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

OFFICE OF THE
SECRETARY

494

CERTIFICATION

I hereby certify that the attached 26 pages contain a true copy of the letter dated Jan 28, 1981 from K.V. Seyfrit to Brown & Root, INC. concerning the LCVIP audit conducted by Mr.D.F. Fox on January 5-8, 1981 together with that letter's attachments.
on file with the United States Nuclear Regulatory Commission's Public Document Room, 1717 "H" Street, N. W. , Washington, D.C.

February 10, 1984
Date

Official Custodian of the Records
of the Public Document Room
Office of the Secretary of the
Commission

(SEAL)

Stello
34

D-34

PDR-HQS

495

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TEXAS 76011

28 JAN 1981

Docket No. 99900502/81-01

Brown and Root, Incorporated
Attn: Mr. W. M. Rice
Group Vice President, Power Group
4100 Clinton Drive
Post Office Box 3
Houston, Texas 77001

Gentlemen:

This refers to the QA Program Inspection conducted by Mr. D. F. Fox of this office on January 5-8, 1981, of your facilities at Houston, Texas, and to the discussions of our findings with you and members of your staff at the conclusion of the inspection.

Areas examined during the QA Program inspection and our findings are discussed in the enclosed report. Within these areas, the inspection consisted of an examination of procedures and representative records, interviews with personnel, and observations by the inspector.

During this inspection it was found that the implementation of your QA Program failed to meet certain NRC requirements. The specific findings and references to the pertinent requirements are identified in the enclosures to this letter.

Please provide us within twenty-five (25) days of the date of this letter a written statement containing, (1) a description of steps that have been or will be taken to correct these items, (2) a description of steps that have been or will be taken to prevent recurrence, and (3) the dates your corrective actions and preventive measures were or will be completed.

You will note that Deviation A of the enclosed Notice of Deviation is related to management failure to assure compliance with committed corrective action that was contained in your letter of December 16, 1980, responding to NRC inspection report 99900502/80-03. Specifically, qualification and training files of all engineering personnel performing safety related work on the South Texas Project were not updated by December 31, 1980 as committed.

This is the third inspection in which committed corrective actions or preventive measures for previous inspection findings were found to be not completed as committed. Reference Report No. 99900502/80-01, Deviation A and 99900502/80-02, Deviation A.

This suggests a breakdown in the effective implementation of the Brown & Root Quality Assurance Program for the South Texas Project.

8104010 035

Consequently, in your response, in addition to correcting of the specific deviations identified the Notice of Deviation enclosure, please define the specific steps that you have taken, or plan to take, to assure that management commitments will be performed as stated and be effectively implemented.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC's Public Document Room. If the report contains any information that you believe to be proprietary, it is necessary that you submit a written application to this office within thirty (30) days of the date of this letter, requesting such information be withheld from public disclosure. The application must include a full statement of the reasons why it is claimed that the information is proprietary. The application should be prepared so that any proprietary information identified is contained in an enclosure to the application, since the application without the enclosure will also be placed in the Public Document Room. If we do not hear from you in this regard within the specified period, the report will be placed in the Public Document Room.

Should you have any questions concerning this inspection, we will be please to discuss them with you.

Sincerely,

Karl V. Seyfrit
Director

Enclosures:
1. Notice of Deviation
2. Inspection Report No. 99900502/81-01

Brown and Root, Inc.
Docket No. 99900502/81-01

NOTICE OF DEVIATION

Based on the results of an NRC inspection conducted January 5-8, 1981, it appears that certain of your activities were not conducted in accordance with NRC requirements.

A. Brown and Root letter of response dated December 16, 1980, described corrective actions and preventive measures for the four deviations identified in I&E Inspection Report 99900502/80-03. Brown and Root committed to a completion date no later than December 31, 1980, for all action related to Notice of Deviation, Items A and B.

Contrary to the above, corrective action for Notice of Deviation, items A and B, was not completed as committed. (See Details Section I, paragraphs B.10 and B.11.)

B.* South Texas Project Engineering Procedures STP-DC-007 (Preparation and Control of System Design Descriptions) and STP-DC-019 (Technical Reference Control) state that design criteria documents, in conjunction with System Design Descriptions, comprise the STP Design Manual. Design criteria documents may be issued as Technical Reference Documents which are reviewed, approved, distributed to Assistant Engineering Project Managers, Discipline Project Engineers, Project Quality Engineers and others by the Engineering Document Control Center and made available for use on the South Texas Project. Technical Reference Documents require the signed approvals of the Originator (as applicable), the Discipline Project Engineer, Project Quality Engineering, the Engineering Project Manager, and Quality Assurance and/or the Client (as required).

Contrary to the above, Technical Reference Document A010PQ003-A (Penetration Sealing System) and six (6) others that were issued and distributed in mid 1978 by the Engineering Document Control Center, and that were contained in the STP Design Manuals assigned to the Assistant Engineering Project Manager, the Discipline Project Engineer and the Project Quality Engineer, did not exhibit the required signatures of the Discipline Project Engineer, the Project Quality Engineer, the Engineering Project Manager and Quality Assurance to document their review and approval of the documents. Refer to report section I.C.3.a.(1) for details.

C.* Section 6.3.1. of the South Texas Project Quality Assurance Manual states in part that "To ensure that the responsible engineering personnel are working to the latest revision or issue of an Engineering document, a comprehensive document status list shall be published at least every two months by the EDCC (Engineering Document Control Center).

Contrary to the above, a comprehensive document status list has not been published, nor updated, bi-monthly by the EDCC since October 2, 1980.

Refer to report section I.C.3.a.(2) for details.

*Denotes deviations from the requirements of Criterion V of Appendix B to 10 CFR 50 that states in part, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, or a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. . . ."

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

Report No. 99900502/81-01 Program No. 51200

Company: Brown and Root, Incorporated
Power Engineering
4100 Clinton Drive
Post Office Box 3
Houston, Texas 77001

Inspection Conducted: January 5-8, 1981

Inspectors: D F Fox 1/23/81
D. F. Fox, Principal Inspector Date
Program Evaluation Section
Vendor Inspection Branch

D F Fox for 1/23/81
D. G. Breaux, Inspector Date
Program Evaluation Section
Vendor Inspection Branch

Approved by: C J Hale 1-27-81
C. J. Hale, Chief Date
Program Evaluation Section
Vendor Inspection Branch

Summary

Inspection on January 5-8, 1981 (99900502/81-01)

Areas Inspected: Implementation of Title 10 CFR 50, Appendix B and Topical Report B&R-002A, including follow-up on previous inspection findings, design document control, procurement source selection, and supplier nonconformance and corrective actions. The inspection involved seventy (70) inspector-hours on site by two (2) USNRC inspectors.

Results: In the four (4) areas inspected, three (3) deviations from commitment were identified in two (2) of the areas.

Deviations: Follow-up on Previous Inspection Findings: Corrective action committed in a Brown and Root response to a previous deviation had not been completed as scheduled (See Notice of Deviation, Item A). Design Document Control: Unapproved Technical Reference Documents were contained in the Design Manual (See Notice of Deviation , Item B). The Engineering Document Control Center did not publish a document status list as committed (See Notice of Deviation , Item C).

DETAILS SECTION I

(Prepared by D. F. Fox)

A. Persons Contacted

*K. M. Broom, Senior Vice President, Power Group
H. S. Cameron, Assistant Engineering Project Manager
*J. R. Childers, Houston QA Coordinator
*H. T. Faulkner, Project Coordinator
*A. H. Geisler, Manager, Nuclear Licensing
G. L. Gibson, Discipline Project Engineer, Piping Engineering
J. F. Halsey, Manager Special Problems Group
*J. L. Hawkes, Manager, STP Engineering
*S. J. Kelley, Training Coordinator
*H. W. Overstreet, QA Supervisor, Houston Lighting and Power
J. E. Padden, Manager, Engineering Documentation
*R. W. Peverley, Assistant Engineering Project Manager
*J. C. Shuckrow, STP Project Coordinator, STP Project
*R. J. Vurpillat, Manager, Quality Assurance, Power Group
G. H. Watkins, Supervisor, Engineering Document Control Center

*Denotes those present at the exit meeting.

B. Action on Previous Inspection Findings

1. (Closed) Followup Item (Report 80-01, Section III.B.3.g). Determine if the apparent breakdown of the Brown and Root Vendor Surveillance Program was generic.

   The inspector verified that a Brown and Root task force, the "Vendor Control Program," reviewed seven (7) procurement files and identified nine (9) generic areas of concern in the overall South Texas Project procurement cycle for safety related equipment.

   These concerns were reported to NRC, Region IV on July 14, 1980, and a new task force, the "Vendor Control Evaluation and Correction Program" was established by Brown and Root. The task force will resolve these concerns and assure that all safety related purchase orders are sufficiently accurate and complete so as to result in the final acceptance of safety related equipment, and its documentation, by Houston Lighting and Power, for use on the South Texas Project.

   We will inspect the results of this activity during our normal inspection program.

2. (Closed) Followup Item (Report 80-01, Section III.B.3.c.(1)). Determine if the apparent lack of effectiveness of the Brown and Root Vendor Surveillance Program was reportable under 10 CFR Part 21.

   The inspector verified that the generic concerns related to the breakdown of the Vendor Surveillance Program were identified and evaluated by Brown and Root. The generic concerns were subsequently reported to NRC Region IV as a potentially reportable deficiency by Houston Lighting and Power Co. in their letter ST-HL-2-AE-494 dated July 14, 1980 in accordance with the provisions of 10 CFR Part 50.55(e). Separate reporting of this breakdown in the Brown and Root Quality Assurance Program by Brown and Root under the provisions of 10 CFR Part 21 is not required.

3. (Closed) Followup Item (Report 80-01, Section III, B.3.h) Determine if the Brown and Root purchase order for Reactor Vertical Supports reflected all safety related requirements identified in the South Texas Project FSAR.

   The inspector verified that this purchase order was scheduled for indepth review for inclusion of all applicable engineering, quality and regulatory requirements as part of the Brown & Root "Vendor Control Evaluation and Correction Program" prior to November 15, 1981.

4. (Closed) Deviation (Report 80-02, deviation B). Brown and Root has not implemented the overall Quality Assurance/Control Program for the South Texas Project that is described in section 17.1 of the PSAR.

   The inspector verified the corrective action, generic considerations and preventive measures described in the Brown & Root letter of response dated August 8, 1980. Specifically, differences between the PSAR and the operating QA program were identified and resolved. A revised Houston Lighting and Power and Brown and Root "Quality Assurance Program for the South Texas Project" was submitted to NRC (NRR) on October 31, 1980.

   Brown and Root commitment to implementing the revised QA Program was contained in a memorandum dated January 8, 1981, from the Group Vice President, Power Group, to the Quality Assurance Manager.

5. (Closed) Followup Item (Report 80-02, section I.B.6.b.(1)). Determine if the Brown and Root design for the personnel airlock with inflatable seals meets applicable requirements.

   a. With respect to the acceptability of the inflatable seal personnel airlock by NRR, Brown and Root management stated that the single active failure criteria and redundancy requirements of the Brown and Root door seal design meet, or exceed, those of the McGuire door seal design which was accepted by NRR. Significant differences between the two (with respect to the above, only) noted by the inspector are as follows:

      (1) Air lines to the STP seals do not penetrate into the containment as do the McGuire air lines.

      (2) Solenoid valves in the air lines to the STP seals are designed to fail open as do those in the McGuire air lines. Brown and Root stated that they would evaluate the design to determine if the valves should be changed to fail closed to prevent bleedback through the instrument air supply system should an air line check valve fail.

      (3) STP will use Class 1E pressure switches to detect seal deflation in addition to incorporating a seal leak rate detection system rather than only depend on a control room annunciator which will actuate whenever any of the seals deflate as McGuire does.

      (4) STP plans to incorporate two independent backup air supply systems to maintain seal inflation in the event of the loss of the instrument air system rather than the singular reserve air tank system for the McGuire seals.

      (5) The STP design does not provide for test coupons of the seal material to be located in close proximity to the airlock as does the McGuire design.

      (6) The Brown and Root procurement documents did not include the requirement for a certificate of compliance for each door seal with respect to the ability of the seal material to withstand post accident beta radiation exposure. Brown and Root stated that this requirement will be incorporated into the next revision of the design specification (2C269 SS06) for the airlock.

b. With respect to the adequacy of the Brown & Root inflatable seal airlock design, the inspector determined that design specification was verified in accordance with established procedures. The design was also evaluated using a Failure Mode and Analysis Technique which identified several potential deficiencies that were subsequently corrected. However, the inspector identified several technical concerns with respect to door and seal pressure retention capability. As a result of these and other unanswered questions, Brown and Root management stated that they would conduct a documented formal multidisciplined design review of the personnel air lock design during the first quarter of 1981.

6. (Closed) Followup Item (Report 80-02, Section I.D.3.c.(1)). Verification of design inputs to stress calculations that are taken from stress isometrics could not be confirmed.

Brown and Root management stated that a stress isometric drawing is only a transcription (reproduction) of a certain portion of a piping system taken from a design verified composite piping drawing and is only used to aid in visualizing the piping system layout when stress calculations and hanger locations are determined for the system. Stress isometric drawings are checked for completeness and correctness against the composite piping drawing by a checker in accordance with procedure STP-DC-002.

The inspector verified that the Stress Analysis Group (which is now part of the Support Design Group) did verify the accuracy of the type and location of supports shown on stress isometric drawings generated by them.

7. (Closed) Followup Item (Report 80-02, Section II.B.1.a) Evaluation of the Consequences of the potential misuse of uncertified personnel for performing vendor surveillance activities.

Brown and Root management stated that they have found no evidence to date that unqualified (as distinct from uncertified) individuals performed particular inspections.

8. (Open) Followup Item (Report 80-02, Section II.C.3.e) The status of the Brown and Root Vendor Control Evaluation and Correction Program will be evaluated.

The program consists of seven phases which implement the Brown and Root Management commitment to NRC to define (and subsequently execute) a program that provides for a complete and thorough review and audit of the procurement documents, vendor control and surveillance activities, and release of safety related equipment and material to the site that is in full compliance with all Brown and Root and Houston Lighting and Power commitments to NRC.

The phases, approximate status, and revised initiation and completion dates provided to, or determined by, the inspector are as follows:

a. Establish Priorities and Schedule - June 15 thru January 31, 1981 - 85% Complete versus 41% projected.

b. Generate "PO Baseline Requirements" - November 3, 1980 thru June 30, 1981 - 15% Complete versus 54% projected.

c. Independent NUS Audit - September 1, 1980 thru September 15, 1981 - - 10% Complete versus 38% projected.

d. Resolution of Audit Findings - February 15, 1981 thru September 30, 1981.

e. Update Purchase Orders - March 1, 1981, thru October 15, 1981.

f. Correct Vendor Deficiencies - March 15, 1981, thru October 31, 1981.

g. Release of Equipment & Materials - February 15, 1981 thru November 15, 1981.

Procurement of safety related equipment and materials will be closely monitored by NRC during future inspections.

9. (Closed) Violation (Report 80-03). Failure to meet 10 CFR Part 21 posting requirements in the facility where safety related piping stress analysis and pipe hanger design activities were being conducted.

The inspector verified the corrective action and preventive measures described in the Brown & Root letter of response dated December 16, 1980. Abbreviated notices containing Section 206 of the Energy Reorganization Act and that describe the content and location of the 10 CFR Part 21 Regulations and procedures, as well as the individual to whom reports may be made, were posted in a conspicuous position at all locations were safety related activities were being conducted. Quality Assurance Management committed to verify the posting at all locations on at least a quarterly basis.

10. (Closed) Deviation (Report 80-03, deviation A) Qualification records of engineering personnel conducting safety related activities were not being maintained.

Brown and Root did not update the qualification record files of all engineering personnel conducting safety related activities on the South Texas Project by the committed date of December 31, 1980. This is a deviation from commitment. See Notice of Deviation, Item A.

Brown and Root updated all qualification and training record files of engineering personnel during the inspection. The files were less than 18% complete at the time the deviation was issued and were approximately 65% complete by December 31, 1980. Brown and Root Design Quality Engineering reportedly did not sign off or approve any documents for issue since January 1, 1981, that were originated or signed by any individual whose qualification or training record was incomplete or inadequate.

The inspector verified that a full time Training Coordinator was assigned to Engineering, the Engineering Procedure For Training (STP-PM-006) was revised, and that the files are currently being maintained in the access controlled office of the Training Coordinator.

11. (Closed) Deviation (Report 80-03, deviation B). Training records of engineering personnel conducting safety related activities were incomplete or non-existant.

Brown and Root did not update the training record files of all engineering personnel conducting safety related activities on the South Texas Project by the committed date of December 31, 1980, See Notice of Deviation, Item A.

Refer to item 10 above for additional details.

12. (Closed) Deviation (Report 80-03, deviation C) Hanger design and fabrication drawings were design verified and approved with duplicate identification numbers. Pipe fabrication isometric drawings were revised and issued without using the next sequential revision number.

The inspector verified the corrective action and preventive measures described in the Brown and Root letter of response dated December 16, 1980. Specifically:

a. With respect to drawings being approved with duplicate identification numbers: (1) all affected drawings were corrected; (2) the potential for duplicate numbers being affixed to more than one drawing appeared to be restricted to the Support Design Group in that their drawing numbers convey intelligence (ie, the actual location of the support or hanger) whereas drawings issued by other Brown and Root design activities do not; (3) the procedure for Drawing Control (STP-CD-002) will be revised by January 31, 1981 to require the Discipline Project Engineer to

verify that the drawing number is both correct and unique prior to his signing the drawing; (4) The Engineering Document Control Center Computer Program for logging in newly issued design documents will not accept a new entry if the total identification number is a duplicate of an already existing listed number.

b. With respect to pipe fabrication drawings being revised to indicate the type and location of pipe supports and issued without using the next sequential revision number, the title block of all such drawings issued in support of, or as part of, a calculation package will be crossed out to prevent subsequent inadvertant use of the wrong revision of the drawing by the contractor. The original drawing will then be revised to reflect the type and issued as the next sequential revision of the drawing.

13. (Closed) Unresolved Item (Report 80-03, Section I.D.3.b(1)). Documentation made available during the inspection did not appear to substantiate that significant safety hazards were evaluated, documented, and reported in accordance with the provisions of 10 CFR Part 21.

The inspector determined that during the first quarter of 1981:

a. Existing files on safety concerns will be reviewed for inclusion of pertenent data relating to the safety concern. Sufficient information will be retained in the file such that the history and status of the safety concern will be clearly defined and that will assure meeting the record retention requirements of Section 21.51 of 10 CFR Part 21.

b. The Engineering Document Control Center will retain all files on safety concerns.

c. The Procedure for Evaluating and Reporting of Defects, Noncompliances and Deficiencies, STP-PGM-022, is being revised.

d. Quality Assurance will audit for compliance with 10 CFR Part 21 requirements on a quarterly basis for at least the next year and annually thereafter.

14. (Open) Unresolved Item (Report 80-03, Section I.D.3.b.(2)) An apparent violation exists in that Brown and Root was not adhering to their procedure for implementing 10 CFR Part 21 requirements.

The matter has been forwarded to NRC headquarters for evaluation to determine the appropriate enforcement action to be taken.

15. (Open) Followup Item (Report 80-03, Section I.B.4) Verify implementation of a management plan to assure that Commitment to NRC will be performed as stated and be effectively implemented.

Brown and Root developed a routine system and a followup form (NRC Action Item Commitment List) which was implemented on inspection 80-03. In view of the reccurance of Brown and Root management not meeting one of their commitments for the last (80-03) inspection, Brown and Root Power Group executive management issued two memoranda to Quality Assurance on January 8, 1981, which contain provisions for preventing reccurance of the failure to complete corrective action as committed. The memoranda state that:

a. All Brown and Root commitments shall be met in the performance of our responsibilities on the project.

b. Each NRC identified deviation, unresolved item, or other outstanding item will be listed (as well as the individual responsibile for action thereon) and distributed accordingly.

c. An internal commitment date is to be established which is earlier (generally two weeks) than the date committed to NRC.

d. Quality Assurance is responsible for following the implementation and completion of corrective actions.

e. Prior to the commitment date to NRC, Quality Assurance is to independently verify, by review of objective evidence, that the corrective actions have been completed. The senior vice president is to be notified for each specific failure to complete corrective action.

f. The status of open B&R commitments to NRC will be reported at the regular STP - QAMRB meetings.

The effectiveness of these measures will be closely followed during future inspections.

16. (Closed) Followup Item (Report 80-03, Section I.C.3.b(1)). Objective evidence was not available that the education and experience listed on the qualification/resume sheet of all NPS (Nuclear Power Services) and ATI (Associated Technologies Incorporated) personnel who were conducting safety related activities for the Brown and Root Support Design group was in fact verified by either Brown and Root or NPS/ATI.

The inspector verified that Brown and Root requested written confirmation from both NPS and ATI that the alleged education and experience for all present and future employees assigned to the STP be verified.

NPS and ATI provided a list of their employees whose alleged education and experience had been verified along with a copy of their procedure for Employee Verification and one sample of a complete verification package. No misrepresentations were apparently uncovered to date. However, verification of the alleged education and experience for six (6) of the twenty one (21) ATI employees currently assigned to the STP had not been completed as of January 7, 1981.

Brown and Root management thereupon requested on January 7, 1981 that ATI complete the verification process for these employees and advised ATI that the verification must be done in accordance with the intent of NRC circular IEC 80-22. The manager of the Support Design Activity which deploys these six (6) ATI employees stated that only verified and qualified personnel will be permitted to perform safety related activities on the STP.

17. (Closed) Followup (Report 80-03, Section I.C.3.b(2)). Objective evidence that an approved 10 CFR 50 Appendix B quality assurance program was imposed on NPS and ATI personnel who were conducting safety related activities for STP.

The inspector verified that on January 7, 1981, the manager of the Support Design Group notified the on-site (STP project) NPS and ATI management in writing that all work done in the Brown and Root offices (on STP) is to be done under the Brown and Root Quality Assurance Program via the use of (STP) Engineering Procedures and for them to assure that their personnel are complying with the procedures.

18. (Closed) Followup (Report 80-03, Section I.C.3.b(3)). Procedures which require that sufficient records be maintained for engineering and management personnel assigned to safety related nuclear projects to furnish objective evidence of their qualification to perform their assigned duties and responsibilities were not available during the inspection.

Brown and Root Power Division Procedure DL 035 dated June 10, 1980 (Procedure for Verification of Education and Experience) defines the process for verifying the educational background and prior job experience of new Brown and Root employees.

The Group Vice President, Power Group, stated in his memorandum of October 28, 1980 that:

a. The Power Group will assume the responsibility for checking (verifying) each new Power Group professional as they are hired (using procedure DL 035) beginning May 21, 1980.

b. Letters were mailed on September 15, 1980, requesting documented evidence of the educational background and prior job experience for each STP engineer, designer and project control professional employed prior to May 21, 1980.

c. Most of the responses have been returned, examined, and placed in the individual's file.

d. Adherence to Power Group Procedure DL-035, and surveillance of contract companies, will assure that every professional person working on any Power Group job will have documented evidence of his or her education and work experience.

This item completes an Inspection of employment practices at Brown and Root in that: (1) the education and work experience information contained in employees' job applications are being verified by the employing organization; and (2) there is objective, documented evidence/records that attest to the education and experience of both permanent and contract employees.

C. Design Document Control

1. Objectives

To determine if approved procedures have been established and are being implemented for the control and distribution of design documents that provide for:

a. Identification of personnel, positions, or organizations responsible for preparing, reviewing, approving, and issuing design documents.

b. Identification of the proper documents to be used in performing the design.

c. Coordination and control of design (internal and external) interface documents.

d. Ascertaining that proper documents, and revisions thereto, are accessible and are being used.

e. Establishing distribution lists which are updated and maintained current.

2. Methods of Accomplishment

The preceding objectives were accomplished by:

a. Review of the following documents to determine if procedures have been established to control design document generation, review, approval, distribution, and use in the areas identified in objectives a. through e. above:

(1) Sections 17.3, 17.5, and 17.6 of the NRC accepted (Brown and Root) Topical Report B&R-002A (Quality Assurance Program for Nuclear Power Plants) Revision 3, including changes made thru March 24, 1980, to determine the Brown and Root Corporate programmatic commitments relative to the control of design documents.

(2) Sections 3, 5, and 6 of the B&R STP (South Texas Project) Quality Assurance Manual to determine if the corporate commitments relative to control of design documents were correctly translated into quality assurance requirements and procedures.

(3) Thirteen (13) applicable procedures contained in the STP Engineering Procedures Manual to determine that the STP quality assurance program requirements and procedures were correctly translated into a viable engineering program for control of design documents.

b. The following documents were reviewed to determine if the quality assurance program for control of design documents was being effectively implemented on current design activities affecting quality by the B&R engineering organizations:

Six (6) Calculations,
Three (3) Design Manuals,
Three (3) Design Verifications,
Twenty (20) Internal & Foreign Drawings,
Two (2) Procurement Files,
One (1) Report,
Three (3) Specifications,
Two (2) System Design Descriptions, and
Nine (9) Technical Reference Documents.

3. Findings

a. Deviations from Commitment

Two (2) deviations from commitment were identified in this area of the inspection. See Notice of Deviation, Items B & C.

(1) With respect to Deviation B:

a. The STP Design Manual (DM) is controlled assemblage of approximately 200 System Design Descriptions (SDD)

and design criteria documents such as Technical reference Documents (TRD). The Manual describes the salient features of the STP design; defines the requirements for its structures, systems and components; provides design criteria, specifications, procedures, analyses and guidance; and identifies directly, or through references, the design inputs that provide the point or origin for the system discriptions contained therein.

(b) Two (2) issued TRDs examined by the inspector and five (5) additional TRDs subsequently found by the STP Design Quality engineer in each of the three DMs examined did not exhibit evidence of the required review and approval signatories. These TRDs were issued through the official Brown and Root Engineering Document Control Center.

Although six (6) of the seven (7) TRDs contained a statement in their abstract that they were issued for review and comment, no such disclaimer appeared in the "body" of the document that would be used or referenced by the designer. One such documents was 5L369RQ014 - A, dated July 5, 1978, and entitled "Typical Pipe Supports for 6" Nominal Diameter Pipe and Under." This TRD was contained in the Design Manual located at the pipe hanger and support activity. While there is no evidence that this unapproved procedure was used to actually provide guidance and/or input to the design of safety related pipe supports, its very presense in the facility where the design activity was ongoing offers the potential for its inadvertant misuse.

(2) With respect to Deviation C:

(a) Section 6.0 of the STP Quality Assurance Manual states that a comprehensive document status list shall be published at least every two months by the EDCC (Engineering Document Control Center) to ensure that the responsible engineering personnel are working to the latest revision or issue of an Engineering document.

(b) Contrary to this procedure, the responsibility for issuing an engineering document status list has been assigned to a different activity, the Computer Support Group, that does not provide the same controls for the accuracy of their data base as does the EDCC.

D. Exit Meeting

An exit meeting was conducted with Brown and Root management personnel at the conclusion of the inspection on January 8, 1981. In addition to those individuals indicated by an asterisk in the Details Sections of this report, the meeting was attended by:

W. M. Rice, Group Vice President, Power Group
K. A. Swartz, Senior Engineering Manager
P. S. Jordan, Nuclear Licensing Staff Manager
K. R. Cook, Deputy Project General Manager
J. R. Orlando, QA Coordinator, Vendor Surveillance
R. P. Negri, Assistant Quality Assurance Manager
C. E. Bingman, Assistant Manager, Vendor Surveillance

The inspector discussed the scope of the inspection and the details of the findings identified during the inspection and the form and content of letters of response to NRC inspection reports. Management comments were generally for information only or for acknowledgement of the statements of the inspector with respect to the deviations presented.

DETAILS SECTION II

(Prepared by D. G. Breaux)

A. Persons Contacted

*P. J. Bulten - VCP QA Task Force Leader
R. G. Burnette - B&R/HL&P Lead Coordinator
*J. R. Childers - QA Coordinator
H. T. Faulkner - Project Coordinator
E. J. Manning - Supervisor QA Manual Review
R. C. McMahill - Senior Engineer
T. J. Ries - Regional Coordinator Vendor Surveillance

*Denotes those present at the exit meeting.

B. Procurement Source Selection

1. Objectives

The objectives of this area of the inspection were to verify that procedures have been established and implemented for the selection of qualified suppliers of services, materials, parts and components that provide for:

a. Requirements for evaluation of the potential supplier's capability to provide items or services in accordance with the technical and quality assurance specifications of the procurement documents.

b. Methods of evaluating potential suppliers that are consistent with applicable regulatory, code and contract requirements and should include source evaluation audits, review of historical performance, and/or review and evaluation of the supplier's QA program, manual and procedures.

c. Consideration of the complexity, inspectability and safety significance of purchased items or services when selecting the method of source evaluation.

d. Performance of source evaluation audits that include appropriate checklists or instructions for systematic review of the prospective supplier's QA system.

e. Qualification requirements for personnel performing source evaluation audits.

f. Source selection being based on historical product performance that includes review of past procurement and operating experience with identical or similar items and is limited to relatively simple services or off-the-shelf items.

g. Periodic re-evaluation of suppliers and that an up-to-date listing of the evaluation status is being maintained.

h. Distribution of supplier evaluation status documents to purchasing and assuring that contracts are awarded only to companies designated in these documents.

i. Measures to assure that the supplier's bid conforms to the procurement document requirements and that resolution of unacceptable conditions identified during bid evaluation are corrected before the contract award.

2. Method of Accomplishment

The preceding objectives were accomplished by reviewing the following documents relative to the Brown and Roots Quality Assurance Program.

a. The appropriate sections (policies and procedures) of the recently revised, (as of October 31, 1980) "Brown and Root, Inc. Quality Assurance Program Description During Design and Construction of the South Texas Project Electric Generating Station" were reviewed to determine that commitments to quality were reflected in the area of procurement source selection.

b. The following procedures were reviewed in the South Texas Project Quality Assurance Procedures Manual to assure that quality related commitments were being procedurally implemented.

(1) ST-QAP-4.2, "Houston Purchasing Activities"

(2) ST-QAP-7.1, "Vendor Surveillance Organization"

(3) ST-QAP-7.2, "Vendor Surveillance and Houston Coordination Activities"

(4) ST-QAP-15.4, "Trend Analysis"

(5) ST-QAP-18.1, "Audit Program"

c. To assure that the previously reviewed quality commitments were being properly and effectively performed with respect to procurement source selection, the following documents were reviewed:

(1) Four (4) South Texas Project procurement files on selected purchase orders from the Purchasing Department were shown to contain Pre-Award procurement activities such as:

(a) QA Department Quality Assurance Vendor Questionaire

(b) Engineering Capability and Experience Questionaire

(c) Pre-Award Facility Survey

(d) Commercial, Technical, and Quality Assurance evaluations

(e) Final recommendation of award for license approval.

(2) South Texas Project Approved Vendor List, dated December 23, 1980 was checked for proper distribution and timely updating.

(3) Five QA Manual Review reports conducted by the QA Audit Section were reviewed for content and proper manual status follow-up.

(4) Three (3) Vendor Pre-Award Survey's conducted by the QA Audit Section were reviewed for content and proper review.

(5) The Audit Deficiency Report (ADR) Trend Analysis System was examined to see that Quality Commitments are being met and that the system is in place and functioning.

(6) Documents being gathered by the Vendor Control Program Task Group, in the area of Quality Assurance evaluation of the Vendor's quality program and its implementation, are listed on the QA Support Documentation List and the Vendor Control Program (VCP) Vendor History Matrix. The Document List and History matrix were reviewed for content and proper procedural implementation. Quality Assurance Support Documentation compilation that was committed to in the Vendor Control program was reviewed for content of the following document types:

(a) Vendor QA Manual Reviews and associated documentation.

(b) Preaward Survey Reports and associated documentation.

(c) Correspondence justifying waiver of preaward evaluation activity.

(d) Quality Assurance bid evaluation correspondence.

(e) Vendor Audits and associated documentation.

(f) Correspondence changing QA Vendor approval status.

(7) Five (5) Audit Deficiency Reports (ADR) were examined for content and proper review and approval.

3. Findings

a. Deviations

In this area of the inspection no deviations from commitment were identified.

b. Unresolved Items or Follow-up Items

None were identified.

c. Comments

It was observed during this inspection that the thrust of Pre-award Survey's and subsequent annual Supplier Quality Assurance Evaluation has been shifted from the responsibility of Vendor Surveillance to the Quality Assurance Audit Section. Procedures defining and reflecting this change have been issued, or in their final draft stages, at the time of inspection.

A concerted effort by the audit section to control previously undispositioned audit findings in the area of supplier Quality Assurance Programs is in process. The use of the recently implemented Audit Deficiency Report (ADR) Trend Analysis System should aid in this area of control. To expedite the process of closing out audit findings, the audit section is working with vendor surveillance. Instead of possibly waiting (1) year for the annual Supplier Quality Assurance Program re-evaluation to verify that supplier corrective action to audit findings had been implemented, vendor surveillance can assist in this area by verification of supplier action during their more frequent in-process source inspections.

C. Supplier Nonconformance and Corrective Action

1. Objectives

The objectives of this area of the inspection were to verify that procedures have been established and implemented for:

a. Disposition of nonconformances that provide for:

(1) Measures by the purchaser and supplier for identification, control, review, and disposition of items or services that do not meet procurement document requirements.

(2) Submittal of nonconformance notice to purchaser by supplier which shall include recommended disposition and technical justification.

(3) Submittal to the purchaser for approval of dispositions containing one or more of the following nonconformances:

(a) Technical or material requirement violated.

(b) Violated requirement in supplier document approved by purchaser.

(c) Nonconformance cannot be corrected by continuation of the original process or by rework.

(d) Original requirement is not met but the item can be restored so that its function is unimpaired.

(4) Purchaser disposition of supplier recommendations, verification of disposition, and maintenance of records of nonconformance.

b. Corrective action that provides for:

(1) Identification of and timely corrective action for conditions adverse to quality which occur during the procurement process that are the responsibility of the purchaser.

(2) Review and evaluation of conditions adverse to quality to determine the cause, extent, and measures needed to correct and prevent recurrence.

(3) Reporting these conditions and the corrective action to management.

(4) Assuring that corrective action is implemented and maintained.

(5) Verification of supplier's corrective action system.

2. Method of Accomplishment

The preceding objectives were accomplished by review of the following documents relative to Brown and Root Quality Assurance Program.

a. The appropriate sections of the recently revised (as of October 31, 1980) Brown and Root, Inc. "Quality Assurance Program Description During Design and Construction of the South Texas Project Electric Generating Station" were reviewed to determine that commitments to quality were reflected in the area of Supplier Nonconformance and Corrective Action.

b. The following procedures were reviewed in the South Texas Project Quality Assurance Procedures Manual to assure that quality related commitments were being procedurally implemented.

(1) ST-QAP-7.1, "Vendor Surveillance Organization"

(2) ST-QAP-7.2, "Vendor Surveillance and Houston Coordination Activities"

(3) ST-QAP-15.1 "Nonconforming Items"

(4) ST-QAP-16.1 "Corrective Action"

(5) Vendor Surveillance Policy Notes VSPN-012 "Nonconformances."

c. Review of the following documents to assure that the quality commitments are being properly and effectively performed with respect to Supplier Nonconformance and Corrective Action.

(1) Five (5) Vendor Surveillance Plans

(2) Five (5) Vendor Surveillance Reports

(3) Two Vendor Control Program packages that contained Surveillance/Inspection History such as:

(a) Vendor Surveillance Reports and Surveillance/ Inspection Reports.