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

REVION IV

Report No. 50-466/78-02

Docket No. 50-466 Category A1

Licensee: Houston Lighting ar[illegible]ver Company
Post Office Box 17
Houston, Texas [illegible]

Facility Name: Allens Creek Nuclear Generating Station, Unit No. 1

Inspection at: Houston, Texas

Inspection conducted: August 16 and August 29 - September 1, 1978

Inspectors: W. G. Hubacek — 9/21/78
W. G. Hubacek, Reactor Inspector, Projects Section (Paragraphs 1, 2, 3, 8 & 9) Date

for J. I. Tapia — 9/21/78
J. I. Tapia, Reactor Inspector-Intern, Engineering Support Section (Paragraphs 4, 5 & 6) Date

W. A. Crossman — 9/21/78
W. A. Crossman, Chief, Projects Section (Paragraph 7) Date

Approved: W. A. Crossman — 9/21/78
W. A. Crossman, Chief, Projects Section Date

R. E. Hall — 9/21/78
R. E. Hall, Chief, Engineering Support Section Date

Inspection Summary:

Inspection on August 16 and August 29 - September 1, 1978 (Report No. 50-466/78-02)
Areas Inspected: Special, announced inspection of implementation of the QA program for design, procurement and construction. The inspection involved one-hundred eight inspector-hours by three NRC inspectors.
Results: Five deviations from commitments were identified in the three areas inspected (failure to provide an approved procedure for processing field procurement contracts, paragraph 2; failure to prescribe vendor surveillance report format, paragraph 2; failure to provide training requirements in departmental procedures, paragraph 4; failure to provide approved procedures for design review, paragraph 7; failure to provide procedures for control of the Design Review Worksheet, paragraph 7).

DETAILS

1. Persons Contacted

Principal Licensee Employees

*R. A. Frazar, QA Manager
*F. W. Stoerkel, Project QA Supervisor
*W. N. Phillips, Projects QA Manager
*C. A. McClure, Supervisor, Support Division, QA
*T. K. Logan, Site QA Supervisor
*P. A. Horn, Project Manager, Allens Creek, Power Plant Engineering and Construction (PPE&C)
R. E. Fulghum, Manager, Engineering Division, PPE&C
H. P. Horelica, Construction Supervisor, PPE&C
J. R. Sumpter, Manager, Nuclear Division, PPE&C
*J. W. Hanson, Principal Engineer, Nuclear, PPE&C
*R. T. Beaubouef, Principal Engineer, Mechanical, PPE&C
*C. F. Brauer, Engineer, Construction, PPE&C
S. C. Schaeffer, Principal Engineer, Electric, PPE&C
J. N. Bailey, Engineer, Nuclear, PPE&C
R. T. McPhail, Engineer, Mechanical, PPE&C
*T. L. Duoto, Principal Engineer, Civil Engineering Department
C. T. Howell, Supervising Engineer, Civil Engineering Department
R. R. Hernandez, Lead Engineer, Civil Engineering Dept.
C. M. Stripling, Supervising Engineer, Civil Engineering Department
R. A. Raymond, Engineer, Civil Engineering Department
W. C. Jones, Associate Engineer, Civil Engineering Department
P. A. Swearingen, General Supervisor, QA Records Management System
A. E. Schoeneberg, Supervisor, Project Coordinator, Purchasing
T. J. Floyd, Project Purchasing Coordinator

Other Personnel

L. F. Jones, Senior Resident Engineer, Ebasco
R. P. Grippardi, QC Site Supervisor, Ebasco

The IE inspectors also interviewed other licensee personnel including members of the engineering and QA/QC staffs.

*denotes those attending the exit interview.

2. Procurement

a. Review of Implementing Procedures

The IE inspector reviewed procedures related to procurement to ascertain whether they were consistent with the status of the project and PSAR commitments.

The following Purchasing Department Power Plant Procurement Procedures were reviewed:

Introduction, Rev. 1, 3/5/75

PP-1, "General Procurement Procedure," Rev. 5, 7/7/77

PP-2, "Procedure for Establishing Bidders Lists," Rev. 3, 5/2/77

PP-3, "Site Procurement," Rev. 2, 6/14/77

PP-4, Inquiry Issuance," Rev. 2, 6/14/77

PP-5, "Proposal Evaluation and Supplier Selection," Rev. 2, 5/16/77

PP-6, "Procedures for Purchase Order Preparation, Changes, Approval and Issuance," Rev. 3, 3/2/78

PP-7, "Procedure for Expediting and Procurement Status Reports," Rev. 2, 6/14/77

PP-8, "Training," Rev. 2, 6/6/77

PP-9, "Preparation of Procedures," Rev. 2, 8/16/77

PP-10, "Power Plant Construction Procurement File System and File Control," Rev. 5, 9/14/77

PP-11, "Document Review," Rev. 2, 4/20/77

PP-12, "Document Control," Rev. 1, 4/20/77

PP-13, "Procedure for Processing Purchase Order Acknowledgements," Rev. 3, 5/17/76

The IE inspector was informed that site procurement procedures were being developed. These procedures will be reviewed during a future inspection.

No deviations were identified except as noted in paragraph 4 related to training.

b. Review of Procurement Activities

The IE inspector was informed that major procurement activities in progress were related to reactivation of procurement actions that were deactivated with the deferral of the Allens Creek project. The following documents were selected for review to determine if procurement activities were conducted in accordance with PSAR commitments and established procedures:

Purchase Order File No. AC-2013 for 125 volt batteries

Inquiry File No. HOU 5204 for containment piping penetrations

Inquiry File No. HOU 5207 for centrifugal pumps

Documents related to a field construction contract for concrete supply

The IE inspector was informed that the field construction contract for concete supply was being processed by Ebasco in accordance with Ebasco draft procedure ASP-4, "Field Construction Contracts," dated May 16, 1978, which has been submitted to HL&P for review but has not yet been approved. The IE inspector informed the applicant that processing procurement documents in accordance with an unapproved procedure constitutes a deviation from commitments contained in Section 17.1.5B of the PSAR and HL&P Procedure PP-3, "Site Procurement."

During discussions with applicant purchasing representatives, the IE inspector was informed that, for new procurements, 10 CFR Part 21 requirements will be included in the terms and conditions of the purchase orders and in the codes and standards sections of the specifications. Part 21 requirements will be included in old procurements by issuing supplements to the purchase orders. Implementation of 10 CFR Part 21 requirements for Allens Creek is addressed in Allens Creek Project Directive AC-PDIR-01, which directs the use of Nuclear Division Procedure NDP-130, "Procedure for Reporting Design and Construction Deficiencies, Noncompliances, and Defects to the NRC," for evaluation of reportable defects and deficiences. The IE inspector observed that Part 21 notices were posted at several conspicuous locations in the applicant's office buildings. The procurement document related to concrete supply was observed to contain Part 21 requirements.

c. Vendor Surveillance

The IE inspector reviewed the applicant's vendor surveillance activities to determine whether they were performed in accordance with PSAR commitments and HL&P Procedure QAP-3, "Procedure for Vendor Surveillance," Rev. 2, dated August 16, 1976. The IE inspector was informed that HL&P is performing vendor surveillance for NSSS items and that Ebasco has been assigned responsibility for surveillance of most of the balance of plant items. The planned vendor surveillance by the applicant is patterned after that being used for another of the applicant's nuclear facilities.

The IE inspector also reviewed the notification lists for NSSS equipment and the following vendor surveillance reports:

CBI-205-8998-1, Chicago Bridge and Iron, Nuclear, performed February 8-9, 1978

AD-AG445-1, Anchor Darling Valve Company, performed March 3, 1978

AD-AG445-2, Anchor Darling Valve Company, performed April 11, 1978

AD-AG445-3, Anchor Darling Valve Company, performed June 13-14, 1978

The IE inspector observed that the format used to report the above vendor surveillance activities was not consistent and that Procedure QAP-3 refers to "Vendor Surveillance Report Forms, Attachment A"; however, "Attachment A" was not included with the procedure nor was it adequately described therein. The applicant was informed that failure to provide "Attachment A" or to adequately describe the report format was a deviation from commitments contained in Section 17.1.5A of the Allens Creek Quality Assurance Plan.

3. Audits and Corrective Actions

The IE inspector reviewed the applicant's audit program to ascertain whether audits were performed in accordance with commitments contained in PSAR Section 17.1.18A and requirements in Procedure QAP-5, "Audit Procedure," Rev. 4, dated February 1, 1978.

The following audit reports were reviewed:

HL-56, Audit of HL&P Engineering Department, Civil Division, performed March 20, 1978

HL-57, Audit of HL&P Power Plant Engineering and Construction, Engineering Division, performed July 20-21, 1978

ES-6, Audit of Ebasco records for Allen Creek, performed October 12, 1976

ES-7, Audit of Ebasco QA Engineering Department, performed July 6-7, 1977

ES-8, Audit of Ebasco QA internal audit system, performed November 30 - December 2, 1977

ES-9, Audit of Ebasco QA vendor evaluation system, performed May 26-27, 1978

GE-9, Audit of General Electric Purchasing, performed February 23-24, 1977

GE-10, Audit of General Electric Engineering and Product QA, performed August 9-11, 1977

GE-11, Audit of General Electric QA program for procurement, performed November 1-3, 1977

GE-12, Audit of General Electric QA program for design and engineering, performed March 6-9, 1978

The IE inspector also reviewed corrective actions related to the reports listed above.

No deviations were identified.

4. Quality Assurance Indoctrination and Training 1/

The Houston Lighting & Power Company (HL&P) Quality Assurance Program Manual (QAPM) implementation was reviewed by the IE inspector with specific attention made to that section of Criterion II of 10 CFR 50, Appendix B which requires that the quality assurance program provide for the indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained. The quality assurance program established by HL&P is documented by written policies, procedures and instructions contained or referenced in the QAPM, in Departmental Procedures and in the Project Quality Assurance Plan (PQAP).

1/ This portion of the inspection was performed under the direction of the project inspector.

The Departmental Procedures were reviewed by the IE inspector for conformance with Section 1.5 of the QAPM. This section, entitled, "Quality Assurance Indoctrination," delegates to the Quality Assurance Department the responsibility for conducting an indoctrination for new or transferred employees coming into departments where the employee's function within the department falls under the purview of the QAPM. The indoctrination is aimed at familiarizing the employee with quality assurance, stressing the importance and meaning of quality assurance as it applies to the employee's new position.

The following Departmental Procedures were reviewed:

a. Civil Engineering Department Procedure 5.0, "Civil Design Training Program," Revision 1.

b. Nuclear Division Procedure NDP-50, "Nuclear Division Personnel Training," Revision 2.

c. Environmental Protection Department Procedure NPSG-20, "Training and Continuing Education Program," Revision 3.

d. Power Plant Engineering & Construction (PPE&C) Department, Electrical Engineering Section Procedure EES-1, "Procedure for Electrical Engineering Section Personnel Indoctrination, Training, and Continuing Education," Revision 5.

e. PPE&C Department, Mechanical Engineering Division Procedure MED-6, "Indoctrination, Training & Continuing Education," Revision 2.

f. Quality Assurance Department Procedure QAP-2, "Procedure for Qualification & Certification of Surveillance Personnel," Revision 2.

g. Purchasing Department Procedure PP-8, "Training," Revision 2.

h. Power Plant Construction Division Procedure PPC-3, "Indoctrination and Training," Revision 1.

i. Systems Engineering Procedure SYSE-70, "Training and Continuing Education Program," Revision 1.

j. Projects Division Procedures Manual.

With the exception of f. and h., the listed procedures make no mention of a Quality Assurance indoctrination as required by the QAPM and as defined in Section 17.1.2A of the Allens Creek PSAR. The definition specifically stipulates that, "The Quality Assurance indoctrination will be conducted by the Manager - QA or his designated representative."

Procedure f. addresses itself to the Quality Assurance department but does not contain provisions for interdepartmental indoctrinations.

Section 1.5.3 of the QAPM states in part, "The Department Procedures contain specific courses of action that establish the scope and definition of the training program as well as indicating the frequency requirements for retraining." The training involved follows the basic QA indoctrination and is provided by each Department/Division in their appropriate discipline areas to assure that suitable proficiency is achieved and maintained. It was verified by the Manager, QA, that the defined training was not being provided.

The listed procedures do not address the requirement for retraining. In the case of item j., a procedure does not exist to satisfy the training and indoctrination requirements of the QAPM.

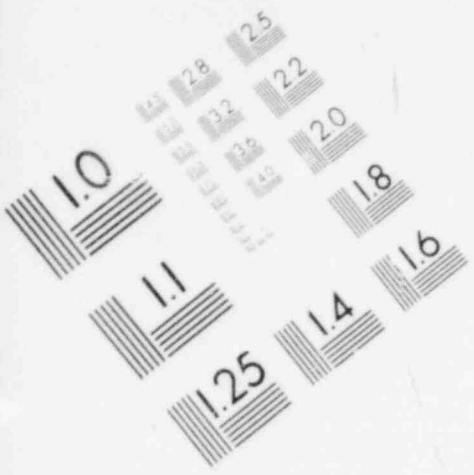
The failure to address the Quality Assurance indoctrination and the retraining frequency requirement constitute a deviation from the PSAR as expressed in the QAPM.

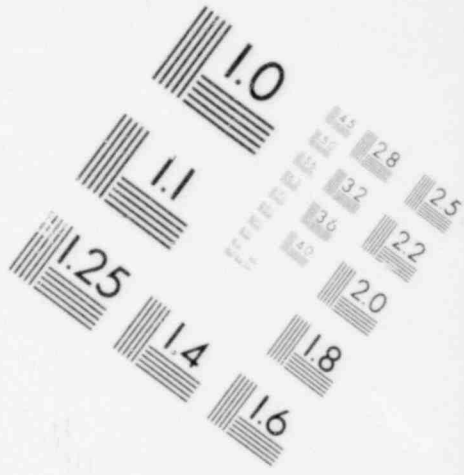
5. Site Procedures and Staffing[2/]

The status of the HL&P Site Quality Assurance Procedures was discussed with the HL&P Site Quality Assurance Manager. Seven procedures have been drafted and await review and approval. Projected site staffing of HL&P QA personnel was also discussed. It is expected that three civil engineers, three mechanical engineers, and three electrical engineers will perform surveillance for HL&P during the construction phase of the project.

The Ebasco QA Site Supervisor and Senior Resident Engineer were interviewed for the purpose of establishing the status of site procedures and staffing requirements. Detailed Administrative Site Procedures, Construction Site Procedures, and Quality Control Procedures are being developed under the direction of the manager or supervisor responsible

2/This portion of the inspection was performed under the direction of the project inspector.





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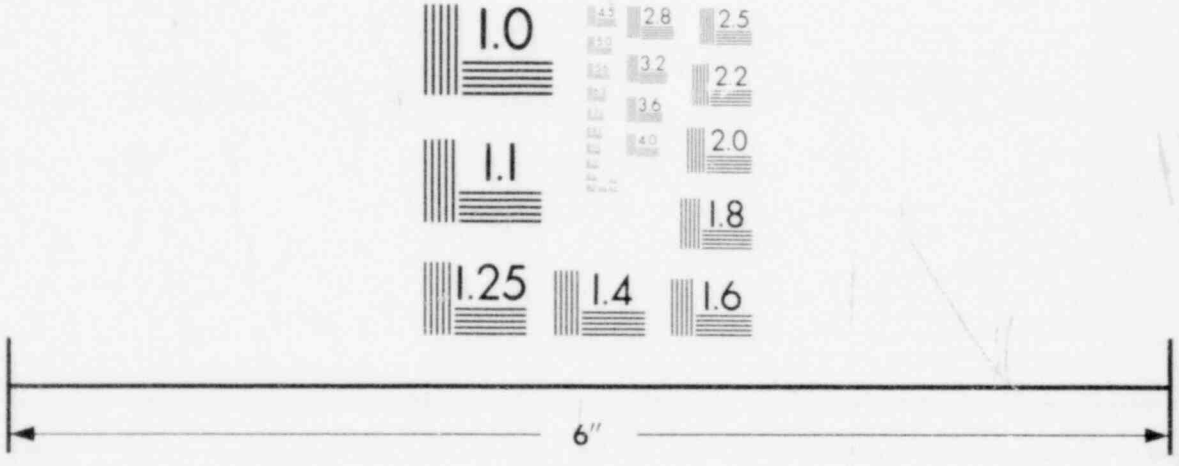

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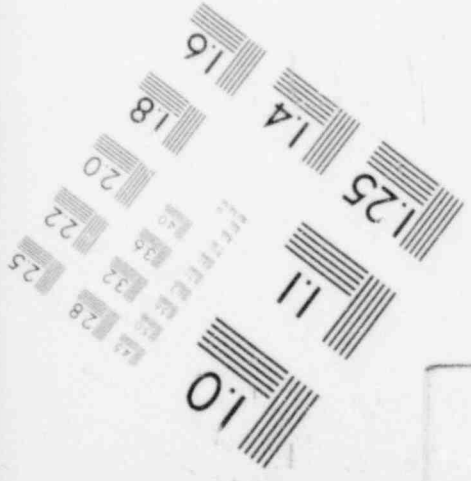

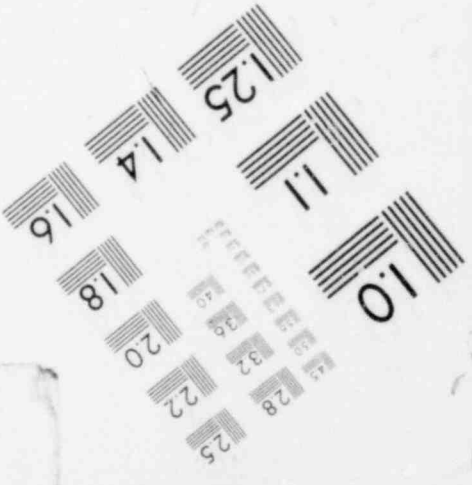

for their administration. The preparation schedule for each category of procedure was reviewed by the IE inspector. As of this inspection, no approved procedures were available for review. Site staffing is expected to involve ten QA and sixty-four QC personnel at the peak level of activity in 1982. Position requirements by discipline were identified and reviewed.

No deviations were identified.

6. Field Change Requests[3/]

A review was conducted of the methods established by HL&P Power Plant Construction (PPC) Division for the control, review and approval of changes identified at the construction site that modify or clarify the established scope of work, design configuration, specifications or Bills of Material. The PPC Division Procedure PPC-2, "Field Changes," Revision 1, sets forth the methods for the processing of field change requests (FCRs) by the PPC Division so as to "ensure that appropriate change and design control measures commensurate with those applied to the original design are utilized." Included in the scope of the procedure are changes covered by nonconformances, by NRC Regulation changes, and changes identified by HL&P engineers. FCRs are reviewed jointly by the Ebasco Site Chief Engineer and the PPC Project Engineer to determine whether the recommended change needs Ebasco home office engineering review. The criteria to be used in determining the requirement for Ebasco home office review are listed in the procedure and were reviewed by the IE inspector.

If the FCR does not require the Ebasco home office engineering review, as established using the criteria listed in the procedure, the review is required to be conducted by the PPC Project Engineer and the Ebasco Site Chief Engineer. The procedure states that, "upon agreement with the recommended disposition (or alternate), the PPC Construction Supervisor will sign the FCR indicating concurrence with the recommended disposition and authorization for implementation of the change."

Attached to the procedure is an example FCR which contains several concurrence signature lines, one of which is designated as the Quality Assurance Department. This item, on the FCP form ,is not addressed in the procedure.

The stipulation of authorization by the PPC Construction Supervisor, for implementation of field changes, is considered an unresolved item due to the lack of correlation between the procedure and the example form with respect to a concurring review by the Quality Assurance Department.

No deviations were identified.

3/ This portion of the inspection was performed under the direction of the project inspector.

7. Design Control

Design, design analysis and design verification are performed by Ebasco (A/E) and General Electric (NSSS) and are audited by HL&P QA Department. The system of controls governing design activities, for which Ebasco is responsible, is described in the Ebasco Nuclear Quality Assurance Program Manual. HL&P engineering functions for review of the finished design are accomplished utilizing the methods described in the Allens Creek Quality Assurance Plan.

Documents reviewed in regard to design control by HL&P included:

ACNGS PSAR, Section 3.2, "Classification of Structures, Components and Systems," and Section 17.0, "Quality Assurance"; including 17.1.1A.2, "Other HL&P Departments Having Quality Related Functions"; 17.1.1A.3.1.1, "Design Review Committee"; and 17.1.3A, "Design Control."

HL&P QA Manual, Section 2.0, "Organization," Rev. No. 5, 12/1/76; Section 4.0, "Engineering," Rev. No. 2, 12/1/74; and Section 5.0, "Construction and Fabrication."

HL&P Allens Creek Quality Assurance Plan, Section 4.0, "Engineering," Rev. No. 1, 2/1/78.

HL&P, "Outline of Procedures - Civil Engineering," Civil Design Section, Rev. No. 1, 1/31/75.

Ebasco Nuclear Quality Assurance Program Manual, Section QA-I-4, "Design Control," Rev. No. 1, 8/11/77.

a. Document Review

The responsibility for conducting review of design documentation within HL&P is assigned to the QA, Power Plant Engineering & Construction (PPE&C) and the Engineering Departments.

The Manager, Nuclear Division of PPE&C is responsible for conducting review of the NSSS; the Manager, Engineering of PPE&C is responsible for conducting review of BOP and TG; the Manager, Engineering Design and Development of the Engineering Department is responsible for conducting review of the switchyard, transformers,and generator as related to the transmission system; and the Manager, Civil Engineering of the Engineering Department is responsible for conducting review of the site structures and buildings.

Within Ebasco, the various engineering departments are responsible for design review and verification. For example, QA engineering performs independent reviews of specifications and drawings to assure that appropriate quality requirements have been included, and Nuclear Licensing performs a review of safety related drawings and specifications for compliance with NRC regulations, the SAR and Regulatory Guides.

The Division Managers within the engineering departments, who are responsible for technical review of system, component or structure designs, are responible for ensuring that the system, component or structure is included on a Design Review Requirements List (DRRL).

On approval of the DRRL by the Design Review Committee, a designated cognizant engineer (review coordinator) coordinates review of the assigned system, component or structure within the responsible engineering division.

Technical reviews are normally delegated to Principal or Supervising Engineers or other qualified personnel. One of these is usually designated as Review Coordinator. Consultants may be required to perform selected reviews.

The method for engineering review, approval and release of design documents by HL&P is established in Project Division Procedure No. PP-5.0, "Design Review Procedure," Rev. No. 4, 9/23/77. The design documents are transmitted to the review coordinators and reviewers. A cover sheet, Information Transmittal Sheet, is attached which designates the review coordinator, reviewers and action date for the review. Also, a form document, Document Review Sheet, is included for use in conveying comments from the reviewer to the review coordinator and to document final action on the design document.

In the case of the latter form document, it was observed by the IE inspector, that although the form was referenced, it was not appended to the reference procedure so as to receive the same review and approval as the procedure. Consequently, the form document did not have review and approval status.

The IE inspector concluded that use of the unapproved forms was in deviation to commitments contained in Section 1.6.2 of the PQAP and Section 17.1.5A of the PSAR.

PQAP 4.5.4 requires that a Design Review Worksheet (DRW) be completed by the cognizant engineer and updated as additional or revised drawings are received. The DRW is utilized during the conduct of review.

The IE inspector reviewed DRRLs and DRWs of the Nuclear and Mechanical Engineering Divisions of BPE&C and the Civil Engineering Division of the Engineering Department.

It was observed, during procedure review of the Nuclear and Systems Engineering QC Manuals, that no formal procedure exists to control the maintenance and use of the Design Review Worksheet. The PQAP, Section 1.6.2, requires that the managers of the HL&P Departments who perform quality related activities are required to develope written procedures necessary to implement the requirements contained in the PQAP.

The IE inspector pointed out that failure to provide a procedure for maintenance and use of the DRW is a deviation to commitments contained in Section 1.6.2 of the PQAP and 17.1.5A of the PSAR.

During the review of the document review procedures of the Civil Engineering Division of the HL&P Engineering Department, it was observed that the procedures being utilized had not been approved.

The IE inspector informed the responsible engineers that failure to utilize approved procedures during document review is a deviation to commitments contained in Section 1.6.2 of the PQAP and Section 17.1.5A of the PSAR.

b. Design Change Control

(1) Design Change

The method by which design changes are reviewed and approved is established in Section 4.7 of the PQAP.

The responsibility for controlling design changes to safety related systems, components and structures is the same as design review responsibility. Design control measures applied to design changes are required to be the same as those for the original design.

The category of the design change document is identified by the Review Coordinator who initiates a Design Change Control Worksheet. The Review Coordinator then reviews and obtains approval for the design change.

The IE inspector reviewed the implementing procedures of HL&P and Ebasco.

No deviations were identified.

(2) Field Change

The methods for processing field change requests are identified in PPE&C Procedure PPC-12, "Field Changes," Rev. No. 1, 1/13/77.

Field changes identified during construction or testing are processed utilizing a Field Change Request (FCR) form. FCRs may be initiated by HL&P or construction personnel.

No deviations were identified.

c. Audits

Two internal audits of HL&P were reviewed:

(1) QA audit of the Engineering Division of the PPE&C Department on July 27-28, 1978. It was observed by the IE inspector that five audit deficiences were identified by the auditors. Acknowledgement and proposed corrective and recurrence action were requested by September 5, 1978.

(2) QA audit of the Civil Engineering Division of the HL&P Engineering Department. One area of concern was identified. A target date for corrective action was June 15, 1978.

The corrective action was inspected by the IE inspector during inspection of these divisions.

No deviations were identified.

8. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. An unresolved item disclosed during the inspection is discussed in paragraph 6.

9. Exit Interview

The IE inspectors met with applicant representatives (denoted in paragraph 1) at the conclusion of the inspection on August 1, 1978. The IE inspectors summarized the purpose and scope of the inspection and the findings. An applicant representative acknowledged the inspectors' findings concerning the deviations (paragraph 2, 4 and 7) and the unresolved item (paragraph 6).