

21 As Vick indicated, there was considerable
22 interest because of the number of these, the media,
23 Congressional interest and as the result of this, the
24 mid term inspection schedule was moved up by a year from
25 1980 to 1979. So that mid term QA was kicked off in

1 August of this past year. Some of the findings of not
2 in compliance that came out of that mid term QA,
3 correlate to some degree of some of the findings of this
4 recent one. I will just mention what they are.

5 Out of the mid term QA program or inspection was
6 found that one of the subcontractors was not following his
7 QA manual or procedures, procedural violations. In
8 adequate audits by the utility and Brown and Root on that
9 subcontract.

10 Audit check lists were not maintained in the file
11 system. Those records that had been made were not in the
12 files for the people to use and try to make trend analysis
13 on.

14 They failed to identify changes in the organization
15 in the subcontractor, the QA organization. Those were the
16 kinds of things that came out of that mid term.

17 The FBI has been involved in this case ---

18 CHAIRMAN AHEARNE: Who ordered it?

19 MR. SHEWMAKER: I guess Gonzalez, basically.

20 They were looking at the question of falsified
21 records. There was a question of trying to establish
22 some records related to the Cadwelding and locations of the
23 Cadwelds.

24 Now, they were investigating over the period of
25 June to October, and they have sent their material to the

1 prosecutor down in that area, and on December the 4th, in
2 a letter to OGC, Justice declined further prosecution on
3 that case. They did find two instances of false records,
4 but it turns out that they are things that are not
5 required as far as the NRC and as far as safety related.
6 They were commitments on the part of the licensee, for
7 his own use.

8 COMMISSIONER BRADFORD: Commitments made in
9 what context?

10 MR. SHEWMAKER: Basically what happened, they
11 were trying, from the records they had, trying to establish
12 exact position in horizontal and elevation, where the
13 actual Cadweld splice was located in the placement or
14 in a concrete placement. This was after the Cadweld splice
15 had already been accepted as passing all of the requirements.
16 So really, once the splice is accepted, there is really
17 no need to know where it is. It is where you are maybe
18 building 100 splices and you are only testing two out
19 of 100, you want to know where that group of 100 is in
20 case your samples fail, to go back and find out where
21 those are that might be questionable, because the test
22 sample somehow didn't pass the test, but these had already
23 passed the test, so there is no need to identify those.

24 COMMISSIONER BRADFORD: There is a commitment,
25 though? In what form is the licensee going to take?

1 MR. SHEWMAKER: I cannot say whether it was in
2 a procedure or a spec or where?

3 MR. SEYFRIT: It is in their internal procedures,
4 really that they have set forth that are desired.

5 I'm Carl Seyfrit. And while it is not something
6 that is required by NRC regulations, the fact that they
7 commit to it in their procedures, we attempt to make sure
8 that they follow their procedures. So we, indeed, I believe
9 cited them for failure to have followed their procedures,
10 in spite of the fact that they are not required by our
11 regulations.

12 MR. SHEWMAKER: So that was the involvement at
13 Justice and the FBI and OIA has indicated that they
14 would keep Justice informed of any new developments as
15 the result of the investigation that we have going on.
16 They were aware that that was underway.

17 COMMISSIONER BRADFORD: Does your investigation
18 have a review of the FBI interviews?

19 MR. SHEWMAKER: It did not.

20 MR. THORNBURG: OIA has looked more in that
21 respect to those things. We fixed on a time period that
22 would be overlapped to the November 2nd allegations. We
23 tried to look at the near term to see if harassment and
24 intimidation was sort of a continuing thing and looked at the
25 QA picture at about that time. And OIA has looked more

1 in to that.

2 MR. SEYFRIT: I might add that we did get
3 copies of the FBI's report. In the Region we went through
4 it and tried to glean from it, any items that might be
5 alleged that we had not previously been aware of. And
6 we did find, I think, two or three that we had not been
7 previously aware of, and we did, indeed, look in to those
8 in some of our later work.

9 CHAIRMAN AHEARNE: Is someone from OIA here?

10 MR. STELLO: Yes.

11 MR. FORTUNA: What is that document date?

12 CHAIRMAN AHEARNE: What is the letter that you
13 are looking at?

14 MR. FORTUNA: It is the letter dated
15 December 4th, as Mr. Shewmaker says, addressed to
16 Mr. Bickwit, the General Counsel, from the Attorney General
17 down in the Southern District of Texas, and indeed, that the
18 prosecutor wasn't planning to probe, based on the
19 recommendations from the Bureau, which said they had
20 no substantive violations, and including a copy of the
21 Bureau's report. I was just curious as to what it was.

22 CHAIRMAN AHEARNE: Marty, did we write to them?

23 MR. MALSCH: I'm not aware of it, I'm not sure.

24 MR. FORTUNA: Yes, we were all aware of this.

25 In fact, the declaration was contained in the FBI report and

1 I am familiar with this.

2 MR. STELLO: Let me see if I can -- Gonzalez
3 wrote a letter to Bell requestion that this letter
4 be investigated. Bell, in turn, requested the FBI to
5 look in to the matter. They looked in to the matter, wrote
6 their report which went to the Attorney General in the
7 state, who, in turn, decided not to prosecute.

8 MR. FORTUNA: Yes, the two things came up. One
9 was independent of the other. When Gonzalez wrote to
10 Bell, Bell bucked it down to Civiletti who was then in
11 charge of Criminal. They it got bucked further back down
12 into the bowels of Criminal Division of the Justice
13 Department. Headquarters was then aware, that their
14 region, which ~~they~~ called the United States Attorney's
15 office, was in fact doing this investigation.

16 We told headquarters in Washington that their
17 region had declined, and that was confirmed in this last
18 piece of correspondence, in this letter to us to Bickwit,
19 that we are aware here on the record. And that's
20 why there is still on-going Justice Department interest
21 in it at their headquarters. They are still mildly
22 concerned that the letter which Gonzalez sent to them,
23 a year ago this time, whereby they wrote back to this
24 agency to another office, OIA sent a monitor to take a look
25 see, in conjunction with the office of Inspection and

1 Enforcement, so the left hand will know what the right
2 hand is doing. That was the only thing that concerned me.

3 CHAIRMAN AHEARNE: It happens all of the time.

4 MR. SEYFRIT: It might be worth mentioning too,
5 at the same time, this letter went to Griffin Bell. It was
6 the letter that was sent to the Chairman of the Commission,
7 Mr. Hendrie received such letter that discussed the same
8 issues, but without specific reference to the request for
9 Justice Department to get involved.

10 CHAIRMAN AHEARNE: Now, does OIA still have some
11 on-going work on this?

12 MR. FORTUNA: This is the status of what we
13 have.

14 The one gentleman that we could afford to
15 pick out of the South Texas thing, per the arrangement
16 that was made with OIA and I&E, Mr. Thornburg, Mr. Cummings
17 and Mr. Stello, or particularly Mr. Thornburg, that
18 we would take a look at each district, that the special
19 task group which did the final on that mid term inspection,
20 would take a look from November ump-tee-ump, down through
21 and looking at the allegations that have been made in
22 about August or September, that time frame.

23 We have a wrap-up as to the field work. We do
24 not have a wrap-up as to a report, which is going to be
25 in the form of a memorandum down to the Department and

1 down to the Commission, EDO, etcetera. So they beat
2 us, so to speak, on the present status of the site. We
3 are looking at it back in time, only as to harassment,
4 intimidation and that sort of thing. Anything that we
5 glean along the way from our interviewees regarding
6 potential safety issues, gets sent back to I&E.

7 As I was saying a little earlier, we have finished
8 this pocket of work here, we still have threads that go
9 out and we can take a look at those kinds of questions.

10 Does that focus on where we are?

11 MR. STELLO: Yes. As I understand it, based on
12 what you have found this far, is consistent with the
13 results of what the task group has found. You have not
14 found anything that suggests that we have taken any wrong
15 turns in the harassment and intimidation and things of that
16 sort or have you asked different questions?

17 Have you found something that we ought to know
18 that is of any problem of any kind?

19 MR. FORTUNA: Any interview statements that we
20 take have been dribbled off to your office as we take them.
21 However, we are going not going to make a recommendation
22 kind of report, we are going to wrap it up, tie it together
23 and you can analyze it and make your own judgment.

24 MR. STELLO: I did try to get the point across
25 that based on -- I understand that OIA come up with

1 the same consistency that we have come up with, so that
2 we don't have any concern that there is any surprises.

3 MR. FORTUNA: I don't see any surprises in what
4 we have done. It is just more of the same as opposed to
5 something different.

6 CHAIRMAN AHEARNE: Fine.

7 MR. SHEWMAKER: I think we have finished OIA.

8 The Resident Inspector was assigned to this
9 site in late August of 1979, and by the way, we do have
10 the Special Investigation Team here today to answer any
11 specific questions, and the Resident Inspector was a member
12 of that team.

13 As we have said before, the allegations that were
14 investigated here numbered 12 when they were boiled down.
15 As the result of the investigation, 19 additional allegations
16 were developed.

17 Mr. Stello directed the Special Investigation
18 on November 3rd.

19 CHAIRMAN AHEARNE: Vick, was that triggered by
20 this set of allegations to the Resident Inspector?

21 MR. STELLO: In part. It was also the result of
22 what -- the FBI report, any new allegations, we decided
23 that we needed a rather thorough look at those questions
24 to decide whether there was an issue here and to somehow
25 deal with it correctly. My feeling at that point was that

1 of the investigation, I wanted it to be independent of
2 what the Region had done, in an effort to get an independent
3 look beyond the investigations that they had done, since
4 at least what they had come up with and what the FBI had
5 come up with, the new allegations suggested that perhaps
6 it wasn't being tied together the way it should, and I
7 decided that the Task Force may be able to look at it,
8 in part, the other concerns.

9 MR. SHEWMAKER: The team that was put together,
10 we tried to get people from the different disciplines of
11 the areas that were specified that we would look at. So
12 we had some one in the civil area, soils, welding and
13 in the QA/QC area. The team was run under Headquarters
14 direction and we had representatives from all of the
15 Regions except Region V.

16 As I said before, this investigation was
17 different in that -- different from the earlier investigations
18 that had been done on South Texas in that the Team had
19 the authority to take signed sworn statements.

20 They actually conducted 57 formal interviews,
21 and took 24 sworn signed statements. There was something
22 like 50 less formal interviews made.

23 The time period covered from November 10th
24 through February 7th and it involved some 1100 inspector
25 hours. The areas that we covered by the investigation,

1 we were really in some five major areas.

2 Category I, concrete structures, the area
3 that most all of the allegations had been related to,
4 that activity area of concrete placement in the civil
5 area.

6 The other areas that we wanted to look at, but
7 in order to try and evaluate the effectiveness of the
8 current program in the QA/QC, included soils, welding and
9 NDE, the handling of audit reports and nonconformance to
10 general, and the audit function. Very little welding
11 had actually been done at the time, and of course,
12 nothing was really being done in the electrical area.

13 We indicated in the transmittal letter of the
14 early draft of the report that we would try and have it
15 finalized today, but we do not have it finalized. We are
16 going to be having a meeting after this session to try
17 and finish it up. There are some changes, really nothing
18 major. I might point out one that you might consider, if
19 somebody is really counting numbers it might change somebody's
20 idea, but on Page 2 of the draft, and this is the one
21 that is dated April 9, 1980, under that paragraph that is
22 underlined that says: "Results" about a third of the way
23 down the page or half way down, it says: "8 of the initial
24 12..." that should be "9". We had one that was a partial
25 that we looked at in the last couple of days, and we decided

1 we need to throw that in to a nonsubstantiated.

2 In the second line there, where we say: "Two of
3 the initial 12 were partially substantiated.." it should
4 read: "One of the 12 was partially substantiated."

5 We will, of course, transmit copies of that
6 as soon as it is final. The last person came in today,
7 that was able to sign it. One person had a series of
8 heart attacks so he won't be signing. He is still out.

9 We have passed out the Appendix 5 which should
10 replace the one that was in the earlier version.

11 Now, to get to the results of the investigation
12 in some detail, and I don't know how much detail you want
13 to get in to, we can look at which of the allegations we
14 felt fit in to the five categories that we had in the
15 violation of Criterion I dealing with the freedom and
16 independence of the QC inspectors.

17 Under threats, we basically had what I considered,
18 really three very strong ones where we had a situation that
19 had a threat by someone that we would consider in a
20 management function in the construction side of Brown & Root.

21 In one case it was a construction superintendent,
22 and in two other cases it was a foreman. And in all
23 cases, the person who was alleged to have made the threat
24 admitted to making the threat, and in all three of these
25 cases admitted that it was made under a loss of temper?

1 CHAIRMAN AHEARNE: What kind of a threat?

2 MR. SHEWMAKER: I think you would characterize
3 them as a threat of physical harm.

4 CHAIRMAN AHEARNE: By "characterize," do you
5 mean that they were?

6 MR. SHEWMAKER: That's right. Bodily injury.

7 COMMISSIONER BRADFORD: I ought to stomp you
8 around.

9 MR. THORNBURG: That's getting close.

10 MR. SHEWMAKER: We saw some instances of
11 harassment, the type of thing, one that I recall a
12 construction person was boasting around the site that
13 I was able to get away with this particular procedural
14 violation while this QC inspector was there. And that
15 QC inspector heard that as a rumor. That is the type of
16 thing that undermines and harasses that QC inspector.

17 The Attachment 5, which has the Brown and Root
18 corporate policy, they had a meeting where that was given
19 as a speech, then it was later printed and handed out to
20 everybody.

21 CHAIRMAN AHEARNE: I gather, by the fact they
22 went to the difficulty of actually printing this they
23 felt that was fine.

24 MR. SHEWMAKER: They did believe that.

25 That, to me, is an example of harassment, and the

1 statements that were made to QC people about: Well, you
2 may not be here much longer; that sort of thing. Threats,
3 verbal type harassment.

4 We have examples of intimidation. The case of
5 A-52, we wanted to look at that particular one.

6 This is a case of where he did something because
7 he felt his supervisor would not support him. In other
8 words, he took an action based on what he was expecting
9 or the way he was expecting his supervisor to react. So
10 he was intimidated by what that supervisor told him in the
11 past.

12 The lack of management support, that was one of
13 the allegations -- one of the things that came through on
14 a lot of the allegations that the low-level QC inspector
15 identify something, and will not, say sign off on a
16 pour card which would release construction to go ahead
17 with construction. It goes up to the supervisor and maybe
18 another level up, and that supervisor was being -- would
19 get in to a discussion with construction, and the supervisor
20 would sign off on it overriding the CQ -- low-level QC
21 inspector.

22 The QC inspectors ended up with a feeling that:
23 well, why should I flag it, everytime I flag it somebody
24 is going to override it, a situation I don't think, is one
25 would generate a feeling on our part that all of the

1 problems are going to be identified and properly taken
2 care of.

3 CHAIRMAN AHEARNE: But certainly I would have
4 viewed this as management support.

5 MR. SHEWMAKER: The paper itself, yes. And it
6 brings in the cost and scheduling, you know.

7 CHAIRMAN AHEARNE: That not only brings it in,
8 that makes it.

9 MR. SHEWMAKER: Right, and it is repeated often.

10 Production pressures, the instance that I remember
11 most vividly is probably the one that there was a hold
12 up by QC, they knew all of the high-level construction
13 managers were standing around, the concrete was on the
14 way, and everybody was trying to get the QC to sign off.
15 They had a very short time and in some of the instances
16 they had actually reviewed the placement, 24 hours before,
17 and they found out that construction had gone back in
18 and done some additional work, then the QC would go in
19 there and would find additional problems.

20 So they felt they were under a great time
21 pressure.

22 All of those things together really built a
23 finding against Criterion I, that basically says there is
24 a lack of required independent QA function and we
25 did find one or two noncompliance examples in these five

1 categories.

2 The other significant quality related problems.
3 First we would put in the area of the civil QC inspector
4 qualifications, and civil procedures. The finding there
5 that we actually had four items of noncomplaine. The
6 one that would be, I think, the most significant is the
7 question of what we found in the failure to follow their
8 own procedures in qualifying the QC inspectors. There
9 were instances found where QC inspectors did not have
10 adequate training or experience for the job that they were
11 assigned to do.

12 MR. THORNBURG: This could feed to the intimidation
13 and independence thing, because if the guy isn't too well
14 qualified and starts nit-picking the construction foreman,
15 he is under pressure to produce, and I think that also
16 plays a role too.

17 COMMISSIONER BRADFORD: When you said the people
18 aren't qualified, which standard are you using?

19 MR. SHEWMAKER: Those basically were the standards
20 that Brown & Root had established which do reference some
21 of the ANSI standards.

22 COMMISSIONER BRADFORD: They are underqualified
23 by Brown & Root's own standards?

24 MR. SHEWMAKER: Right, which incorporates some
25 of the ANSI standards.

COMMISSIONER BRADFORD: We have a Reg Guide
on standards?

1 MR. STELLO: That's what I have asked Minogue to
2 develop.

3 MR. THORNBURG: There is a Reg Guide in this
4 particular area, but the definitions are not as tight as
5 we believe they ought to be.

6 COMMISSIONER BRADFORD: Does that Reg Guide apply
7 to this plant?

8 MR. THORNBURG: I would assume so.

9 MR. SEYFRIT: I'm not sure that it does. Reg
10 Guides typically apply only when they embrace them as part
11 of their submittal, and I don't know, in this case,
12 specifically whether they did or not. We do know that they
13 embrace some of the ANSI standards and those are the ones
14 that are really at issue here. But I'm not really sure
15 whether they embrace the Reg Guides or not.

16 MR. DIRCKS: Whatever it is, I think we ought to
17 look at it.

18 COMMISSIONER BRADFORD: But that commitment is
19 enough for you to inspect against, to line up their
20 qualifications against the ANSI standards?

21 MR. THORNBURG: (Nods in the affirmative.)

22 MR. STELLO: We can inspect against what they
23 have. The issue is, is the standard which applies to
24 this activity good enough? The conclusion is that it
25 is not, it needs to be upgraded in a better, either Reg Guide

1 or Regulation and promulgated that will beef up
2 considerably the requirements for CQ inspectors.

3 CHAIRMAN AHEARNE: Is that equivalent to saying
4 the ANSI standard is too?

5 MR. SHEWMAKER: Yes.

6 The next general area is the area of soils and
7 plank backfill that was looked at in trying to make an
8 assessment on the effectiveness of the current QA/QC
9 program implementation.

10 We found several areas of noncompliance in that
11 specific area of soils. Six, to be exact.

12 We found failure to complete compaction in
13 accordance with the qualified procedure. Failure to
14 document lift thicknesses in one of the passes which
15 one has to determine in order to understand what the
16 quality you are actually putting in to place. We found
17 two failures to control test equipment. Test equipment
18 is required for imperial type tests on field samples.

19 We found failure to have a systematic field
20 sampling program. We found failure to take prompt
21 corrective action of test equipment failure.

22 In addition to those noncompliances, we found
23 other questions that home in on the soils question that
24 we ended up with. We have some confusion in trying to
25 identify the materials that were actually used in

1 laboratory test programs where liquefaction studies,
2 versus the materials that were used in the field. We have
3 been trying to get that clarified on the phone today,
4 and I guess it is still unresolved as to whether the
5 materials that were tested in the laboratory for lique-
6 faction analysis are actually, in fact, the materials
7 that were put in place in the field.

8 CHAIRMAN AHEARNE: You say that there is some
9 question. Has the question been documented or is there a
10 question that exists which is it a question that we believe
11 there was a different material tested?

12 MR. SHEWMAKER: Well, on the basis of the
13 information we have, what brought it to the inspector's
14 attention was the information we had, there was a
15 possibility we were talking about two different materials.
16 And as yet, we have not gotten the documentation from the
17 licensee that would indicate otherwise. We are seeking
18 that information.

19 We also found that we were unable, and they
20 were unable with their records at the time, to establish
21 the field placement sequence that had been reached, in
22 order to try and go back and see in what sequence the
23 backfill material was placed. We have not been able to
24 get that information.

25 We have a question about the compaction, that

1 degree of compaction under those buildings resting on
2 this backfill material. When the last lift was placed,
3 the last six or nine inches of that last lift was to be left
4 loose, and in some instances what is done in construction,
5 you come back and cut that material away then fill on the
6 firm material. They were not doing that. They have
7 indicated that they have literature that shows that this
8 is acceptable. We still have not homed in and been able
9 to resolve that question.

10 There was a question over a test fill program,
11 and the adequacy of what they had done in a test fill
12 program to establish what lift thickness and how many
13 passes with the patching equipment they would have to
14 make in order to achieve the design densities.

15 When the team left the site, of course, some of
16 these questions were relayed to the licensee in an
17 exit interview, and the licensee embarked on an exploratory
18 program of this in-place material, and we are still
19 beginning to get some of the results of that. So all of
20 that is not yet really analyzed yet. We will talk about
21 a little bit of that at the end, of this latest information.

22 That characterizes the questions that we had
23 in the soils area.

24 One thing I would like to add before I go to
25 the next area is that there have not been allegation in this

1 particular -- this particular discipline has not had
2 allegations in this area. The only reason that we looked
3 at it was it is a major area of safety related work
4 that has been on-going, and was looked at because of our
5 attempt to look at the total QA/QC program effectiveness.

6 The next area that was looked at is the welding
7 and NDE area. The major findings there: we have had 6 non-
8 compliances in this area, the major ones being: failure
9 to test the welder qualifications specimens with the
10 proper radiographic techniques, so that what happens is
11 what ends up with a question of whether or not the
12 welders are properly qualified. This, I believe, the
13 number is something like 150 welders' qualifications is
14 a question because of this.

15 There has not been a great deal of welding
16 completed, so if we are going to catch something like this,
17 this was the time to identify it before a lot of high
18 quality welds had been put in place.

19 The other major item in this area was failure
20 to control radiography and the liquid penetrants. We
21 found problems in radiography, the quality of the
22 radiographs, problems in their interpretation of what
23 they saw in the radiographs. In the liquid penetrants,
24 we saw problems in the indications they had of flaws
25 were not re-examined as required by the code requirements.

1 The other noncompliances in that area dealt
2 with failure to control documents, documents out of date,
3 not being superseded properly and voided. Failure to
4 control weld area cleanliness. Our investigators actually
5 observed this going on in an unclean situation for welding,
6 and it does effect the welding. Failure to control design
7 changes in welds, and failure to handle the outdated
8 procedures.

9 The next major area dealt with the -- their
10 methods of handling the nonconformance. These include
11 all types of nonconformances. Many sites have assigned
12 different names and acronyms to the way they handle their
13 reports. At this particular site, they call it
14 an NCR, Nonconformance Report, they also have another
15 form which is called a FREA, which is a Field Request
16 for Engineering Analysis or Action.

17 We found that while many of the things had been
18 identified in one or other of these types of record keeping
19 mechanisms, there seemed to be an attempt to put more of
20 them in the FREA category and the FREAs at the site are
21 not looked at in total. In other words, I built up
22 a list of about 1000 FREAs, but no one ever looks at
23 them to trend them and if I have, say, 50 FREAs on a
24 containment building, no one ever looks at the aggregate of
25 50 together to see what the total effect is. Each one is

1 in itself, isolated. So what the team found was that
2 things that were identified as discrepancies that we would
3 normally see in the -- what we call the NCR group that
4 are looked at on trend analysis, were, in fact, not being
5 classified in to that grouping at South Texas. So we see
6 that there is a total number of discrepancies that fall
7 in to this category that really hasn't been at all tracked.
8 We had the one finding in that particular area.

9 Again, that was somewhat related to some of
10 the allegations. The inspectors said, you know, I tried
11 to initiate an NCR which has to be tracked and they turn
12 around, the supervisor or construction puts the pressure on
13 and it ends up being a FREA, which means none of this is
14 tracked very well, as far as trending and what the total
15 effects are.

16 The next major area was the area of audits. We
17 found four noncompliances in that area. I think we have
18 to classify all of those as critical, the audits being
19 really the total bounds in defense and depth that we are
20 looking at it in a QA/CA program. We found in this failure
21 of the licensee to provide procedures or to perform
22 supplemental audits that they had indicated would be
23 performed in their reference documents. The adequacy and
24 the frequency of audits did not meet what they indicated
25 they could do.

1 We found the depth of the audits by Brown & Root,
2 that they had to perform, were not sufficient. We found
3 failure to follow proceedings to document the control
4 to unsatisfactory conditions, and failures to take prompt
5 corrective actions.

6 So those in total as outlined in noncompliances
7 that were found, we have a number of items, as I indicated,
8 we will have to follow up. Some of them relate to these
9 five areas I have outlined. One of the areas that we
10 specifically came away thinking needed beefing up in this
11 case, I think we come out with the impression that we have
12 a situation here where the licensee is, in fact, not
13 exercising sufficient control over his contractor. And in
14 this case this contractor has what I consider the total
15 packages. He is the designer, the engineer, he is the
16 constructor and builder, and he also has the QC functions.
17 So he has all three parts of the package and in that
18 situation, it certainly is important that the licensee
19 have a very close handle on that total scope of work.

20 COMMISSIONER BRADFORD: What would happen if
21 he required the QA/QC to be done by HP&L instead of --
22 well, by a separate entity all together, anyway, not by
23 Brown & Root?

24 MR. SHEWMAKER: Well, we have -- there was an
25 instance at one plant where a requirement was placed --

1 right now, I guess we would have to say that a licensee
2 would certainly not be staffed to ever handle anything
3 like that.

4 COMMISSIONER BRADFORD: Did you ever have
5 licensees to do the QA/QC instead of the construction
6 company?

7 MR. SHEWMAKER: Yes, there are licensees ---
8 You have to look, there is a difference. Some of them
9 do it all themselves.

10 MR. SEYFRIT: There are a number of different
11 combinations that you see. We have one licensee which also
12 has Brown & Root as the constructor, at Comanche Peak where
13 the utility, while they don't do all of the QA/QC work,
14 they have taken over absolute control of that function.
15 The QC/QA people from Brown & Root report to TUGCO
16 supervisors. That way, they have taken control, and as
17 a matter of fact ---

18 COMMISSIONER BRADFORD: Did that also come as
19 the result of unsatisfactory experience with Brown & Root?

20 MR. SEYFRIT: I think that is probably a fair
21 statement isn't it Phil?

22 MR. SEIDEL: You are talking about TUGCO,
23 Texas Utilities Generating Company, they were dissatisfied
24 with the performance of the corporate -- Brown & Root
25 QA. They just decided that one day all of the Brown & Root

1 QA/QC people would report to their company. However, the
2 QA/QC people still get their pay checks from Houston.

3 CHAIRMAN AHEARNE: Do we see any improvement?

4 MR. SEIDEL: I would say, yes, some improvement.

5 CHAIRMAN AHEARNE: Do we have any other examples
6 of Brown & Root?

7 MR. SEYFRIT: I think these are the only two
8 at the present time that Brown & Root is involved in,
9 South Texas and Comanche Peak.

10 COMMISSIONER BRADFORD: I guess I should ask
11 rather than assume that because of TUGCO's dissatisfaction
12 was the same sort of thing as seen here, and not that,
13 for example, construction was proceeding too slowly?

14 MR. SEYFRIT: No, I don't think that it was
15 that. It wasn't exactly the same either. For example,
16 I don't know of any indication that TUGCO had that there
17 was the harassment and intimidation and that sort of
18 thing taking place. That did not appear to be a factor
19 in their decision, but they didn't feel that the job
20 was being adequately controlled in terms of the numbers of
21 items reworked and ---

22 CHAIRMAN AHEARNE: Were the numbers too high or
23 too low?

24 MR. SEYFRIT: They were obviously too high, I
25 think. They felt they wanted ---

1 COMMISSIONER BRADFORD: That's why I didn't
2 assume that.

3 MR. SEYFRIT: I mean the problems in construction
4 were not being delt with.

5 COMMISSIONER BRADFORD: I see, they were having
6 to go back and do things over?

7 MR. SEYFRIT: That's correct, and they wanted to
8 make sure that the inspection was properly done the first
9 time around so that this didn't happen.

10 MR. THORNBURG: So that the work got done properly
11 before the inspection.

12 MR. SEYFRIT: So those kinds of factors were
13 involved.

14 I might mention that I have had communications
15 from HL&P, and they have been in contact with TUGCO, and
16 they are discussing and considering the possibility of
17 their taking the same kind of action. They have not
18 yet made such a decision, and I don't know whether I would
19 want to push them in that direction right now or not, but
20 I'm not sure that that's the total answer. You buy something
21 but then I think you give up some other independence that
22 may be as desirable.

23 CHAIRMAN AHEARNE: What other independence do
24 you have?

25 MR. SEYFRIT: Well, if HL&P takes over the entire

1 job of controlling the quality assurance/quality control
2 effort, they still have the ultimate end of rapid
3 construction and so forth, so some of the same driving
4 forces that are present now with Brown & Root would be
5 present in HL&P.

6 CHAIRMAN AHEARNE: So you are saying there is
7 some alternative plan rather than Brown & Root?

8 MR. SEYFRIT: Yes, I think frankly, that a much,
9 much stronger HL&P presence on site, without necessarily
10 taking over.

11 CHAIRMAN AHEARNE: I see.

12 MR. THORNBURG: We are sort of moving ahead
13 in a way. We are considering encouraging Houston Power
14 and Light to get more involved. We haven't talked quite
15 about ---

16 CHAIRMAN AHEARNE: I will stop my digression at
17 the moment. Here, you have Brown & Root having
18 construction in two agencies, you have the TUGCO
19 proposition where Brown & Root does the construction and
20 the Brown & Root people still have to report to the
21 utility.

22 Now, you were pointing out that that would
23 lose some of the independence, but ---

24 MR. SEYFRIT: No, I didn't suggest that it would
25 lose, I just don't think that you gain any independence.

1 CHAIRMAN AHEARNE: Well, to some extent -- Well,
2 go ahead.

3 MR. SEYFRIT: It is not clear.

4 MR. STELLO: I think it is an area that does
5 need to be looked at, but the bottom line is there needs
6 to be an improvement in the QA/QC organization, at least
7 in terms of the way in which you are getting the job done.
8 That's one way. There are others we will talk about at the
9 end.

10 MR. SHEWMAKER: Okay, conclusions. I don't think
11 we need to rehash the first few there.

12 We have reached the conclusion that we have got
13 a QA program that is impaired, we have got lack of
14 independence.

15 Now, this lack of independence really comes out
16 only in the civil area that we have seen. That is really
17 the only major area that has heavy work activities.

18 We have really no clear cause that affects
19 relationships resulting in deficient systems and
20 components as a result of this. We don't see, in the
21 civil area, as a result of this investigation, any major
22 problems with regard to safety.

23 CHAIRMAN AHEARNE: As you went through your
24 description, one of the questions that was sort of
25 puzzling about it, is that are the quality control people not

1 nearly adequate, so is the fact that they get harassed
2 and pushed around and don't raise their problems, those
3 problems that they don't raise don't seem to have led
4 at least in judgment so far, in safety problems. That
5 could be because they don't raise the problem in non-
6 safety areas, it could be because of the problems they
7 raise could be that they are not being very competent
8 if the problems they raise weren't really problems.

9 MR. STELLO: Well, that's a third possibility,
10 and even in spite of the difficulty, the job is not
11 getting done, although that the activity doesn't stop
12 them from saying I don't think you have to investigate
13 them. And one way to measure that is to look at the end
14 product. When you look at the concrete of the South
15 Texas project, it doesn't look like Marble Hill.

16 CHAIRMAN AHEARNE: No, no. There is another
17 way had, I'm not sure what would have been done is to
18 look at the kinds of things on which they got harassed
19 or look at the issues they have decided not to raise in
20 which you judge whether or not those are real issues.

21 MR. STELLO: Are you aware of any issues that
22 were not raised because of the activities or harassment?

23 MR. SHEWMAKER: No, all of the people that were
24 interviews basically said that, you know, they had always
25 brought everything up. I guess it is just this feeling

1 of frustration ---

2 CHAIRMAN AHEARNE: But you also mentioned some
3 area that they felt should have been in NCRs but instead
4 became FREAs. Did you look at those and say, yes, those
5 really should have been NCRs?

6 MR. SHEWMAKER: I think we looked at it from
7 the standpoint of trying to compare it to what we would
8 see on another job, and we would say, yes, it probably
9 should be in the category of an NCR, because that is the
10 system that gets tracked. So you have a long-term
11 evaluation.

12 CHAIRMAN AHEARNE: But you really though,
13 trying to make an estimate of were they not really
14 competent people to raise the problems, or where they
15 were competent people raising problems to ---

16 MR. SHEWMAKER: We did, of course, identify some
17 of these QC inspectors at level one that were not
18 adequately qualified. I guess we did sit down and look
19 and see if those were the ones who were well trained.

20 MR. HAYES: Depends on how you look at the
21 problem. If you look at a specific instance, there
22 was harassment not with respect to a particular item,
23 but there was a whole series as was pointed out, and on some
24 of the others; nobody looked at all of the problems
25 contained in the sum. There is a pattern of harassment of

1 the QA people that's a conclusion that affects the QA
2 program and the purpose of the QA program is to assure
3 safety, so it is ---

4 CHAIRMAN AHEARNE: Yes, I know. I was just trying
5 to get a sense of how much of that would be due to the
6 the fact that a bunch of people like that are competent.

7 MR. HAYES: That seems to be disconnected with
8 safety here, and I find that an incompetent QA program
9 isn't what I think ought to then achieve in connection with
10 safety.

11 MR. DIRCKS: But isn't it the single items of
12 harassment ---

13 CHAIRMAN AHEARNE: My point is that we have
14 a QA program that really looks terrible. Now one of the
15 things you conclude ordinarily would be terrible, is the
16 product would be terrible. But that's not what you find.

17 I was just wondering skeptically is it because
18 the QA people are terrible?

19 MR. SEYFRIT: Well, at the risk of being somewhat
20 misunderstood, I would like to make a comment to maybe
21 bring this in to some degree of perspective.

22 It was mentioned here earlier that there was
23 something like 1100 hours of effort went in to this
24 inspection. Our routine program up to this point represents
25 something on the order of an equal number of hours, making it

1 a little less than more, over a long period of time. So we
2 have concentrated a great deal of effort and compacted
3 it into a small space, and I'm not really sure, you know,
4 I can't put numbers to this, but I rather imagine that if
5 you look at the rate of noncompliance items or some such
6 measure as that, per inspector hour of effort, you would
7 see that they are not that greatly different. And what
8 I'm suggesting is the possibility that over a longer period
9 of time, if we had looked at these same areas, the same
10 number of things would come up, but in single isolated
11 cases rather than a broad spectrum.

12 MR. THORNBURG: It is a little over the
13 average.

14 MR. SEYFRITS: It may be.

15 MR. STELLO: I think the way it is cited it is
16 a different issue here. That is the issue of harassment
17 and intimidation and the way the QC inspectors have been
18 treated.

19 CHAIRMAN AHEARNE: Victor, I'm not saying that
20 we can tolerate harassment of the QC people. That's
21 not the issue I was trying to make.

22 MR. STELLO: That is clearly not a situation
23 that you want to tolerate. I think, a strange relationship
24 between QC people and construction people is normally trouble.
25 You would expect to see some normal adversary role, because

1 I think it is a natural involvement and it is too much
2 here. It is beyond that. But you always look at the
3 product to decide where are you. If the product looks
4 like it is good, in this third possibility, although these
5 problems are there, that somehow they are still managing
6 at this point to still get through and have this quality
7 job done so that the product is still, at least for the
8 most part acceptable. We are seeing the innocent problems.

9 Now, we are going to get, very quickly, in to this
10 soil issue, which is not a trivial problem. It is a safety
11 problem. It is related to the QA, it is not related to
12 these allegations. But the way in which they have been
13 doing the job, it is producing, at least in this particular
14 area, questions which are fairly significant. So it is not
15 to say that the product is completely free of the problem,
16 you can see a relationship, at least there is an inner
17 one, that some of the problems were saved because of the
18 soil, we are now saying some new problems which we are
19 finding out even now, today.

20 So if I think you give us just another moment,
21 there will be a clearer connection.

22 MR. SHEWMAKER: Okay. I would like to give you
23 a rundown, sort of on the current status. We will leave
24 the soils there until last.

25 As far as concrete activities, as the result of

1 their immediate action letter, the complex concrete
2 placements have been halted since December 21st.

3 Now, I will explain what complex concrete
4 placement is. That would include all concrete in the
5 reactor containment buildings, and it also includes, as
6 defined and identified by the licensee and the constructor,
7 those other placements in Category I buildings that were
8 involved, complicated embedments, anchors, supports and that
9 sort of thing, and heavy reinforced areas.

10 CHAIRMAN AHEARNE: And the reason for that
11 stoppage was?

12 MR. SHEWMAKER: The reason for that stoppage
13 was, in fact, the findings of this investigation, the
14 question of some QC inspectors not being adequately
15 qualified. We did have some findings with noncompliances
16 in procedures in the concrete placement. And they --
17 failure to follow those procedures will have a more
18 pronounced effect on the completed structure in these
19 complex placements. So those have been halted and
20 remain that way.

21 Just recently in the area of welding, and
22 because of the question about qualification of those
23 welders, the licensee has issued his own stop-work
24 order, I believe on what, March 18th?

25 MR. SEIDEL: Yes, and it was reconfirmed on the
14th.

1 MR. SHEWMAKER: Then it has been reconfirmed just
2 recently, yesterday.

3 And that deals with welding -- ASME Code
4 welding and that associated with Category 1 welding.
5 That is sort of an evolving situation, and would appear
6 that that came out as the result of findings of this
7 investigation, the facts that these welders are not
8 qualified.

9 Another thing that came out of the investigation
10 were the findings of harassment and intimidation. The
11 licensee has hired an independent consultant to come in
12 and look at the environment under which the QC people and
13 construction people have to work.

14 CHAIRMAN AHEARNE: That hasn't been completed,
15 then?

16 MR. SHEWMAKER: The study has been completed. We
17 have not received a copy of it. I understand the Region
18 people have looked at that at the site. We do have an
19 executive summary, which sort of summarizes that.

20 MR. PHILLIPS: We have received a copy of it,
21 but I'm not sure they reached the same conclusion.

22 CHAIRMAN AHEARNE: In what sense?

23 MR. PHILLIPS: That they believe there isn't
24 any pressure of any great amount at this time.

25 MR. SHEWMAKER: They concluded that the pressures

1 were really not coming from construction, but the situation
2 was being created within their own management organization
3 and the QA/QC group. They even made the statement that
4 the working relationship between individuals in construction
5 and QA/QC is sound. That seems to be about 180 degrees
6 from the findings of this team.

7 CHAIRMAN AHEARNE: This was, you say, done by
8 a consultant hired by the company?

9 MR. SEIDEL: A Mr. Howard was the auditor.
10 I know nothing about this consultant firm.

11 CHAIRMAN AHEARNE: It is not a group that I&E
12 is familiar with.

13 MR. PHILLIPS: No.

14 MR. SHEWMAKER: They outlined some steps that
15 they felt the licensee should take. I might just mention
16 those quickly. The licensee has put those in a letter.

17 CHAIRMAN AHEARNE: And the licensee is ---

18 MR. SHEWMAKER: Trying to take some action.

19 CHAIRMAN AHEARNE: But based upon the
20 consultants.

21 MR. SHEWMAKER: Their recommendations.

22 Reemphasize the role of QA/QC to construction
23 personnel, and I don't know their exact speech and for
24 forth, but that acutally came before, I believe, just
25 before this report was available.

1 Additional training and seminars, and meetings
2 to strengthen the role and understanding of the purposes
3 of functions of QA/QCs.

4 CHAIRMAN AHEARNE: Seminars with whom?

5 MR. SHEWMAKER: All the workers.

6 Revised salary schedules for QA/QCs. And the
7 last, improvement of the communications by QA/QC
8 management at site meetings and with all the low-level
9 personnel in QA/QC.

10 In addition, the licensee has committed to
11 some changes in the QA program, and the way they are going
12 to implement that, and those came about as the result of
13 a meeting which was made up of people from the team and
14 Region IV the end of December. And there was a series of
15 9 steps that were -- or items that were outlined. The
16 licensee has been proceeding to try and implement these
17 9 steps, and at the present time, it appears that 5 of
18 these still have not been fully satisfied. The Region
19 has been following the licensee's implementation of these
20 commitments, maybe Phil would want to say something about
21 that.

22 MR. SEIDLE: With regard to the 9-point program
23 there still are some 5 items which remain open.

24 Item number one, which is a concern about Brown &
25 Root costs which was expressed, I think, in a January 4th

1 meeting.

2 COMMISSIONER HENDRIE: This is the Appendix 5
3 speech?

4 MR. SEIDEL: Yes. There is concern regarding on-
5 site authority, for the QAs to have more organizational
6 freedom. They are permitted to place noncomplex concrete
7 placements. They have been observing their activities to
8 see just how this will impact on the QC performance.

9 With regard to the second item under number 2,
10 which deals with the FREAs and NCRs, they had not
11 completed a coding and printing effort to code all of these
12 FREAs into engineering disciplines and looking for trends.
13 This is not completed.

14 They have not revised their procedure for
15 control of FREAs. With regard to Item No. 5, apparently
16 this has to do with procedure revision with regard to
17 pre-planning placement activities, specifically we are
18 talking about a list before concrete is put in place,
19 thereby, on-site engineering/construction QC people
20 identify what must be done before placing the concrete,
21 yet they are placing it in an informal manner, it has
22 never been formalized. Yet they rely on that. This
23 has not been done yet.

24 Item No. 7 of this 9 point program is
25 augmentation of site QA staff. Are they indeed adequately

1 staffed. We don't know the number of on-site QA
2 surveillance people representing the licensee, are they
3 sufficient. We will have to observe to see if these
4 numbers are adequate. Are they functioning adequately.

5 In other words, have they brought about
6 changes as a result of this task force effort that has
7 improved their performance at the site.

8 Item No. 9 is the last Item. I said Item 7,
9 Item No. 9 is the last item. Of course, they have made
10 commitments to reemphasize the role of the quality
11 control program. This is in progress, this effort is
12 not complete. They made a commitment to conduct refresher
13 training methods, this is in progress. With regard to
14 the salary administration program, that is trying to make
15 the salaries of QCs competitive with QCs elsewhere, and
16 the relationship to the workers at the site, there has been
17 no action taken to do that, as we know of with regard to
18 this item.

19 With regard to improved communications, this
20 is in progress, but it is not complete. Concerning the
21 relationship of resolution of conflicts between QC
22 inspectors and construction people, a procedure has been
23 generated, reviewed and approved on how to handle these
24 types of conflicts. Whether or not it works or not, remains
25 to be seen. Again, we will have to inspect their activities

1 and their judgments.

2 That essentially summarizes those.

3 MR. SHEWMAKER: Okay, the last item under
4 current status is an up-date on the soil situation.

5 You will probably find when you go back to your
6 offices tonight you have received a PN. We just recently
7 received information that the MEAB, that's Mechanical
8 Electrical Auxiliary Building, where Unit 2 has a
9 differential settlement both north to south, of one inch,
10 the south end having moved downward. The licensee has
11 indicated that this is the result of the heavier loadings
12 due to construction sequence which has been placed on the
13 south end.

14 The licensee has indicated that no piping is
15 currently attached in this building, and that they feel
16 that the situation ought to correct itself as they get
17 the loading more uniform, as will be the case when the
18 structure is completed. We really have not had a chance to
19 evaluate this at all. I guess we have the question of
20 whether that may or may not relate to some of the
21 deficiencies we identified in the backfill program, and
22 whether or not there is a cause of effect there, I can't
23 say at this time. We are looking at that possibility.

24 As far as our planned actions, there is, of course,
25 a new allegation related to drugs, which is being investigated.

1 We are looking at and considering ---

2 CHAIRMAN AHEARNE: This intimidation, does that
3 relate to the procedure?

4 MR. SHEWMAKER: That's my understanding, yes.

5 MR. SEYFRIT: Yes, but in a different
6 discipline than we have talked about before. There was
7 a QC man involved, that was 1 out of 4 as I understand it.
8 It was a discipline of mechanical rather than civil. It is
9 a different group of people.

10 CHAIRMAN AHEARNE: It is still Brown & Root then?

11 MR. SEYFRIT: Oh, yes, it is all Brown & Root
12 on both sides, that's right.

13 MR. SHEWMAKER: One of the planned actions is
14 civil penalty in the area of these noncompliances that we--
15 there were a total of 22 noncompliances defined by this
16 investigation. That is being considered.

17 We also are considering an order which would
18 handle trying to correct the situation that we see.

19 CHAIRMAN AHEARNE: What would you base the order
20 on?

21 MR. SHEWMAKER: The order would address corrective
22 action in the area of welder and welder requalification
23 and relook at any welds that were completed by those
24 welders that didn't have adequate qualifications.

25 It would address the NCR and FREA trending

1 situation. The audit surveillance, the problem of
2 qualification of the civil QC inspectors, and somehow
3 we need to address a mechanism or provide a mechanism
4 for getting increased involvement of the licensee in to
5 the QC functions.

6 CHAIRMAN AHEARNE: Why do you just restrict it
7 to the civil, is it the turn of events that the other is
8 still on-going?

9 MR. SHEWMAKER: I guess, as far as I know,
10 the team didn't really get in to all areas, as far as
11 qualifications of inspectors. I guess we don't know that
12 at this time. Perhaps it should be broadened.

13 MR. STELLO: I think the issues is that we
14 do know where there is a problem. We hopefully are going
15 to cover this with an umbrella that says you have got to
16 get your whole act together and make sure that this doesn't
17 occur.

18 The recent incident of yesterday when they cut
19 back now, in the welding area, is, I think, a good sign
20 that they are looking very carefully and are stopping the
21 work when things aren't moving correctly. To the extent
22 of the attitude, I don't see that they will have further
23 problems, and if they do, then we are going to have to
24 cite them for that.

25 You left out one area, Bob, that I think is

1 important. We are going to have to find a way we can
2 get some answers to these questions on the soils, as there
3 are some areas where we have made some measurements and
4 the soil is not up to the standards that it should have
5 been, the area is not under construction at the moment,
6 but off to the side. We are going to have to lay a time
7 table, as there really is a serious question on the soil
8 under some of these structures when the construction
9 begins. We should get to that very quickly, so we don't
10 have to have a situation develop exactly the same as in
11 the past. We should perhaps find a mechanism to get
12 that information.

13 CHAIRMAN AHEARNE: Is there any way we can reach
14 Brown & Root?

15 MR. STELLO: We are looking at that question.

16 CHAIRMAN AHEARNE: I recognize that the licensee
17 is probably responsible, but ---

18 MR. STELLO: This most recently allegation that
19 we are speaking of, depending on how that goes, it may
20 give us a mechanism to get there directly.

21 COMMISSIONER BRADFORD: What does that mechanism
22 look like?

23 MR. STELLO: This particular allegation has a
24 flavor to it where Brown & Root personel, we got hold of
25 an individual and requested he sign a particular document

1 saying you didn't see any safety problems here, and he
2 will sign this document to relieve his drug charges.
3 This at least has a potential for ---

4 COMMISSIONER BRADFORD: Now, what part of our
5 regs is it that ---

6 MR. STELLO: I wasn't thinking in terms of our
7 regs.

8 COMMISSIONER BRADFORD: It is a matter of violations
9 of law?

10 MR. STELLO: Whether we can get them specifically
11 under Part 21 on this issue.

12 CHAIRMAN AHEARNE: Isn't there some way -- we
13 haul in licensees to public meetings, is there any way
14 we can insist that the licensee can burden Brown & Root ---

15 MR. STELLO: Absolutely.

16 CHAIRMAN AHEARNE: They are the ones that we
17 ought to be really ---

18 MR. STELLO: That's the last item.

19 At the meeting we are talking about, it is quite
20 apparent this will be one of the major issues, and we
21 hope to direct this to the officials from Brown & Root as
22 well as the licensee, but my view is the licensee is
23 the individual who is responsible. He has got to get
24 his act together, and if that means that he has got to do
25 something different with Brown & Root than he is doing,

1 we should direct that change or he can find some other
2 way to do it, but the first responsibility, the first
3 level we look at is the licensee.

4 There are questions as to whether or not we ought
5 to find -- want to look at mechanisms to get to the
6 architect/engineering firm and the next level would be
7 Brown & Root. Bill raised this question in the briefing
8 last week. I don't know if there is an easy answer.

9 MR. MURRAY: Generally, I would say no. This
10 is a function for the licensee to perform and we hold them
11 responsible for all of those things not done. If we
12 were to deal directly with the AE, that would imply
13 somehow that this regulatory agency would want to see
14 the plant get built, and I don't think we want to imply
15 that. We just make sure that it gets built safely.

16 CHAIRMAN AHEARNE: Right.

17 MR. MURRAY: If it does not get built at all,
18 we say to the licensee, you make sure it gets built safely,
19 we just want to make sure.

20 CHAIRMAN AHEARNE: Let us assume that we do go
21 out with some sort of notice, et cetera, we put out
22 a public announcement as such, do we put in Brown & Root?

23 MR. STELLO: In this particular meeting we are
24 referring to, specifically, especially in light of this
25 particular piece of paper, there is no doubt in my mind

1 their senior officials of the company must be there if
2 this issue is squared away.

3 CHAIRMAN AHEARNE: What I was trying to get at,
4 for example, let's suppose you go forward somehow, some
5 penalty goes out in the press release saying the NRC
6 is laying a fine on such and such a licensee. We go
7 on to say this is because of the continual violations of
8 standard noncompliances of QA/QC of Brown & Root.

9 MR. STELLO: We haven't normally done this.

10 CHAIRMAN AHEARNE: I know that.

11 MR. STELLO: I don't like to decide this --
12 I will be happy to look at it.

13 CHAIRMAN AHEARNE: I would like very much for
14 you to look at that.

15 MR. STELLO: I guess I don't see anything
16 fundamentally wrong, especially with respect to the
17 meeting we are going to have. I think we want to be
18 clear to the Brown & Root officials ---

19 CHAIRMAN AHEARNE: What kind of schedule do
20 you have on this for considering these ---

21 MR. STELLO: With respect to the enforcement
22 package?

23 CHAIRMAN AHEARNE: Yes.

24 MR. STELLO: If things settle down for a day
25 or two and we can get it developed, I would suppose in

1 about a week we can have the enforcement package. The
2 order we are talking about is much more difficult.

3 I guess I can assume the report will be finalized
4 within that time.

5 MR. DIRCKS: Assuming there are no more allegations.

6 MR. STELLO: Well, there already are. Those will
7 not be finished.

8 MR. THORNBURG: The scope of the investigation
9 has to stop.

10 MR. STELLO: I had the problem of looking at a
11 way which to get in to the press announcement, what
12 particular action would involve Brown & Root specifically.
13 I just want some more time to think about that.

14 MR. MALSCH: Are any of the Part 21 violations
15 similar to the B&W situation?

16 MR. STELLO: Yes, that is one of the issues
17 that came out of the briefing last week.

18 MR. SEYFRIT: What is the Part 21 connection here?

19 MR. STELLO: We are going to look in to it,
20 no one has an answer at the moment.

21 COMMISSIONER HENDRIE: What you have is a QA/QC program in
22 which there appears to be more than the normal and perhaps
23 irreducible amount of friction between the construction and
24 QC/QA shops. There appears to be less management support
25 in the QC than we would like to see and relations of that

1 kind.

2 Nevertheless, it isn't clear to me from what
3 you have said today, there is any very clear evidence to
4 me, much of any evidence, that in spite of the QC program,
5 it hasn't been effective and resulting in a satisfactory
6 construction product.

7 Now, it is certainly not a situation that one
8 would encourage or want to tolerate going on, because as
9 they go on with the plant, getting in to more complicated
10 areas, especially over in the mechanical and electrical
11 areas, it is that much tougher to get a quality product
12 than it is in some of the heavy concrete work that they
13 are doing now. So you would like to get a hold of it.
14 It isn't clear to me that, in fact, there is much evidence,
15 if any evidence of safety related deficiencies, and if there
16 isn't, then you have to say, well, it is a safety related
17 problem that people are snarling at the QC inspectors and
18 so on, I think that is the point you stressed.

19 MR. STELLO: Let me make one exception to what
20 you said. I think in the area of soils ---

21 COMMISSIONER HENDRIE: Well, the soils question is
22 an open one. I'm not talking about that.

23 MR. STELLO: That's a QA breakdown. The QA system
24 wasn't doing its job in making the engineer's backfill done,
25 in the way that was supposed to get it done. So that's ---

1 COMMISSIONER HENDRIE: But you wouldn't cite
2 them because the construction people were being nasty
3 to the QC people. You cite them because they failed to
4 get the soils compaction specified.

5 MR. STELLO: That's exactly right.

6 COMMISSIONER HENDRIE: Now, I was going to ask.
7 Do you have a thought for where you are going on the
8 enforcement action here?

9 MR. STELLO: What appears to be warranted is
10 a civil penalty based on ---

11 COMMISSIONER HENDRIE: It appears that the
12 utility is in motion.

13 MR. STELLO: Yes, the utility is in motion.

14 CHAIRMAN AHEARNE: Except that it hasn't
15 caught up with the system.

16 COMMISSIONER HENDRIE: Listen, you get 3,000
17 construction workers and assorted people on the site, not
18 much of this surprises me.

19 MR. STELLO: You take the experience of it
20 being a half dozen of both arguments. He has found and
21 corrected the problem himself, he has decided to take
22 some action, that's a QA function itself.

23 CHAIRMAN AHEARNE: Who, the licensee?

24 MR. STELLO: He decided the welding wasn't going
25 the way he thought it ought to go and stopped it again.

1 Well, the civil penalty to me seemed to be ---
2 COMMISSIONER HENDRIE: Is it clear you are
3 going to get the best action from the collection of people
4 in South Texas, I guess, is what I'm getting to.

5 MR. STELLO: Well, that's not all. I think we
6 have to get an order which gets in to some of the areas
7 and problems of the past, in to causing things to get
8 turned around. I think that's necessary.

9 I'm also beginning to believe that the concept
10 of: Let's get together and have a public meeting, do
11 this on local at the site, and get put things on the table
12 and let's talk about them. I think that is an important
13 thing also. I will propose that the enforcement package
14 include a civil penalty, and I don't think it is going to
15 be big dollars. The requirements that ought to be in the
16 order, including an order to have a public meeting on
17 or before some date, whatever I decide on. In a nutshell,
18 that's the kind of enforcement package, as I see it,
19 that is appropriate now.

20 COMMISSIONER BRADFORD: Let me ask a couple of
21 questions if I could about the investigative technique.

22 There has been a pretty high turnover of people
23 leaving. If I'm reading the summaries of the interviews
24 correctly, I didn't notice you had interviewed many of
25 the people who had left. Is that correct?

1 MR. HAYES: That is true.

2 COMMISSIONER BRADFORD: Why not?

3 MR. HAYES: Most of them weren't available.

4 COMMISSIONER BRADFORD: Wait a minute, of course,
5 they are available, if they haven't left the country.

6 MR. HAYES: Right. Well, I guess in part, we
7 looked to OIA, but in part too, we had to bring this
8 thing to a lull some time, and there were quite a number
9 of them. Where do you stop, I guess is the ---

10 COMMISSIONER BRADFORD: Well, just intuitively,
11 I would have thought that you might some time get a more
12 complete discussion, shall we say, of practices of the
13 site by interviewing people who didn't also have a
14 continuing job stake in what they were saying.

15 MR. STELLO: But that had taken place in the
16 earlier interviews, before they left the site.

17 COMMISSIONER BRADFORD: Okay, so you are saying
18 that is true?

19 MR. STELLO: In the earlier interviews that are
20 already done. The scope of this particular group that
21 I had in mind was to take a look right now and get in to
22 it with the OIA activity, looking back in to the previous
23 allegations of people who had raised ---

24 COMMISSIONER BRADFORD: Okay, as long as somewhere
25 in the agency these people are being picked up.

CHAIRMAN AHEARNE: Is that what OIA is doing?

1 MR. FORTUNA: Yes, sir.

2 MR. STELLO: In our first investigation
3 interviews we did that too, take a look at the people who
4 had left.

5 MR. SEYFRIT: The ones that were conducted by the
6 Region before this present one, there were a number of people
7 who had left the employe that we did talk to. I can't
8 give you an actual count of those, and I'm sure I can't
9 say that we talked to each and every one of them, but we
10 did talk to a number of them.

11 MR. THORNBURG: There is another point though.
12 Dee sat down and talked to another 50 people without taking
13 their names. They talked a little bit about turnover rates
14 and general problem areas. Is that correct?

15 MR. HAYES: Yes. This turnover kept coming up.
16 A lot of people quit, but I did make an attempt to talk
17 to people who were there, recognizing they were not the
18 people who had left. I asked them why some of those
19 people left, and I got a variety of answers, I would say
20 about a third of them was because of poor management.
21 They said the management is all fouled here, I have
22 never worked in a place where management is so screwed
23 up. Comments like that. Another third felt that the
24 merchants in Bay City was taking advantage of them, they
25 didn't like the area, their families didn't like the area

1 and that was why they were moving. I didn't get the
2 answer that I thought I might get, harassment and things like
3 that.

4 COMMISSIONER HENDRIE: Sounds normal to me.

5 COMMISSIONER BRADFORD: Well, except that the
6 numbers, if I understand them correctly, 22 of the 39 in
7 the CQ inspection group, as of February 1, 1979, voluntarily
8 terminated or were terminated or reassigned. I don't know,
9 maybe that's normal, but that sounds like an awful lot.
10 Well over half, and it is against that background that
11 it seems to me that it would be desirable for somebody to
12 somehow be talking to that group as well and see what
13 they have to say.

14 MR. SEYFRIT: We have talked to a number of them
15 because they show up on other jobs. As he indicated, about
16 a third of them leave because they can make more money
17 some place else and we see some of those showing up in other
18 places.

19 COMMISSIONER BRADFORD: Yes, but you wouldn't
20 be talking with them some place else. You have got to
21 systematically go after this group.

22 MR. SEYFRIT: Right.

23 COMMISSIONER BRADFORD: Again, reading from the
24 summaries I couldn't tell, they are signed at the end, and
25 the signature comes under the statement: "To the best of my

1 knowledge and belief, this statement is true." Is that
2 a sworn statement?

3 MR. MURRAY: It is.

4 MR. SEYFRIT: I think we were going to try and
5 clarify in the body of the report, the first Appendix in
6 there are sworn statements, that is, where you have
7 statements, and it is entitled at the top uniquely, and
8 I can't remember the exact title.

9 Then the second part of it, where there are
10 statements indicated there are summaries of other
11 interviews. Now, all of those that come under the heading
12 of "Summary of Statements" are sworn statements, but they
13 have been summarized here in order to try to protect the
14 identify of the individuals.

15 COMMISSIONER BRADFORD: I see, but if in fact,
16 anything in one of those statements were to turn out to
17 be deliberately false, that would be a prosecutable
18 violation in itself.

19 MR. SEYFRIT: That's correct.

20 MR. MURRAY: It would be in violation of the law.

21 MR. SHEWMAKER: All of those in Appendix 2 are
22 signed sworn statements. Those that have been excluded
23 are summary statements.

24 COMMISSIONER BRADFORD: I guess I don't have any
25 other questions, but just a comment though.

1 I'm struck by what seems to be a fairly wide-
2 spread network of undesirable events, violations, what
3 have you, but especially so in light of the fact that this
4 is your 5th or 6th investigation of this or similar
5 problems with this company. This would be striking enough
6 if it were the first investigation. They seem to be
7 very slow learners and so I would certainly be supportive
8 of ---

9 CHAIRMAN AHEARNE: Eleven.

10 COMMISSIONER BRADFORD: Eleven such investigations.

11 Well, in any case, the point is that it all takes
12 on, I think, basically more seriousness than this is simply
13 the first time around.

14 CHAIRMAN AHEARNE: Has the company been cited
15 for violations prior to this?

16 MR. SEYFRIT: Yes, they have been cited a number
17 of times.

18 CHAIRMAN AHEARNE: Have there been penalties?

19 MR. SEYFRIT: There have been no civil penalties.

20 MR. STELLO: I think the answer to the question
21 that I thought about myself, you have to look at the number
22 of hours you put in to it, the number that was expressed
23 earlier, the number is higher than probably one would
24 expect.

25 I also, don't think that the licensee, until
this investigation, and the exit interviews following these

1 investigations, really had an appreciation of the problem.
2 Maybe, Carl, correct me if I'm wrong, I guess maybe it
3 would be fair to say that I don't think we really gave him
4 the impression that he really had this kind of a problem
5 until now.

6 MR. SEYFRIT: I think that's fair. I think further,
7 that it would be fair to say that he, perhaps, had not
8 recognized it was that broad a problem. The previous
9 investigations were spread out over a period of time, and
10 in general they were conducted to look in to specific
11 allegations on specific points and we just simply didn't
12 broaden them to look at this kind of perspective.

13 One can certainly look in hindsight that maybe
14 we ought to have looked in to it, and we didn't see at
15 the time, a legal reason to do that. We were trying to
16 take care of specific problems as they came up.

17 COMMISSIONER BRADFORD: I have one speci:
18 question that I skipped over.

19 One of the interviews it was said that one of
20 the supervisors said words to the effect: "Whenever you
21 call the NRC, I will find out about it. I will find out
22 about it, I will know who caused trouble."

23 Now, I gather that particular guy would deny
24 making a statement in quite that way, but you do, in fact,
25 in looking at these allegations, look in to the allegation

1 if Brown & Root got a call from us, every time he had
2 a call expressing concern.

3 MR. SEYFRIT: I think that OIA is looking in to
4 that, to the best of my knowledge.

5 MR. FORTUNA: No.

6 COMMISSIONER BRADFORD: OIA is not looking in to
7 that?

8 MR. SHEWMAKER: Let me address that. We picked
9 up that same thing in the report, and that is one of the
10 allegations that has not been investigated. In fact, we
11 are hoping that OIA will pick that up.

12 MR. FORTUNA: We will now.

13 MR. SHEWMAKER: We have that one. We will be
14 getting with you.

15 MR. THORNBURG: I think Dick did look in to this
16 a little bit. Dick Herr was our investigator.

17 MR. HERR: In fact, you will find that he
18 did admit saying those words. I confronted him on that.

19 COMMISSIONER BRADFORD: At least in the summary,
20 he just gives a different twist to it.

21 MR. HERR: But he did admit saying the words:
22 "Everytime somebody goes to the NRC, I'm going to find
23 out about it." He admits that, then he says, but what
24 I meant was, when they come down here they do the
25 investigation, then I find out. He says I don't have to

1 explain how. He said it was true, the guy said it, but
2 he put a different intrepretation on it.

3 COMMISSIONER BRADFORD: There is clearly an
4 ambiguity there. The person alleging it said something
5 to the effect that every time a complaint is made, I get
6 a call that tells me who made it. It is that telling him
7 who made it part that disturbs me.

8 MR. STELLO: Yes. We will look in to it.

9 MR. SHEWMAKER: It is not defined as allegation
10 18-A, that particular one.

11 CHAIRMAN AHEARNE: I need a vote to close this
12 meeting.

13 All in favor?

14 (Chours of ayes.)

15 CHAIRMAN AHEARNE: John, you say I should also
16 ask to look at the transcript to see which portions can
17 be released.

18 MR. HOYLE: Yes, we should ask the staff to
19 look at those portions to see which parts should be
20 released.

21 MR. STELLO: I would hope that I would not have
22 to release this transcript until at least after we
23 decided on the enforcement.

24 COMMISSIONER BRADFORD: I would vote to withhold
25 it as a practical matter.

CHAIRMAN AHEARNE: Yes, so would I.

1 COMMISSIONER HENDRIE: I would join that. I
2 must say, I didn't find any of the discussion which is likely
3 to be separable and releasable in a contemplated enforcement
4 process.

5 CHAIRMAN AHEARNE: Thank you very much.

6 (Whereupon, the meeting was concluded at 4:55
7 p.m.)

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