COMANCHE PEAK STEAM ELECTRIC STATION

UNITS 1 AND 2

PROGRAM PLAN
AND
ISSUE-SPECIFIC ACTION PLANS

OCTOBER 8, 1984

TEXAS UTILITIES GENERATING COMPANY
A DIVISION OF
TEXAS UTILITIES ELECTRIC COMPANY

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COMANCHE PEAK RESPONSE TEAM

PROGRAM PLAN

Rev.	Description	Prepared by Program Manager	Date	Approved by Senior Review Team	Date
0	Original Issue	[signature]	10/5/84	[signature]	10/5/84

Comanche Peak Steam Electric Station
Comanche Peak Response Team
Program Plan

I. INTRODUCTION

The Nuclear Regulatory Commission (NRC) established a Technical Review Team (TRT) to review certain aspects of the Comanche Peak Steam Electric Station (CPSES). The purpose of the TRT is to evaluate certain technical issues and allegations of improper construction practices concerning CPSES. In July, 1984, the TRT began onsite activities as part of its review plan using a team divided into five groups: electrical/instrumentation, civil/mechanical, QA/QC, protective coatings, and test programs

On September 18, 1984, a public meeting was held in the NRC's offices in Bethesda, Maryland, at which NRC management and the TRT presented Texas Utilities Electric Company (TUEC) with a request for additional information. This request was based on the results of the TRT efforts to date in the electrical/instrumentation, civil, and test program areas. The TRT stated that they required additional information in order to make a determination of the safety significance of certain concerns.

The TRT request for information was documented in an attachment to an NRC letter dated September 18, 1984. The request was divided into three primary areas and several sub-areas, each representing a subject of concern to the TRT.

TUEC has developed a Program Plan to provide the requested information. The overall Program Plan is presented below and the Action Plans for responding to the specific TRT issues identified to date are provided on an issue by issue basis in Appendix A. Similar issue-specific Action Plans will be developed to respond to any additional TRT issues identified to TUEC in the future.

II. PROGRAM PLAN OBJECTIVES

TUEC is committed to the safe, reliable, and efficient design, construction, and operation of CPSES and will cooperate fully with the NRC and its TRT to resolve the identified issues. The Program Plan described in this document is intended to establish a framework for responding to the TRT's requests for additional information and to assist in dispositioning the associated issues. Where necessary, corrective action will be taken. Appropriate action will also be taken to preclude similar deficiencies from occurring in the future. Therefore, the objectives of the Program Plan are to:

- Evaluate and respond to the issues raised by the TRT

- Identify the root cause and evaluate the generic implications of any identified deficiencies
- Identify and implement any required corrective action
- Evaluate the collective significance of any identified deficiencies
- Identify and implement steps necessary to preclude any similar occurrences in the future

III. PROGRAM PLAN PRINCIPLES

To ensure that the Program Plan objectives are met, the program was developed using the following principles:

A. Specific Questions

The September 18, 1984, letter and its attachment identified specific requests for additional information and provided examples of potential deficiencies. Each of these issues will be thoroughly assessed. Any identified deficiencies will be dispositioned by appropriate corrective action.

B. Expanded Reviews

TUEC recognizes that the NRC used sampling techniques in the performance of the TRT review. Thus, in some cases, it may be appropriate to expand the size of the sample to explore in more detail the issues identified by the NRC. This will enable TUEC to determine whether the concern is isolated or affects a significant portion of the discipline or area being reviewed. Any deficiencies identified in the larger sample will be dispositioned by appropriate corrective action. The ultimate size of the sample will depend on the extent to which deficiencies are found.

C. Generic Implications

The program also includes provisions for investigating whether a deficiency identified in one area could occur in other areas. For example, if implementation of the program identifies a deficiency in the electrical area, reviews will be made in other areas (e.g., mechanical) when it could be reasonably expected that the potential exists for a similar deficiency. Any deficiencies identified in these other areas will be dispositioned by appropriate corrective action.

D. Thorough Reviews

The program requires a full understanding of the specific TRT issue, consideration of broader issues, and the conduct of a thorough review of these matters. The methods used in the program will include records reviews, inspections, engineering analyses, and testing. These methods will be fully justified in the documentation resulting from the implementation of the plan.

E. Root Cause

Identified deficiencies will be examined to determine their root causes. Evaluation of the root causes will be performed to facilitate the definition of potential generic implications and the definition of actions to prevent recurrence in the future.

F. Corrective Action

The Program Plan requires the definition and implementation of appropriate corrective actions to resolve any deficiencies identified by the NRC-TRT or by TUEC during the course of this review and evaluation program.

G. Collective Significance

The collective significance of identified deficiencies and their root causes will be evaluated. The evaluation of collective significance will determine whether the existence of multiple, apparently isolated and relatively minor deficiencies indicates a common shortcoming in the programs and procedures applicable to the project. The collective significance evaluation will focus on the integrated impact on the CPSES project of the identified deficiencies and will place particular emphasis on the identification of "lessons learned" as they apply to CPSES Units 1 and 2.

H. Future Occurrences

Using the results of the evaluations of root causes and the collective significance evaluation, actions will be identified to prevent the future occurrence of similar deficiencies at CPSES Units 1 and 2.

I. Personnel Qualifications/Training

Individual Action Plan activities (such as testing, inspections, and records reviews) will be performed by personnel who have received training on the procedures to be utilized and who have been qualified/certified in accordance with the existing CPSES QA Program provisions. To the maximum extent possible, such tasks will be performed by personnel who were not previously involved in the activities under question.

J. Records

The Program Plan requires that the activities performed in accordance with each Action Plan be documented appropriately along with the results of the Action Plan. The resulting records will be maintained in auditable form.

Utilizing the general principles presented above, specific Action Plans have been developed for each issue identified in the September 18, 1984, letter. These Action Plans are presented in Appendix A of this document. Similar issue-specific Action Plans will be developed to respond to TRT questions in the mechanical, QA/QC, and coatings areas when they are identified to TUEC.

IV. PROGRAM ORGANIZATION AND FUNCTIONAL RESPONSIBILITIES

A. Introduction

The organization established by TUEC to develop and implement this Program Plan has been designated as the Comanche Peak Response Team (CPRT). A chart depicting the organizational structure and principal members of the CPRT is presented as Attachment 1. The personnel assignments to this project reflect the importance that TUEC has attributed to its successful conduct and completion.

B. Team Members -- Roles and Responsibilities

1. Program Manager

The CPRT Program Manager is Mr. John T. Merritt, Jr., TUGCO's Assistant Project General Manager for CPSES. Mr. Merritt's normal line management responsibilities include engineering, construction, testing, and startup of CPSES. Mr. Merritt is responsible for all CPRT activities discussed below, except those associated with QA/QC issues and activities within the scope of the Senior Review Team (discussed below). In the case of QA/QC issues, certain Program Manager functions are the responsibility of Mr. Billy R. Clements, TUGCO's Vice-President, Nuclear Operations. These functions are indicated in the listing below with an asterisk(*). As CPRT Program Manager, Mr. Merritt's responsibilities include the following:

- Development of the CPRT Program Plan, and any subsequent revisions thereof.

- Overall project responsibility for the development and implementation of the CPRT Program.

- Principal interface with the NRC staff's TRT Program Manager for CPRT/TRT matters.

- Assignment of Review Team Leaders.*

- Assignment of Issue Coordinators (in conjunction with Review Team Leaders)*

- Ensuring that necessary resources are provided to support the successful implementation of the CPRT Program*

- Establishing CPRT Program standards for personnel qualifications*

- Review and recommend Senior Review Team approval of individual Action Plans, and any subsequent revisions thereof*

- Review and concur in the determination of "root cause" and "generic implications" and review and approve assessments of the adequacy of the Action Plans to address these issues.*

- Review and recommend Senior Review Team approval of Action Plan Results Reports*

- Performance of the Collective Significance Evaluation and submittal of the associated Report to the Senior Review Team for review and approval.

- Development and maintenance of the Project Central File

- Overall project responsibility for the implementation of necessary corrective action to resolve any identified deficiencies and to preclude the future occurrence of similar deficiencies.*

2. Senior Review Team

The Senior Review Team for the CPRT Program consists of the following members:

Mr. Lou F. Fikar, Executive Vice-President, Engineering, TUGCO

Mr. Billy R. Clements, Vice-President, Nuclear Operations, TUGCO

Mr. Joe B. George, Vice-President, Engineering and Construction; CPSES Project General Manager, TUGCO

Mr. John W. Beck, Manager, Nuclear Licensing, TUGCO

Mr. John C. Guibert, Consultant; Manager, Nuclear Safety & Licensing, TERA Corporation

The responsibilities of the Senior Review Team include the following:

- Provide advice and counsel to the Program Manager as appropriate.
- Review and approve the CPRT Program Plan and any subsequent revisions thereof.
- Review and approve individual Action Plans.
- Review and approve changes to individual Action Plans.
- Review and approve early determinations of "root causes" and "generic implications" and review and approve assessments of adequacy of Action Plans to address these issues.
- Review and approve Action Plan Results Reports, with particular emphasis on the adequacy of root cause determinations, generic implications evaluations, safety significance determinations, corrective action definitions, and actions designed to preclude recurrences in the future.
- Review and approve the Collective Significance Evaluation Report.
- Advise the President of TUGCO regarding the adequacy and status of the CPRT Program.

3. Review Team Leaders

Review Team Leaders have been designated for each of the six general areas evaluated by the NRC's TRT. Specific assignments are as follows:

Mr. Larry M. Popplewell, CPSES Project Engineering Manager; Electrical and Instrumentation Team Leader

Mr. C. Randy Hooton, CPSES Project Civil Engineer; Civil/Structural Team Leader

Mr. Richard E. Camp, CPSES Startup Manager; Testing Programs Team Leader

Mr. Claude K. Moehlman, CPSES Project Mechanical Engineer; Mechanical Team Leader

Mr. Antonio Vega, TUGCO Site QA Manager; QA/QC Team Leader

Mr. Ron G. Tolson, CPSES Administrative Assistant; Protective Coatings Team Leader

The responsibilities of the Review Team Leaders are listed below. For activities indicated with an asterisk, the Program Manager function is performed by the Vice-President, Nuclear Operations, when QA/QC issues are involved.

- Principal interface with NRC-TRT Team Leaders in respective areas for the purpose of ensuring that additional clarifying information is obtained (when necessary), for obtaining feedback on the adequacy of Action Plans within their area, and for ensuring that responses to NRC questions regarding implementation of Action Plans within their area are provided.

- Assignment of Issue Coordinators (in conjunction with Program Manager).*

- Provide advice, counsel, and direction to the Issue Coordinators within their area.

- Review and concur in the Action Plans within their area.

- Obtain necessary resources to develop and implement Action Plans within their area (in conjunction with the Program Manager).*

- Ensure that personnel implementing Action Plans within their area meet CPRT program standards for personnel qualifications.

- Ensure that Action Plans within their area are being implemented appropriately.

- Review and concur in determination of "root cause" and "generic implications." Ensure that these determinations have been adequately reflected in the Action Plan or ensure that the Action Plan is appropriately revised.

- Review and concur in any changes to the Action Plans within their area.

- Obtain periodic status reports from Issue Coordinators. Recommend necessary actions, if appropriate, to the Program Manager.*

- Review and concur in the Action Plan Results Report prepared by the Issue Coordinators.

- Maintain a Project Working File for each Action Plan within their area (in conjunction with Issue Coordinators).

- Transfer Project Working Files to the Project Central File at such time that each Action Plan is completed (i.e., Action Plan Results Report reviewed and approved by the Senior Review Team).

4. Issue Coordinators

Issue Coordinators have been designated for each of the specific issues identified in the NRC letter dated September 18, 1984. In some cases, Review Team Leaders have been assigned as Issue Coordinators. Additional Issue Coordinators will be assigned at such time as TUEC is advised of TRT questions in the areas of mechanical, QA/QC and protective coatings. Specific assignments, identified by associated TRT issue designators, are as follows:

Issue I.a--	Mr. W.I. Vogelsang, CPSES Project Electrical Engineer
Issue I.b--	Mr. S.P. Martinovich, G&H Senior Electrical Engineer
Issue I.c/1I.d--	Mr. M.R. McBay, CPSES Building Manager, Reactor Building #2
Issue I.d.1--	Mr. A. Vega, TUGCO Site QA Manager
Issue I.d.2--	Mr. M. Warner, Supervisor, Quality Engineering
Issue II.a/II.e--	Mr. D. Patankar, Lead Civil/Structural Design, Urit #2

Issue II.b--	Mr. S. Harrison, Civil Engineering Lead, Safeguards Building #2
Issue II.c--	Mr. O.B. Jones, Lead Engineer, Safeguards Building #2
Issue III.a/III.b--	Mr. S. Franks, Special Projects
Issue III.c--	Mr. A. Lancaster, Startup QA Specialist
Issue III.d--	Mr. R. E. Camp, CPSES Startup Manager

The responsibilities of the Issue Coordinators include the following:

- Obtaining additional clarifying information from the appropriate NRC/TRT member as necessary to ensure that the TRT issue is understood and defined.

- Developing the Action Plan for resolution of the issue using the format and content guidelines set forth in Attachment 2. Particular emphasis shall be placed on the definition of relevant procedures and checklists, personnel qualifications and training, decision criteria, and acceptance criteria.

- Obtaining review, comment, and concurrence in the Action Plan from the Review Team Leader and the Program Manager.

- Identifying and obtaining necessary resources to implement the Action Plan (in conjunction with the Review Team Leader).

- Ensuring that personnel implementing the Action Plan meet CPRT standards for personnel qualifications. (Obtain concurrence from Review Team Leaders)

- Implementing the Action Plan.

- Obtaining early review and concurrence in the determinations of "root cause" and "generic implications" from the Review Team Leader and the Program Manager.

- Identifying and obtaining review and concurrence in proposed scope changes to the Action Plan from the Review Team Leader and the Program Manager.

- Providing periodic status reports on progress in implementing the Action Plan to the Review Team Leader and the Program Manager.

- Preparing a report on the results of the implementation of the Action Plan using the format and content guidelines set forth in Attachment 3.

- Obtaining review and concurrence in the Action Plan Results Report from the Review Team Leader and the Program Manager.

- Assisting the Review Team Leader in the development and maintenance of the Project Working File associated with the Action Plan.

C. Personnel Qualifications

The assignment of the key members of the CPRT was based on the following considerations:

- the need for broad organizational representation

- the need to utilize personnel with demonstrated ability to make objective evaluations and decisions

- the need to utilize personnel with direct CPSES project experience

- the need to utilize personnel with direct knowledge and experience in the areas in which questions exist

- the desirability of obtaining an external perspective

With respect to the implementation of the individual Action Plans, activities such as testing, inspections, and records reviews will be performed by personnel who have been trained, who have been qualified/certified in accordance with the existing CPSES QA Program provisions and, to the extent possible, who were not previously involved in the activities under question. In some cases, external organizations may be utilized to perform Action Plan tasks. Individual Action Plans address the personnel qualifications and objectivity of participating personnel.

V. PROGRAM PROCESS

The overall process for the development and implementation of this Program Plan and its associated individual Action Plans was presented, to a large extent, in the preceeding sections through a discussion of the program organizational structure and the functional responsibilities of the participants within that structure.

A summary of the key elements of the overall program process is presented in Attachment 4.

Additional information related to the process for developing individual Action Plans is presented in Attachment 2. While each Action Plan is unique, the programmatic guidelines set forth in Attachment 2 and the multi-layered Action Plan review and approval process ensure that each Action Plan is developed and implemented in a manner which meets the Program Plan Objectives and the Program Plan Principles. Each Action Plan includes a description of the following:

- scope and methodology
- identification of procedures and checklists
- participating personnel
- qualifications of participating personnel
- training of participating personnel (where applicable)
- relevant standards
- applicable evaluation criteria, and
- applicable decision criteria.

Additional information related to the process for developing issue-specific Action Plan Results Reports is presented in Attachment 3. The programmatic guidelines set forth in Attachment 3 and the multi-layered Results Report review and approval process ensure that the following subjects are adequately addressed during the implementation of the Action Plan:

- identification of root causes of identified deficiencies,
- an evaluation of the safety significance of any identified deficiencies,
- a determination regarding potential generic implications and a description of how they were addressed,

- identification of necessary corrective actions to resolve identified deficiencies,
- identification of necessary action to preclude recurrence in the future.

VI. PROGRAM OUTPUTS

The principal outputs of the CPRT Program will be the Action Plan Results Reports. The format and content to be utilized in the development of these Reports is presented in Attachment 3. Specific conclusions will be reached regarding root cause, safety significance, and generic implications. Necessary corrective actions will be identified to resolve deficiencies, including any corrective actions necessary to preclude recurrence of similar deficiencies in the future.

An additional report documenting the results of the Collective Significance Evaluation will be developed. This report will, in large measure, be based upon an integrated assessment of the Action Plan Results Reports. The principal focus of this evaluation will be to identify additional programmatic "lessons learned" which should be reflected in future project-related activities for both Comanche Peak Unit 1 and Comanche Peak Unit 2.

At the conclusion of the CPRT Program, a Final Report summarizing the results and conclusions of the Program will be submitted to the NRC. Interim status reports or briefings will be provided to the NRC staff as requested.

VII. PROGRAM QUALITY ASSURANCE

Activities associated with the implementation of individual Action Plans will be conducted within the framework of the existing CPSES QA Program. Existing procedures, revised or supplemented as necessary to address special requirements, will be used to perform reassessment activities, reinspection activities, and rework activities performed by engineering, construction, and QA/QC personnel.

VIII. PROGRAM RECORDS

In order to ensure that an auditable record of the CPRT Program is available, the documentation described below will be developed and maintained.

A. Project Central File

The Project Central File will be maintained by the Program Manager. At the completion of the CPRT Program, it will contain all project documentation, including the Project Working Files maintained by the Review Team Leaders during the conduct of the Program. During the conduct of the Program, the Project Central File will contain the following material:

- A copy of the Program Plan submitted to the NRC and any subsequent revisions thereof
- A copy of the individual Action Plans submitted to the NRC and any subsequent revisions thereof
- A copy of the individual Action Plan Results Reports submitted by the CPRT Issue Coordinators and any subsequent revisions thereof
- A copy of the individual Action Plan Working File for all Action Plans which have been completed (i.e., Action Plan Results Reports reviewed and approved by the Senior Review Team).

B. Project Working Files

Project Working Files will be maintained by the Review Team Leaders for each Action Plan under their cognizance until such time as the Action Plan has been completed. At that time, the Project Working File for the completed Action Plan will be transferred to the Project Central File. The specific material contained in each Project Working File will vary, depending upon the nature of the associated Action Plan; where applicable, it will contain, at a minimum, the following material:

- Copies of letters, memoranda or reports documenting the results of analysis performed as part of the Action Plan, including any associated documentation related to the evaluation of such results.
- Copies of letters, memoranda, or reports documenting the results of testing performed as part of the Action Plan, including any associated documentation related to the evaluation of such results.
- Copies of procedures or checklists used in the performance of testing.

- Copies of letters, memoranda, reports, drawings or other means of documenting the results of inspections performed as part of the Action Plan, including any associated documentation related to the evaluation of such results.

- Copies of procedures or checklists utilized in the performance of inspections.

- Copies of letters, memoranda, or reports documenting the results of record reviews performed as part of the Action Plan, including any associated documentation related to the evaluation of such results.

- Copies of procedures or checklists utilized in the performance of record reviews.

- A record of personnel qualifications and a record of training for personnel participating in the implementation of the Action Plan.

IX. SCHEDULE

At the present time, it is impractical to accurately estimate the schedule for completion of the entire CPRT Program. This is primarily due to two elements of uncertainty:

- Several of the Action Plans utilize a phased approach for resolution, consequently the full scope of the necessary review effort cannot be determined until preliminary results become available; and

- The TRT questions in the areas of mechanical, QA/QC, and protective coatings have not yet been provided to TUEC, consequently the nature of the Action Plan activities necessary to respond to these questions (and their associated schedule) cannot be determined until a later date.

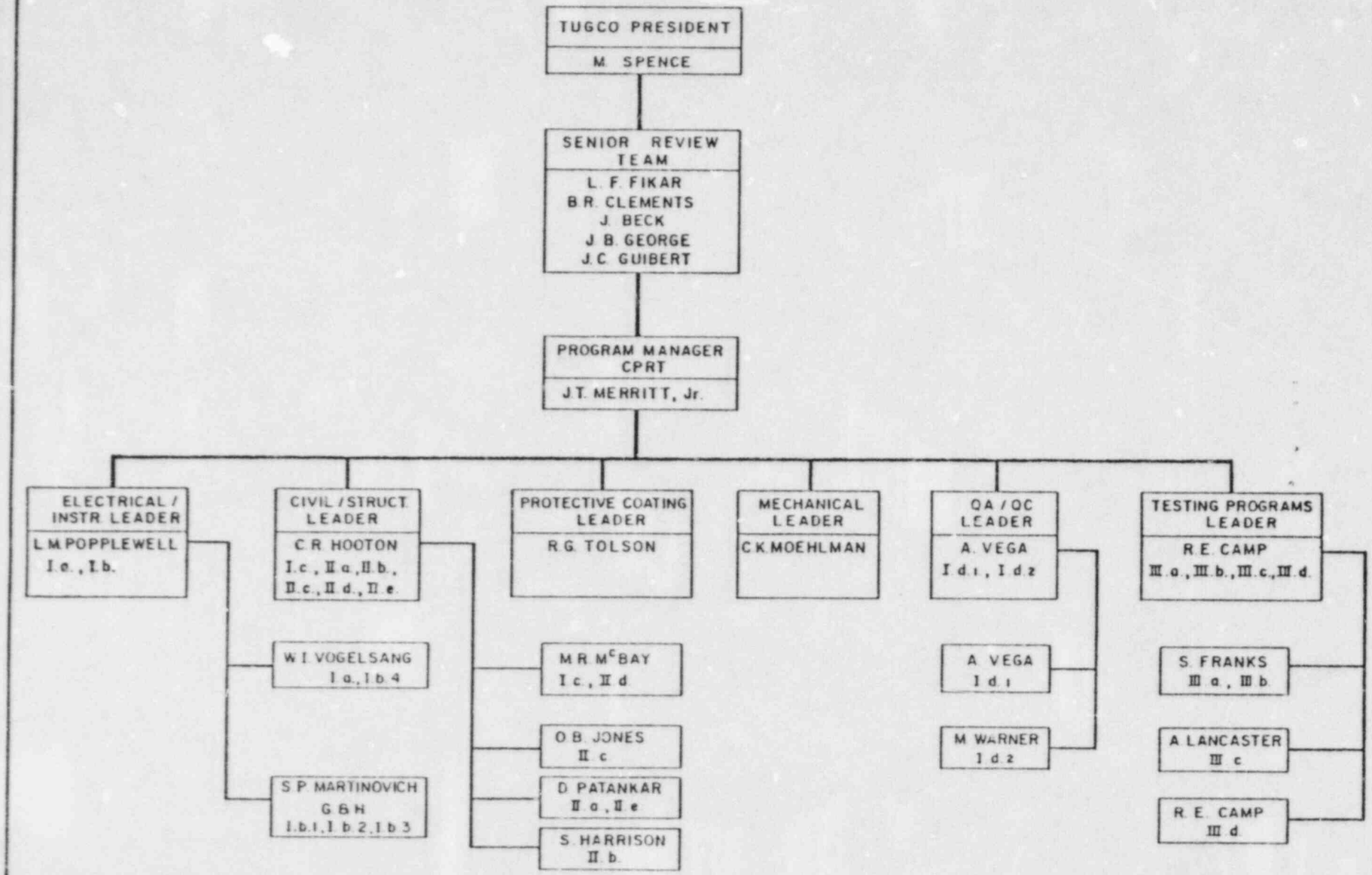
The Action Plans presented in Appendix A address, to the extent practicable at the present time, the current status and projected schedules for completion of selected elements of the individual Action Plans and, in a few cases, the schedule for completion of the entire Action Plan. As additional information becomes available regarding projected completion schedules for individual Action Plans and for the entire CPRT Program, it will be provided to the NRC staff.

TUEC is committed to a thorough and complete review of the safety-related issues identified by the TRT. A satisfactory resolution of these issues which potentially affect the safe operation of the Comanche Peak Units takes precedence over schedule concerns.

As the implementation of the CPRT Program proceeds and after the additional TRT questions have been received and additional Action Plans have been developed to address them, TUEC intends to perform an evaluation to determine that a safety basis exists to support authorization for fuel loading and precritical testing at Comanche Peak Unit 1 prior to the completion of the entire CPRT Program. TUEC will inform the NRC staff of the results of this evaluation.

COMANCHE PEAK RESPONSE TEAM

(CPRT)



ATTACHMENT 1

Revision: 0

ATTACHMENT 2

ACTION PLAN FORMAT

ITEM NUMBER _____

(Short Title)

1. Description of Issue Identified by NRC

   -Verbatim statement of the TRT issue as stated in the enclosure to the 9-18-84 letter

   -Develop a separate Action Plan for each numbered TRT item

2. Action Identified by NRC

   -Verbatim statement of NRC - directed action as stated in the enclosure to the 9-18-84 letter

3. Background

   -Relevant information which clarifies the issue definition

   -Relevant information to provide additional perspective and understanding of the issue

   -An explanation (where applicable) of why TUEC has decided to pursue the approach described under Section 4.0 below, where alternative approaches were available.

4. TUEC Action Plan

   -Scope and Methodology

      -Describe approach (phased, if applicable)

      -tasks to be performed without conditions

      -tasks to be performed under certain conditions (e.g., "If we find "x", then we will take the following additional action...")

      -tasks to be performed as part of an expanded review (where applicable and where this has already been determined)

      -describe how potential generic implications are being considered (where applicable and where this has already been determined)

-Procedure(s) to be used

-reference existing procedures

-describe any new or revised procedures

-Participant's Roles and Responsibilities

-which organizations are involved

-scope for each organization

-identify lead individual

-Qualifications of Personnel

-state qualifications of personnel implementing the Action Plan

-reference these qualifications to existing requirements

-discuss training of personnel which will be conducted

-Sampling Plan

-if performing a 100% review, state that a 100% review is being done

-if sampling is used, provide information relevant to the sampling plan, and provide justification for the sample size

-Describe any other features of the sampling plan (e.g. random sampling of the universe, random sampling of each discipline, etc.)

-Provide the definition of a "reject"

-Standards/Acceptance Criteria

-describe the standards (e.g., FASR, IEEE, Reg. Guides, etc.) against which you are performing the review

-Decision Criteria

-describe the criteria to be used for going to the next phase of a phased-approach review or for expanding the sample size for a review using sampling technique

-Describe the criteria for closing out this item (this is related to the standards/acceptance criteria and the criteria for subsequent phases)

5. Schedule/Status

Describe schedule and current status, to the extent possible. Reference the schedule to the phases where appropriate. If a schedule for a phase cannot be provided until additional information is obtained, state that a schedule will be developed at the completion of the previous phase.

ATTACHMENT 3

ACTION PLAN RESULTS REPORT FORMAT

ITEM NUMBER _____

(Short Title)

1. Description of Issue Identified by NRC

   (same as Action Plan)

2. Action Identified by NRC

   (same as Action Plan)

3. Background

   (same as Action Plan)

4. TUEC Action Plan

   -Scope and Methodology

   -Same as Action Plan except:

   -where conditional phases were implemented, reword the conditional statement so that it is clear that the phase had been implemented

   -where a conditional phase was determined not to be necessary, state that it was not needed and provide a reference to a subsequent part of the report which justifies the decision not to implement the conditional phase

   -describe any other substantive changes to the Action Plan and why the changes were necessary

5. Discussion of Results

   -Comparison of results against standards/acceptance criteria

   -Comparison of results against decision criteria

   -Discussion of corrective actions for any identified deficiencies (e.g., any reinspections, rework, reanalysis, etc.)

6. Conclusions

-Identification of root cause of any deficiencies

-Evaluation of safety significance of identified deficiencies

-Evaluation of generic implications

-where applicable, describe expanded scope of review to address them

-demonstrate linkage to the root cause

-where applicable, describe basis for conclusion that no generic implications exist

7. Ongoing Activities

-Describe any activities still in progress

-State whether these on-going activities have safety significance

-State schedule for completing activities. State whether the work must be completed by fuel load, initial criticality, or power above 5%.

8. Action to Preclude Occurrence in the Future

-Training, Procedural changes, etc.

ATTACHMENT 4

SUMMARY OF PROGRAM PROCESS

1. Receipt of NRC-TRT request for additional information.

2. Preliminary review of issue by CPRT Program Manager, Senior Review Team and appropriate Review Team Leader.

3. Assignment of Issue Coordinator.

4. Obtain additional, clarifying information from NRC-TRT to ensure full understanding of the concern (if necessary).

5. Develop Action Plan to resolve concern using guidance provided in Attachment 2.

6. Action Plan approved by appropriate Review Team Leader, Program Manager, and Senior Review Team.

7. Implement Action Plan.*

8. Identify root cause and potential generic implications.

9. Concurrence of appropriate Review Team Leader, Program Manager, and Senior Review Team in root cause definition and potential generic implications assessment.

10. Develop revised Action Plan (if applicable).

11. Revised Action Plan approved by appropriate Review Team Leader, Program Manager, and Senior Review Team (if applicable).

12. Implement Revised Action Plan (if applicable).*

13. Develop Action Plan Results Report using guidance provided in Attachment 3.

14. Action Plan Results Report approved by appropriate Review Team Leader, Program Manager, and Senior Review Team.

15. Implement necessary additional corrective action (if applicable).

16. Implement necessary corrective action to prevent reoccurrence in the future (if applicable).

17. Assess Action Plan Results Report as part of Collective Significant Evaluation.

18. Implement necessary activities stemming from the Collective Significance Evaluation

19. Submit Final Report to NRC.

*Action Plans and revised Action Plans will be submitted to the NRC staff for review and comment at the time they have been approved by the Program Manager and the SRT; however, implementation of Action Plans will not be delayed pending receipt of NRC staff comments. Any necessary changes to Action Plans resulting from NRC review and comments will be incorporated expeditiously.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: I.a.1

Title: Heat Shrinkable Cable Insulation Sleeves

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	W I Vogelsang by [illegible]			
Date	10/5/84			
Reviewed by: Review Team Leader	[illegible]			
Date	10/5/84			
Recommended by: Program Manager*	[illegible]			
Date	10/5/84			
Approved by: Senior Review Team	[illegible]			
Date	[illegible]			
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER I.a.1

Heat Shrinkable Cable Insulation Sleeves

1. Description of Issue Identified by NRC

The TRT found a lack of awareness on the part of quality control (QC) electrical inspectors to document in the inspection reports when the installation of the "nuclear heat-shrinkable cable insulation sleeves" was required to be witnessed.

2. Action Identified by NRC

Accordingly, TUEC shall clarify procedural requirements and provide additional inspector training with respect to the areas in which nuclear heat-shrinkable sleeves are required on splices and assure that such sleeves are installed where required.

3. Background

It is our understanding that the scope of the issue actually encompasses three (3) basic observations.

A. Inspection reports for cables containing splices do not consistently indicate witnessing of nuclear heat-shrinkable material as an inspectable quality attribute.

B. Inspection reports for post-installation inspections are used in lieu of in-process or witnessing inspection reports.

C. Through the TRT interview process with several quality control inspectors, it appears the inspectors are uncertain when documentation of the nuclear heat-shrinkable material is required.

These observations centrally address inspection reports documenting inspections of heat-shrinkable insulation sleeves.

Heat-shrinkable insulation sleeves are required only in areas of high radiation or "harsh" environments. The requirements for these installations and additional engineering considerations are appended to the construction procedure. During the TRT review, no instance was observed where the insulation sleeve was required and the inspection report failed to address the attribute.

An inspection, based on sampling, will be used to assure that the sleeves are installed where required by design.

ITEM NUMBER I.a.1
(cont'd.)

4. TUEC Action Plan

The general approach to resolve this issue is to clarify in the construction installation procedure the conditions which require actual installation of nuclear heat-shrinkable insulating sleeves. These revisions will initiate revision of the inspection procedure to specify commensurate inspection attributes.

When the inspection procedure is revised, additional training of inspectors will be required as specified in the quality training program. The following specific efforts will resolve inspection issues regarding the installation, applicability, and documentation of heat-shrinkable insulation sleeves.

A. Revise construction installation procedure EEI-8, "Class 1E And Non-Class 1E Cable Termination" to clearly identify splice installations which do and do not require installation of nuclear heat-shrinkable cable insulation sleeves.

B. Revise inspection procedure QI-QP-11.3-28, "Class 1E Cable Terminations" to assure proper documentation of inspection of nuclear heat-shrinkable material when required.

C. Train and certify inspectors to the revised inspection procedures in accordance with CP-QP-2.1, "Training and Certification of Inspection Personnel."

D. Review revised inspection forms to assure inspection attributes regarding the use of nuclear heat-shrinkable material are included.

In addition to revising the procedures as described above, a sampling program will be initiated to ensure that heat-shrinkable insulation sleeves are installed where required and that those installations are adequate. MIL STD-105D will be used to select a sample size to achieve a 95% confidence level that sleeves are properly installed where required. The inspection reports for the sample will be reviewed to determine if witnessing had been performed. If witnessing has not been documented, the sleeve in question will be inspected using procedure QI-QP-11.3-28. An item will be considered a reject if either a sleeve is not installed where required or the sleeve installation is considered unacceptable after inspection.

The Issue Coordinator for this item is W. T. Vogelsang - CPSES Project Electrical Engineer. The QA/QC contact for this item is M. Warner - Quality Engineering Supervisor.

ITEM NUMBER I.a.1
(cont'd.)

5. Schedule

No inspections will be made prior to having the procedures revision and training completed.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: I.a.2

Title: Inspection Reports on Butt Splices

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	W I Vogelsang by [illegible]			
Date	10/5/84			
Reviewed by: Review Team Leader	[illegible]			
Date	10/5/84			
Recommended by: Program Manager*	[illegible]			
Date	10/5/84			
Approved by: Senior Review Team	[illegible]			
Date	11/5/84			
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER I.a.2

Inspection Reports on Butt Splices

1. Description of Issue Identified by NRC

The TRT found inspection reports that did not indicate that the required witnessing of splice installation was done. Examples are as follows:

IR ET-1-0005393	IR ET-1-0005396
IR ET-1-0005394	IR ET-1-0006776
IR ET-1-0005395	IR ET-1-0014790

2. Action Identified by NRC

Accordingly, TUEC will assure that all QC inspection requiring witnessing for butt splices have been performed and properly documented; and verify that all butt splices are properly identified on the appropriate drawings and are physically identified within the appropriate panels.

3. Background

It is our understanding that this issue involves cables that had been spliced in accordance with the design documents but did not have inspection reports. The inspection report would document witnessing of the splice installation by a QC inspector.

Based upon a preliminary review of the six items identified by the TRT, TUEC has identified and reviewed additional inspection reports for the splice installations (associated with the above items reviewed by the TRT) which were apparently not reviewed by the TRT. These additional reports document the required witnessing.

Additional inspection reports reviewed by the TRT were:

IR ET-1-0007162	IR ET-1-0051217
IR ET-1-0050419	IR ET-1-0033666
IR ET-1-0051218	IR ET-1-0033669

4. TUEC Action Plan

A two phase approach will be used to resolve this issue.

Phase 1

The Phase 1 objective is to verify the existance of inspection reports documenting witnessing of splice installation. This will be accomplished in two steps:

A. A review will be made of all inspection reports (in-process, post-installation and final) for the cables in the twelve inspection reports reviewed by the TRT to determine if required documentation of witnessing exists.

ITEM NUMBER I.a.2
(cont'd)

B. An additional sample of twelve cables with splices will be taken. The inspection reports for these cables will be reviewed to determine whether required documentation of witnessing exists.

If all 24 cables (12 selected by TRT and 12 by TUEC) have inspection reports documenting witnessing, the response to item I.a.2 will be considered complete. If documentation of the required witnessing of a splice installation is not located, Phase 2 will be implemented.

Phase 2

If further reviews are required as a result of Phase 1, all drawings (100% sample) on which butt splices occur will be reviewed against change documents to ensure that all changes have been incorporated in the drawings. All butt splices (100% sample) will be verified to be installed within the appropriate panels.

Site and Quality Engineering will verify butt splices are actually located in the panels depicted by the drawings. This will be accomplished by the following specific activities:

A. Review Class 1E drawings to verify design changes showing butt splices in panels are incorporated correctly or are still active on the drawing log. This review will also verify butt splices are shown in the appropriate panel. The correction of drawings found to be in error during the engineering review will be controlled in accordance with engineering procedure CP-EP-4.6, "Field Design Change Control." Corrections will be incorporated in the drawing update program utilizing procedures TNE-DC-7, "Preparation and Review of Design Drawings," and TNE-DC-8, "Design Verification Changes."

B. Field inspections will be conducted under quality inspection procedure QI-QP-11.3-28, "Class 1E Terminations" to verify that the butt splices are physically located in the panels as depicted in the drawings.

The Issue Coordinator for this item is W. I. Vogelsang - CPSES Project Electrical Engineer. The QA/QC contact for this item is M. Warner - Quality Engineering Supervisor. Inspectors performing the above inspection activities will be trained and certified for procedure QI-QP-11.3-28.

5. Schedule

Quality Engineering review of the inspection reports on the twelve cables reviewed by the TRT is expected to be complete by October 19, 1984. If Phase 2 is required, a schedule will be developed.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: I.a.3

Title: Butt Splice Qualification

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	W I Vogelsang by [illegible]			
Date	10/5/84			
Reviewed by: Review Team Leader	[illegible]			
Date	10/5/84			
Recommended by: Program Manager*	[illegible]			
Date	10/5/84			
Approved by: Senior Review Team				
Date				
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER I.a.3

Butt Splice Qualification

1. Description of Issue Identified by NRC

The TRT found a lack of splice qualification requirements and provisions in the installation procedures to verify the operability of those circuits for which splices were being used.

2. Action Identified by NRC

Accordingly, TUEC shall develop adequate installation/inspection procedures to assure that the wiring splicing materials are qualified for the appropriate service conditions, and that splices are not located adjacent to each other.

3. Background

It is our understanding that the issue is as follows:

A. Adequate provisions are not included in the installation procedures to verify the operability of those circuits in which splices are used.

B. Adequate provisions are not included in the installation procedures to assure the splices are staggered within the panel so as to preclude splices in the same panels from pressing against adjacent splices.

C. Adequate requirements are not included in the installation procedures to assure the splices are qualified for appropriate service conditions.

In order to address these issues, the following should be considered:

A. All cable work involving termination, de-termination or splicing is required to be tested or retested in accordance with Startup Administrative Procedures (SAP)-6. "Control of Work on Station Components After Release From Construction to TUGCO"; SAP-22 "Retest Control"; and XCP-EE8 "Control Circuit Functional Testing". These tests provide the necessary verification of operability after splicing.

B. FSAR amendment 44 was issued to encompass the use of butt splices in panels. The staggering of butt splices in the panel was not addressed in the FSAR. The NRC's "THE SAFETY EVALUATION OF FIELD SPLICES INSIDE CONTROL PANELS", dated September 14, 1984, sets forth the NRC criteria requiring that splices be staggered in panels.

ITEM NUMBER I.a.3
(cont'd)

C. Consideration was given to the mild environment in which the splices were to be used. The construction of the splice and the method of installation of the splice is similar to terminal lugs used in the panels. In addition, the splices are used in low power applications as specified in the FSAR.

4. TUEC Action Plan

A. Construction procedure EEI-8, "Class 1E and Non-Class 1E Cable Terminations" will be revised to require a continuity check of all circuits in which splices are placed. The procedure revision will also include requirements to stagger the splices within bundles in the panels to comply with the additional NRC criteria in this area.

The inspection procedure QI-QP-11.3-28, "Class 1E Terminations" will be revised to include appropriate attributes to assure that the circuit continuity check is made and the staggering of splices is made.

Circuits in which splices exist have been tested or retested in accordance with the startup procedures mentioned above, therefore a verification of the continuity of the circuits has been accomplished.

B. Bundles containing splices will be inspected to assure contacting splices are identified and separated. This inspection will be performed in accordance with the revised QI-QP-11.3-28.

C. A qualification data package for the splices will be developed to assure the availability of adequate documentation of qualification for the expected service. This documentation will be gathered from the vendor. It is anticipated that the qualification will be done by similarity. However, if this cannot be accomplished, other qualification methods (e.g., testing or analysis) will be utilized.

The Issue Coordinator for this item is W. I. Vogelsang - CPSES Project Electrical Engineer. The QA/QC contact for this item is M. Warner - Quality Engineering Supervisor. Inspectors performing the inspections of bundles containing splices will be trained and certified in the use of procedure QI-QP-11.3-28.

ITEM NUMBER I.a.3
(cont'd)

5. Schedule

All construction activities for Unit 1 and Common have been completed and the Unit 2 work has not yet begun in this area. No inspections will be accomplished until the procedures have been revised and training has been completed.

Inspection, Engineering review and the Qualification Data Package review will be completed by December 15, 1984. If further qualification of the splice is required by testing, a schedule will be developed and issued.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: I.a.4

Title: Agreement Between Drawings and Field Terminations

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	W I Vogelsang by [illegible]			
Date	10/5/84			
Reviewed by: Review Team Leader	[signature]			
Date	10/5/84			
Recommended by: Program Manager*	[signature]			
Date	10/5/84			
Approved by: Senior Review Team	[signature]			
Date	10/5/84			
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER I.a.4

Agreement Between Drawings and Field Terminations

1. Description of Issue Identified by NRC

Selected cable terminations were found that did not agree with their locations on drawings. Examples are as follows:

Panel CP1-ECPRCB-04, Cable EO139880*
Panel CP1-ECPRTC-16, Cable EO110040
Panel CP1-ECPRTC-16, Cable EO118262
Panel CP1-ECPRTC-27, Cable EG104796
Panel CPX-ECPRCV-01, Cable EG021856
Panel CP1-ECPRCB-02, Cable NK139853 (nonsafety)

* Panel CP1-ECPRCB-04 was incorrectly identified as CP1-ECPRCB-14 in the September 18, 1984 letter. The TRT verbally advised TUEC of this information.

2. Action Identified by NRC

Accordingly, TUEC shall reinspect all safety-related and associated terminations in the control room panels and in the termination cabinets in the cable spreading room to verify that their locations are accurately depicted on drawings. Should the results of this reinspection reveal an unacceptable level of nonconformance to drawings, the scope of this reinspection effort shall be expanded to include all safety-related and associated terminations at CPSES.

3. Background

It is our understanding that this issue involves cable terminations which are not in agreement with the drawings as to the location of the conductor on the terminal blocks.

At CPSES, the specific cables identified above have been re-inspected and the "as built" configurations reviewed by Engineering. The engineering review has considered design changes and temporary modifications authorized prior to the TRT identification.

The results of this review are as follows:

- The TRT review and subsequent written statement of the issue did not include a listing of all the documents used to formulate the conclusion. Based on a preliminary review, after considering design changes and drawings, it appears that three of the cables are connected correctly.

ITEM NUMBER I.a.4
(cont'd)

- One cable, a two conductor cable, was found to have wires interchanged on the terminal points indicated on the drawing. This connection has no polarity requirement thus the interchange of wires has no affect on the operability of the circuit.

- One cable was found to be a designated "spare" per a properly issued design change document (DCA 19948, Rev. 1). However, one end of the cable is terminated which indicates that the review and drawing update cycle is incomplete.

- One cable was found to be properly connected in accordance with the document revision in effect at the time the termination was made. However, a subsequent drawing change changed the color code of the conductor for no apparent reason.

In the course of normal practices, after construction has been completed and the equipment is in the startup cycle, a wiring check is done per Prerequisite Test Instruction (XCP-EE-8). Any design changes required per the Startup Procedure for Temporary System Modification (CP-SAP-13) are controlled and requested in accordance with the Startup Procedure for Design Requests (CP-SAP-14).

TUEC has concluded that the issues identified by the TRT have no adverse safety significance.

4. TUEC Action Plan

TUEC recognized that the TRT conducted the examination on a sampling bases. Accordingly, TUEC will conduct re-inspections of a statistically representative sample of terminations in the control room and cable spread room panels. The results of the re-inspections will be evaluated by TUEC engineering using specific acceptance/rejection criteria based on circuit operability and reliability requirements. Specifically, these actions will consist of the following:

A. Inspect a random sample of terminations in the control room and cable spread room using the latest design documents. The initial sample will include a total of 500 Class 1E terminations in the control room and cable spread room panels. The documentation of the termination inspection will be made on the drawings by marking any discrepancies between the physical location of the terminal and the location shown on the drawing.

ITEM NUMBER I.a.4
(cont'd)

B. Review for accurate incorporation of design changes the class 1E drawings for the control room and cable spread room for the sample of cable terminations.

C. Reconcile the apparent discrepancies between the inspection documents and the drawings in item B above.

D. If changes are not reconcilable and thus non-conforming, make appropriate changes using existing procedures.

The above sample size was selected in accordance with MIL STD-105D to achieve a 95% confidence level. If this confidence level is not achieved the sample size will be expanded in accordance with MIL STD-105D.

In the above review, acceptable conditions, which would not adversely affect the operability of the circuit, shall be the following:

A. Connection to a terminal point electrically common to that specified.

B. Interchanges of leads to terminals that connect contacts, coils, and other devices that have no "polarity" requirements. The interchange of these leads in no way affects the operability of the circuit.

C. Use of cable/conductors of a size larger than specified.

Additionally, unacceptable conditions which could adversely affect the proper operability of the circuit shall be the following:

A. Connection to a terminal point not electrically common to that specified.

B. Interchange of leads that affects the operability of the circuit.

C. Use of cable/conductors of a size smaller than specified.

Correction of drawings found to be in error during the engineering review will be controlled in accordance with engineering procedure CP-EP-4.6, "Field Design Change Control". These corrections will be incorporated in the drawing update program utilizing drawing update procedures TNE-DC-7, "Preparation and Review Design Drawings", and TNE-DC-8, "Design Verification of Field Design Changes".

ITEM NUMBER I.a.4
(cont'd)

Field inspections will be conducted under quality control inspection procedure QI-QP-11.3-28, "Class 1E Terminations". Inspectors will be trained and certified in the use of QI-QP-11.3-28.

The Issue Coordinator for this item is W. I. Vogelsang - CPSES Project Electrical Engineer. The QA/QC contact for this item is M. Warner - Quality Engineering Supervisor.

5. Schedule

The quality control of the vendor samples and subsequent markings of the drawings will be completed by December 1, 1984. The engineering review will be complete by December 15. 1984. If the sampling/review process finds non-conformances in excess of the acceptance criteria, additional scheduling will be developed.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: I.a.5

Title: NCRs On Vendor Installed Amp Terminal Lugs

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	W I Vogelsang by [illegible]			
Date	10/5/84			
Reviewed by: Review Team Leader	[illegible]			
Date	10/5/84			
Recommended by: Program Manager*	[illegible]			
Date	10/5/84			
Approved by: Senior Review Team				
Date				
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER I.a.5

NCRs On Vendor Installed Amp Terminal Lugs

1. Description of Issue Identified by NRC

The TRT found cases where nonconformance reports (NCRs) concerning vendor-installed terminal lugs in GE motor control centers had been improperly closed. Examples are NCR Nos. E-84-01066 thru NCR E-84-01076, inclusive.

2. Action Identified by NRC

Accordingly, TUEC shall re-evaluate and re-disposition all NCRs related to vendor-installed terminal lugs in GE motor control centers.

3. Background

To understand fully the nature of this issue and to evaluate the action plan, additional background information is needed. There are two types of equipment involved:

A. GE motor control centers.

B. ITT Gould-Brown Boveri 6.9KV switchgear (the equipment associated with NCRs E-84-01066 through E-84-01076 identified in the TRT report).

The issue involves field bending of vendor-installed Amp terminal lugs. This issue's history extends back to 1981. During the termination process it became obvious that under certain configurations it was impossible to land conductors without bending the Amp loose piece terminals. In the second quarter of 1981, Engineering contacted Amp Special Industries for guidance in field bending of Amp loose piece terminals. It was determined that the terminals could be bent one time up to 60° (reference: vendor letter VBR-16624).

In the first quarter of 1984 when a GE thermal overload relay was being replaced, it was noted that the Amp terminals had to be bent 90° to 120° to install the relay. Because this violated the criteria for field bending established in 1981, a non-conformance report (NCR E-84-00972) was issued.

In responding to the NCR, Amp Products Corporation (APC) was contacted in April 1984 and the existing situation, including the criteria established in 1981, was discussed. APC responded that the loose piece terminals could be field bent two (2) times to 45° or one (1) time to 90°. Bending more than 90° and up to and including 120° is acceptable if the product user evaluates the specific application by considering the length of conductor to be

ITEM NUMBER I.a.5
(cont'd.)

supported by the terminal and the susceptibility of the final installation to vibration. APC also advised that, while a terminal bent more than 90° still maintained electrical characteristics, it would not maintain full mechanical strength. (reference: record CPPA 38,241)

As a result of this new vendor-supplied information, field bending of terminal lugs is allowed as follows:

- two times to 45° or one time to 90° without a written engineering evaluation.
- bending more than 90° (but not more than 120°) is allowed if a written engineering evaluation of mechanical strength is performed using the design considerations identified by the vendor.

In addition to the GE relay NCR, NCRs were written on field bending of terminal lugs on ITT Gould-Brown Boveri 6.9KV switchgear. These NCRs involved bending up to 90°. Consequently these NCRs were dispositioned based upon vendor criteria and no engineering evaluation was required. Site engineering reviews of the nonconformances involving the 6.9KV switchgear revealed that none of the "use as is" terminals were bent more than 90°. As such, vendor criteria, and not engineering evaluations, were used to justify "use as is".

4. TUEC Action Plan

Utilizing engineering data obtained in the initial review of the nonconformances on bent and twisted terminals on the Gould-Brown Boveri 6.9KV metal clad switchgear, the specific nonconformance reports (NRC's E-84-01066 thru E-84-01081) will be redispositioned to state more clearly the observed condition of the terminal and the engineering justification for "use as is" terminals. A specific engineering evaluation of mechanical strength for all (if any) "use as is" terminals bent more than 90° will be included. A review will also be made to ensure the adequacy of the disposition of the NCR concerned with the GE relay.

The Issue Coordinator for this item is W. I. Vogelsang - CPSES Project Electrical Engineer. The QA/QC contact for this item is M. Warner - Quality Engineering Supervisor. The engineering reviews will be performed by engineers other than those involved in the original dispositioning of the NCR.

5. Schedule
The NCRs will be re-dispositioned by November 16, 1984.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: I.b.1

Title: Flexible Conduit to Flexible Conduic Separation

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	SP Montgomery Day Fort			
Date	10/5/84			
Reviewed by: Review Team Leader	L M Hollewell			
Date	10/5/84			
Recommended by: Program Manager*	J E Merritt			
Date	10/5/84			
Approved by: Senior Review Team	[illegible]			
Date	[illegible]			
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER I.b.1

Flexible Conduit to Flexible Conduit Separation

1. Description of Issue Identified by NRC

In numerous cases, safety related cables within flexible conduits inside main control room panels did not meet minimum separation requirements. Examples are as follows:

Panel CP-1-EC-PRCB-02
Panel CP-1-EC-PRCB-07
Panel CP-1-EC-PRCB-06
Panel CP-1-EC-PRCB-08
Panel CP-1-EC-PRCB-09

NOTE: Panel CP-1-EC-PRCB-06 was incorrectly identified as CP-1-EC-PRCP-06 in the September 18, 1984, letter. The TRT verbally advised TUEC of this information.

2. Action Identified by NRC

Accordingly, TUEC shall reinspect all panels at CPSES, in addition to those in the main control room for Unit 1, that contain redundant safety-related cables within conduits or safety and non-safety related cables with conduits, and either correct each violation of the separation criteria, or demonstrate by analysis the acceptability of the conduit as a barrier for each case where the minimum separation is not met.

3. Background

In the control boards, many dual train hand switch modules are installed. Prefabricated cables run from the termination cabinets in the cable spreading room to the back of these modules. It is necessary to leave slack in the control boards for these prefabricated cables in order to accommodate removal, testing, and/or adjustment. In maintaining separation between redundant trains and between Class 1E and non-class 1E cables, slack cable presents difficulties.

This same problem has been experienced elsewhere in the nuclear industry and successfully resolved by the installation of SERVICAIR flexible metal shielding conduit as a barrier. After obtaining IEEE 323-1974 and IEEE 344 qualification data for the SERVICAIR material and discussions with the supplier of the control board, design change documents were issued to use this material as a barrier for low voltage and signal cables inside control panels.

ITEM NUMBER I.b.1
(cont'd.)

Our understanding of this issue is that sufficient documentation may not currently exist to demonstrate that this flexible conduit (SERVICAIR) meets minimum separation requirements as required per IEEE 384 and Reg. Guide 1.75. If this material is qualified as a barrier, minimum separation requirements would be met.

4. TUEC Action Plan

The approach to disposition this issue will be to prepare a documentation package including analyses which will qualify SERVICAIR Ferro-Clad (FC33-XX) and Stainless Steel (SS63-XX) as acceptable barriers for the types of cables inside control panels. IEEE 384-1974, "Criteria for Independence of Class 1E Equipment and Circuits" and Regulatory Guide 1.75 (rev. 1, 1/75) will be the basis of this analysis.

In addition a review of the current FSAR commitments will be performed and revisions issued as required to resolve this item.

The Issue Coordinator for this item is S.P. Martinovich - Gibbs and HIll, Inc. Senior Electrical Engineer.

5. Schedule

It is anticipated these efforts will be complete by November 1, 1984.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN.

Item Number: I.b.2

Title: Flexible Conduit to Cable Separation

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	SP Mantaquit Eng Supv			
Date	10/5/84			
Reviewed by: Review Team Leader	[signature]			
Date	10/5/84			
Recommended by: Program Manager*	[signature]			
Date	10/5/84			
Approved by: Senior Review Team				
Date				
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER I.b.2

Flexible Conduit to Cable Separation

1. Description of Issue Identified by NRC

In several cases, separate safety and non-safety related cables and safety and non-safety related cables within flexible conduits inside main control room panels did not meet minimum separation requirements (Table 1 identifies examples of these cases). No evidence was found that justified the lack of separation.

2. Action Identified by NRC

Accordingly, TUEC shall reinspect all panels at CPSES, in addition to those in the main control room of Unit 1, and either correct each violation of the separation criteria concerning separate cables and cables within flexible conduits, or demonstrate by analysis the adequacy of the flexible conduit as a barrier.

3. Background

This issue concerns free air cable to flexible (SERVICAIR) conduits in which the separation distance as delineated in IEEE 384-1974 is not maintained. The area in question is inside the control panels. Additional historical comments observed in item I.b.1 are related to this issue.

4. TUEC Action Plan

The general approach to resolve this issue will be to identify cable types that can come in contact with the SERVICAIR product being used as a barrier. This configuration will then be qualified as an acceptable installation. The analysis that will be generated will use IEEE 384-1974, "Criteria for Independence of Class 1E Equipment and Circuits," and Regulatory Guide 1.75 (Rev. 1, 1/75). This analysis will be submitted via FSAR changes.

The Issue Coordinator for this item is S.P. Martinovich - Gibbs and HIll, Inc. Senior Electrical Engineer.

5. Schedule

It is anticipated this item will be completed by November 1, 1984.

ITEM NUMBER I.b.2
(cont'd.)

Table 1

Examples of Cases of Safety or Nonsafety-Related Cables In Contact With Other Safety-Related Cables Within Conduits in Control Spray System

1. Control Panel CP1-EC-PRCB-02 - Containment Spray System

Cable No.	Train	Related Instrument
EG139373	B (green)	Undetermined
E0139010	A (orange)	Undetermined

2. Control Panel CP1-EC-PRCB-07 - Reactor Control System

Cable No.	Train	Related Instrument
EG139383	B (green)	Reactor manual trip switch
E0139311	A (orange)	Undetermined

3. Control Panel CP1-EC-PRCB-06 - Chemical & Volume Control System

Cable No.	Train	Related Instrument
EG139335	B (green)	LCV-112C
E0139301	A (orange)	Undetermined

4. Control Panel CP1-EC-PRCB-09 - Auxiliary Feedwater Control System

Cable No.	Train	Related Instrument
E0139753	A (orange)	FK-2453A
E0139754	A (orange)	FK-2453B
EG139756*	B (green)	FK-2454A
EG139288	B (green)	FK-2454B

NOTE: Panel CP-1-EC-PRCB-06 was incorrectly identified as CP-1-EC-PRCP-06 in the September 18, 1984, letter.

* This Cable was identified as an "EO" Cable number in the TRT letter dated September 18, 1984.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: I.b.3

Title: Conduit to Cable Tray Separation

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	SD Martinovich by [illegible]			
Date	10/5/84			
Reviewed by: Review Team Leader	[illegible]			
Date	10/5/84			
Recommended by: Program Manager*	[illegible]			
Date	10/5/84			
Approved by: Senior Review Team	[illegible]			
Date	[illegible]			
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER I.b.3

Conduit to Cable Tray Separation

1. Description of Issue Identified by NRC

The TRT found that the existing TUEC analysis substantiating the adequacy of the criteria for separation between conduits and cable trays had not been reviewed by the NRC staff.

2. Action Identified by NRC

Accordingly, TUEC shall submit the analysis that substantiates the acceptability of the criteria stated in the electrical specifications governing the separation between independent conduits and cable trays.

3. Background

Raceway separation criteria utilized in Gibbs and Hill electrical drawings and specifications were based upon the requirements of IEEE 384-1974 and Regulatory Guide 1.75 (Rev.1, 1/75). Although very specific criteria are provided in the standard and regulatory guide for separation between cable trays, no specific criteria are provided for separation between conduits and cable tray.

Documents internal to Gibbs and Hill were prepared to establish the engineering interpretation of required separation between conduits and cable tray in accordance with established criteria in the standard and regulatory guide. These documents were not submitted to the NRC staff for review because the interpretation was not considered a deviation to the standard or regulatory guide, but was considered documentation supporting the implementation of these requirements. Such implementing documents are not usually submitted to the NRC.

4. TUEC Action Plan

A package of information which will contain the internal Gibbs and Hill data and a Sandia report ("Cable Tray Fire Tests," SAND77-1125C), will be provided to the NRC for review. This package will delineate the acceptability of the method whereby the CPSES separation design criteria were developed.

The Issue Coordinator for this item is S.P. Martinovich - Gibbs and Hill, Inc. Senior Electrical Engineer.

5. Schedule

It is anticipated that this item will be completed by November 1, 1984.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: I.b.4

Title: Barrier Removal

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	W J Vegel for by [illegible]			
Date	10/5/84			
Reviewed by: Review Team Leader	[illegible]			
Date	10/5/84			
Recommended by: Program Manager*	[illegible]			
Date	10/5/84			
Approved by: Senior Review Team				
Date				
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER I.b.4

Barrier Removal

1. Description of Issue Identified by NRC

The TRT found two minor violations of the separation criteria inside panels CP1-EC-PRCB-09 and CP1-EC-PRCB-03 concerning a barrier that had been removed and redundant field wiring not meeting minimum separation. The devices involved with the barrier were FI-2456A, PI-2453A, PI-2475A and IT-2450, associated with Train A; and FI2457A, PI245A, PI-2476A and IT2451, associated with Train B. The field wiring was associated with devices HS-5423 of Train B and HS-5574, non-safety related.

2. Action Identified by NRC

Accordingly, TUEC shall correct two minor violations of the separation criteria inside panels CP1-EC-PRCB-09 and CP1-EC-PRCB-03 concerning a barrier that had been removed and redundant field wiring not meeting minimum separation. NOTE: Panel CP1-EC-PRCB-03 was incorrectly identified in the September 18, 1984, letter as CP1-EC-PRCP-03. The TRT verbally notified TUEC of this information.

3. Background

Barrier material supplied by the manufacturer of the equipment was removed from inside equipment (CB-03 & CB-09) creating a separation violation. In addition, redundant field cables are within six (6) inches of each other creating a separation violation.

4. TUEC Action Plan

The barrier material will be replaced and the field cables in CP1-EC-PRCB-03 and CP1-EC-PRCB-09 reworked to resolve improper separation. Nonconformance reports will be issued to assure disposition of these items in accordance with engineering procedure CP-EP-16.0, "Procedure for Resolving Inspection Discrepancies". Engineering will provide direction to correct the nonconforming items in accordance with Engineering Procedure CP-EP-16.1, "Processing Nonconformance Reports". Quality engineering and control activities will be carried out under quality engineering procedure CP-QP-16.0,"Nonconformances".

The root causes of these identified deficiencies will be identified and evaluated to determine whether additional action would be appropriate.

ITEM NUMBER I.b.4
(cont'd.)

The Issue Coordinator for this item is W.I. Vogelsang. - CPSES Project Electrical Engineer. The QA/QC contact for this item is M. Warner - Quality Engineering Supervisor. These individuals have been charged with assuring the above activities are accomplished in the respective organizations.

5. Schedule

This action item is scheduled to be completed by November 2, 1984.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN.

Item Number: I.c

Title: Electrical Conduit Supports

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	[signature]			
Date	10/5/84			
Reviewed by: Review Team Leader	CRHooton			
Date	10/5/84			
Recommended by: Program Manager*	[signature]			
Date	10/5/84			
Approved by: Senior Review Team				
Date				
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER I.c

Electrical Conduit Supports

1. Description of Issue Identified by NRC

The TRT examined the non-safety related conduit support installation in selected seismic Category I areas of the plant. The support installation for non-safety related conduits less than or equal to 2 inches was inconsistent with seismic requirements and no evidence could be found that substantiated the adequacy of the installation for non-safety related conduit of any size. According to Regulatory Guide 1.29 and FSAR Section 3.7B.2.8, the Seismic Category II and non-seismic items should be designed in such a way that their failure would not adversely affect the function of safety related components or cause injury to plant personnel.

2. Action Identified by NRC

Accordingly, TUEC shall propose a program that assures the adequacy of the seismic support system installation for non-safety related conduit in all seismic Category I areas of the plant as follows:

1. Provide the results of seismic analysis which demonstrates that all non-safety related conduits and their support systems, satisfy the provisions of Regulatory Guide 1.29 and FSAR Section 3.7B.2.8.

2. Verify that non-safety related conduits less than or equal to 2 inches in diameter, not installed in accordance with the requirements of Regulatory Guide 1.29, satisfy applicable design requirements.

3. Background

The issue is in regard to non-safety related conduits (Train C) which have not been seismically supported and their impact on safety related equipment during a seismic event. This issue was addressed generically throughout the plant by the TRT with specific interest in documentation justifying the non-seismic installation requirements for the non-nuclear safety related conduit less than or equal to 2 inches in diameter.

(a) The generic issue of Train C conduit that is not seismically supported has been addressed during the construction of CPSES through our Damage Study Program. A systematic study was performed for the interaction of all non-seismic piping and conduit greater than two inches in diameter, equipment, and structures with safety-related components in Category I buildings for Unit 1 and common areas.

ITEM NUMBER I.c
(cont'd)

3. Background (Cont'd)

In accordance with Regulatory Guide 1.29 the CPSES Damage Study was performed to determine that the failure of adjacent non-seismic items due to an SSE would not reduce the functioning of Seismic Category I systems and components, as defined in position C.1.a. through C.1.q. of the Regulatory Guide and FSAR Section 3.7B.2.8.

The seismic/non-seismic interaction study, which was performed in 1983, involved the walkdown of 287 rooms. The walkdown of a room was performed in accordance with Engineering Instruction CP-EI-4.0-36 (CONTROL OF SEISMIC AND NON-SEISMIC COMPONENT INTERACTION EVALUATIONS) with all potential interactions evaluated to the acceptance criteria developed for the study. Methods for resolution of potential interactions of a falling source impacting a nuclear safety class target consisted of analysis, evaluation, use of barriers, administrative controls, or addition of seismic supports or restraints. Each of these activities includes pertinent requirements of the CPSES QA program. Maintenance of this evaluation is performed in accordance with Engineering Instruction CP-EI-4.0-53 (MAINTENANCE OF DAMAGE STUDY ANALYSIS).

(b) For 2 inch and under diameter conduit, design document DCA-4693 was issued which delineated the support requirements. This document delineated that all 2 inch and under diameter non-class 1E conduits are not required to be supported seismically because of the small masses and spans involved. Consequently, the Damage Study Evaluation procedures do not further address these conduits in the evaluation of the "as built" plant conditions.

4. TUEC Action Plan

Scope and Methodology

(a) To respond to item 1 of the Action Identified by NRC (above) a summary document is to be prepared which delineates clearly the philosophy and implementation of the Damage Study program which defined the performance of this evaluation for Train C conduit.

The Damage Study program identified 500 non-seismic conduits greater than 2 inches of which 391 had interactions. The details of the resolution of these interactions will be included in the summary document.

ITEM NUMBER I.c
(cont'd)

Work will be performed by:

Organization: Comanche Peak Project Engineering (CPPE)

Personnel: David West - Field Damage Study Group Supervisor

(b) To respond to item 2 of the Action Identified by NRC (above) a seismic analysis will be provided which verifies the stability during an SSE of the 2 inch and under diameter conduit with the present support system. This analysis, which was performed previously on a generic basis, will be reviewed and revised, as appropriate, prior to submittal.

Field verification of the installed conduit system will be performed by Engineering. This verification will be accomplished thru a sampling program which will be established and will use procedures developed to ensure that the conclusions reached are representative of the conduit layout and configuration of the plant. This verification will confirm that the field installation is encompassed by the engineering analysis provided.

Work will be performed by:

Organization: Gibbs & Hill, Inc.

Personnel: John Eichler - Manager of Civil/Structural Department
Peter Huang - Principal Structural Engineer
Jerry Jan - Chief Structural Engineer

Organization: Ebasco

Personnel: Bob Iotti - Vice-President of Advanced Technology

Organization: Comanche Peak Project Engineering

Personnel: Randy Hooton - Project Civil Engineer

Standards/Acceptance Criteria

Compliance with FSAR section 3.7B.2.8 and Regulatory Guide 1.29.

ITEM NUMBER I.c
(cont'd)

Personnel

The Issue Coordinator for this item is M. R. McBay, CPSES Building Manager, Reactor Building No. 2. Other personnel assigned are as noted in the discussion of the scope and methodology above.

5. Schedule

Item 4(a) - Work has been initiated to prepare the summary document describing the Damage Study Program for Train C conduits. Target completion date is 10/26/84.

Item 4(b) - The review of the generic seismic analysis for two inch and under conduit has commenced. The sampling program and associated procedures for the field verification of the installed conduit is under development. Target completion date for all activities is 11/23/84.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN.

Item Number: I.d.1

TITLE: QC Inspector Qualifications

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	A. Vega			
Date	10/5/84			
Reviewed by: Review Team Leader	A. Vega			
Date	10/5/84			
Recommended by: Program Manager*	B R Clement			
Date	10/5/84			
Approved by: Senior Review Team	R T Cahill			
Date	10/5/84			
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER I.d.1

QC Inspector Qualifications

1. Description of Issue Identified by NRC

The TRT examined electrical QC inspector training and certification files, and requirements for personnel testing, on-the-job training, and recertification. The TRT also interviewed selected electrical QA/QC personnel.

The TRT found a lack of supportive documentation regarding personnel qualifications in the training and certification files, as required by procedures and regulatory requirements. Also, the TRT found a lack of documentation for assuring that the requirements for electrical QC inspector recertification were being met. Specific examples are:

- One case of no documentation of a high school diploma or General Equivalency Diploma.
- One case of no documentation to waive the remaining 2 months of the required 1 year experience.
- One case where a QC technician had not passed the required color vision examination administered by a professional eye specialist. A makeup test using colored pencils was administered by a QC supervisor, was passed, and then a waiver was given.
- Two cases where the experience requirements to become a Level I technician were only marginally met.
- One case of no documentation in the training and certification files substantiating that the person met the experience requirement.

2. Action Identified by NRC

Accordingly, TUEC shall review all the Electrical QC inspector training, qualification, certification and re-certification files against the project requirements and provide the information in such a form that each requirement is clearly shown to have been met by each inspector. If an inspector is found to not meet the training, qualification, certification or re-certification requirements, TUEC shall then review the records to determine the adequacy of inspections made by the unqualified individuals and provide a statement of the impact of the deficiencies noted on the safety of the project.

ITEM NUMBER I.d.1
(cont'd)

3. Background

When CPSES received its construction permit TUEC did not have a commitment to ANSI N45.2.6. The original electrical inspector training/certification program requirements were documented in procedure CP-QP-2.1, "Training of Inspection Personnel." This program addressed the applicable requirements of 10CFR50 Appendix B and was applicable to all QC inspectors except those performing ASME inspections. ASME inspectors are certified under a separate program independently reviewed by the ASME Authorized Nuclear Inspector (ANI). CP-QP-2.1 required that inspector knowledge of inspection procedures be demonstrated through written examinations and that inspector proficiency be verified through prescribed on-the-job training.

In August 1981, our inspector training/certification program was reviewed and revised as required to reflect our commitment to Reg. Guide 1.58, Rev. 1 which endorses ANSI N45.2.6. The revised program continued to provide for on-the-job training and examination to assure the achievement of inspector proficiency. In addition, verification of experience and education was performed as a matter of good practice.

It is important to note that the CPSES training and certification process is unique in that each inspector, regardless of experience, is initially trained, examined and certified to a specific inspection instruction (i.e., cable pulling, meggering, electrical terminations, etc). This is a much more conservative approach than the common practice in the industry, which is certification by discipline rather than by specif inspection instruction. The training and certification program at CP.S is structured to assure that regulatory requirements are met through examination prior to the certification process.

The certification activities associated with the examples cited by the TRT were performed in accordance with procedure CP-QP-2.1, "Training of Inspection Personnel," Revisions 12, 13 and 14. All three revisions of the procedure state in part:

> "The following is the recommended personnel education and experience for each level...Other factors which may demonstrate capability in a given job are...satisfactory completion of capability testing.
>
> Use of the measures outlined in this section to establish that an individual has the required qualifications in lieu of required education and experience shall result in documented objective evidence (i.e.,...record of written test) demonstrating that the individual indeed does have "comparable" or "equivalent" competence to that which would be gained from having the required education and experience."

ITEM NUMBER I.d.1
(cont'd)

The provisions cited above are in compliance with ANSI N45.2.6 and Regulatory Guide 1.58. In fact, the above provisions are extracted verbatim from these documents.

In summary, the CPSES training and certification program is consistent with Regulatory Guide 1.58 and ANSI N45.2.6 and clearly provides for demonstrating by certification tests and examinations that an individual has the competence which would be gained from having the recommended education and experience.

The certification files cited by the TRT as examples were reviewed in detail. The results of this review are as follows:

Example 1

The files for the individual in question included a General Equivalency Diploma from Cleburne High School, dated November 29, 1982. It is unclear why this documentation was either not presented to the TRT member or not reviewed. In addition to meeting the recommended education requirements, the individual in question met the certification examination requirements.

Example 2

The individual in question came to QA in January, 1983. Prior to that, he worked as a journeyman electrician at CPSES for 5 years and 4 months. While the individual had 10 months of the recommended 1 year experience in QC, he also had extensive related technical experience at the journeyman level in the same discipline at CPSES. The individual in question met the certification examination requirements. Thus the individual was certified in accordance with project requirements.

Example 3

The individual in question did not pass the Ishisara vision test. This test is not specified or required by the CPSES certification program. The program requires "color vision as applicable." The inspection activities under the certification being granted required the ability to discriminate between conductor jacket or insulation colors. Accordingly, the Electrical QC Supervisor, who was also at that time the Electrical QC Level III, devised and administered an alternate color vision test that addressed the applicable requirements. This test was also endorsed in writing by the Training Coordinator and the Non-ASME QC Supervisor. We have concluded that the applicable requirement was met.

Example 4

Our review of the applicable files confirmed the TRT's statement that the experience requirements were met.

ITEM NUMBER I.d.1
(cont'd)

Example 5

A review of the files for the specific individual cited indicated that the recommended experience and education requirements had been met. Substantiating documentation was also found to exist. It is unclear why this documentation was either not presented to the TRT member or not reviewed. The individual also met the certification examination requirements.

Although the examples cited were determined to be in compliance with the project requirements, TUEC recognizes the importance of assuring that the training/certification files are in a concise and clear form which demonstrates that program requirements have been met by each inspector.

A review of the training qualification, certification and recertification files for every non-ASME inspector presently on site will be performed and the results of this review will be documented in a format which will be clear and concise. The ASME training/certification records have previously received an independent, third party review by the ASME Authorized Nuclear Inspector (ANI). In addition, in light of the specific TRT request, we will also perform a similar review for CPSES Electrical QC inspectors who are no longer on site.

4. TUEC Action Plan

A. Scope and Methodology

The program described in Section 3 above is not unique to electrical inspectors. Other non-ASME inspector disciplines are also trained and certified under the same program and in the same manner as the electrical discipline. Thus, a review of the electrical inspectors would be representative of the other disciplines besides the electrical discipline. However, to evaluate fully any generic implications of the TRT issue, an expanded assessment will be performed.

TUEC will review all the training, qualification, certification and recertification files for every electrical QC inspector who has ever worked at CPSES and for every non-ASME inspector presently on-site against project requirements. The ASME certification records have previously received an independent third party review by the ASME Authorized Nuclear Inspector (ANI). This will be accomplished in Phase I. Inspector qualifications which are found to be questionable or which cannot be verified will be addressed in Phase II.

ITEM NUMBER I.d.1
(cont'd)

Phase I

The objective of Phase I is to perform a review of the available documentation of the qualifications of electrical and other non-ASME inspectors (as defined above) against project requirements and to document the results of this review in a format which clearly and concisely demonstrates the adequacy of inspection qualifications.

This review will be conducted by the TUGCO Audit Group (TAG) which is independent of the organization responsible for administering the CPSES QC Inspector training/certification program. The TAG personnel, certified in accordance with DQI-QA-2.1, "Qualification of Audit Personnel," will perform a review of the certification files for these inspectors, using a checklist with predetermined attributes that reflect the project training/certification requirements. For inspectors whose records are found to be in compliance with project requirements, a certification summary form will be compiled that clearly demonstrates that each requirement is met by each inspector.

A specific certification summary form will be generated for each inspector. The certification summary will provide a listing of the individual's certification versus specific classroom training, on-the-job training and examinations required in addition to recommended education and experience. The form will similarly list levels of certification beyond Level II, as applicable, with corresponding requirements.

Inspectors whose qualification documentation is lacking in one or more aspects listed on the certification summary form will be identified for further review during Phase II.

Phase II

The objective of Phase II is to evaluate qualifications that could not be verified by the TAG. The evaluation will be performed by a Special Evaluation Team (SET) comprised of individuals with no responsibility for administering the CPSES QC Inspector training/certification program. These personnel will have a minimum of 5 years management/supervisory level QA/QC experience. The SET will evaluate inspector records found to be questionable for acceptability using the following factors:

A. Experience of the inspector
B. Education of the inspector
C. Formal Training at CPSES
D. On-the-job training that demonstrates practical proficiency
E. Examinations that demonstrate procedural knowledge
F. Other valid certifications in related areas
G. Other considerations deemed appropriate by the SET

ITEM NUMBER I.d.1
(cont'd)

The SET will develop and document an appropriate set of criteria which will include those contained in TUGCO memorandum TUQ-2363, "Criteria for Training/Certification of Inspection Personnel." This document provides specific criteria to be used in evaluating related experience.

Inspectors whose qualifications are found to be acceptable will be dispositioned and documented as acceptable without further action; the basis used by the SET will also be documented. The certification summary for these inspectors will be updated to reflect the evaluation performed by the SET.

In the event that inspectors are found whose qualifications to project requirements cannot be demonstrated, TUEC will review the records to determine the adequacy of inspections made by the unqualified individuals and provide a statement of the impact of the deficiencies noted on the safety of the project.

B. Procedures

The following procedures are applicable to this action plan:

DQI-QA-2.1, "Qualification of Audit Personnel"
CP-QP-2.1, "Training of Inspection Personnel"
CP-QP-2.3, "Documentation Within QA/QC Personnel Qualification File"

C. Responsibilities

The review of the QC inspector training/certification files under Phase I will be conducted by the TUGCO Audit Group, which is independent from the QC inspector training/certification organization.

The evaluation of indeterminate items resulting from Phase I will be performed during Phase II by the Special Evaluation Team comprised of management/supervisory level QA/QC personnel not responsible for the QC inspector training/certification program. The Special Evaluation Team will include non-TUEC personnel.

D. Qualifications of Personnel

The personnel performing the independent assessment in Phase I (TUGCO QA Audit Group) will be certified to the requirements of DQI-QA-2.1, "Qualification of Audit Personnel."

ITEM NUMBER I.d.1
(cont'd)

The personnel comprising the Special Evaluation Team (SET) will have, as a minimum, 5 years of management/supervisory level experience in QA/QC. The following type of special expertise will be deemed desirable:

1. Experience in developing and establishing QA/QC training and certification programs.

2. Background in designing testing and examination instruments.

3. Technical background in electrical inspection, preferably as a Level III.

Personnel comprising the SET will be independent of the QC training/certification organization.

The Issue Coordinator for this issue is Mr. A. Vega.

E. Standards/Acceptance Criteria

Per our FSAR commitments, the following standards/acceptance criteria apply to this action plan:

1. CPSES program requirements
2. Reg. Guide 1.58, Rev. 1
3. ANSI N45.2.6-1978
4. TUQ-2363

F. Decision Criteria

There are three primary decision points in the Action Plan. At each decision point, criteria are established to ensure that action will continue to be taken on questionable items until an adequate basis exists for disposition. The decision points and criteria are as follows:

1. Initial review by the TUGCO Audit Group

   Unless an inspector's qualification documentation clearly meets the requirements, the audit group will identify the inspector for further review for the SET.

2. Review by the Special Evaluation Team

   The SET will use the guidelines of TUQ-2363 to determine criteria for evaluating whether a basis for resolving an indeterminate condition exists. If this cannot be demonstrated, the condition will be identified for subsequent action under a revised action plan.

ITEM NUMBER I.d.1
(cont'd)

3. Evaluation of Inspector Qualifications

A revised Action Plan will be developed if it is found that the qualifications of any inspector cannot be demonstrated in Phase I or Phase II. The revised Action Plan will be based on determining the impact of the situation on the safety of the plant.

G. Outputs

1. The implementation of this plan will result in an Action Plan Results Report and will include conclusions as to root cause, safety significance and corrective action to preclude recurrence. Documentation supporting the entire Action Item Plan will be retained and available for audit.

2. Certification summary forms will be developed in the process of performing Phases I and II. The content of the forms will be as discussed above. Upon completion of this Action Plan, copies of these forms will be retained in the Project Central File as described in the CPRT Program Plan.

5. Schedule

Phase I will be completed by October 19, 1984. The schedule for Phase II will be determined following completion of Phase I.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: I.d.2

TITLE: Guidelines for Administration of QC Inspector Test

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	M. Warner by A.V.			
Date	10/5/84			
Reviewed by: Review Team Leader	A Vega			
Date	10/5/84			
Recommended by: Program Manager*	B R Clements			
Date	10/5/84			
Approved by: Senior Review Team	[illegible]			
Date	10/5/84			
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER I.d.2

Guidelines for Administration of QC Inspector Tests

1. Description of Issues Identified by NRC

The TRT found a lack of guidelines and procedural requirements for the testing and certifying of Electrical QC Inspectors. Specifically, it was found that:

A. No time limit or additional training requirements existed between a failed test and retest.

B. No controls existed to assure that the same test would not be given if an individual previously failed that test.

C. No consistency existed in test scoring.

D. No guidelines or procedures were available to control the disqualification of questions from the test.

E. No program was available for establishing new tests (except when procedures changed). The same tests had been utilized for the last 2 years.

2. Action Identified by NRC

Accordingly, TUEC shall develop a testing program for Electrical QC Inspectors which provides adequate administrative guidelines, procedural requirements and test flexibility to assure that suitable proficiency is achieved and maintained.

The deficiencies identified with the Electrical QC Inspections have generic implications to other construction disciplines. The implications of these findings will be further assessed as part of the overall programmatic review of QC inspector training and qualification and the results of this review will be reported under the QA/QC category on "Training and Qualification".

3. Background

Quality Engineering personnel use procedure CP-QP-2.1, "Training of Inspection Personnel", and CP-QP-2.3, "Documentation Within QA/QC Personnel Qualification File", to comply with ANSI N45.2.6-1978 and Reg. Guide 1.58, Rev. 1, as guidance in performing these activities. The above mentioned procedures are not overly prescriptive in nature, thus allowing QE personnel to develop tests appropriate to the specific circumstances.

The TRT concluded that the certification review process should provide more detailed information concerning administrative guidelines, procedural requirements, and test flexibility. The availability of such information would reduce the chance for inconsistencies.

ITEM NUMBER I.d.2
(cont'd)

4. TUGCO Action Plan

Although the specific TRT issue primarily addresses the training and certification program for Electrical Inspectors, in light of the potential generic implication for other QC inspector training and certification, TUEC's activities will address this issue for all CPSES inspectors.

CP-QP-2.1, "Training of Inspection Personnel", all daughter instructions (qualifications of specific inspection personnel), and CP-QP-2.3, "Documentation within QA/QC Personnel Qualification File", will be reviewed and appropriately revised to provide more definitive guidelines for test preparation, examination and evaluation, as necessary to strengthen the testing program and reduce the potential for inconsistencies. These procedures pertain to the training and certification off all inspectors. All inspector certification tests currently in use will be reviewed and revised as needed to ensure that they reflect the current requirements. Although we believe our testing program is effective without the suggested refinements, all future testing will be in accordance with procedures revised to incorporate the recommended administrative controls.

Responsibilities

TUGCO Quality Engineering will be responsible for this review. The Team Leader for this effort will be the TUGCO Site QA Manager, A. Vega. The Issue Coordinator is M. Warner, Supervisor, Quality Engineering.

Standards/Acceptance Criteria

Per our FSAR commitments, the following standards apply to this Action Plan:

1) Reg. Guide 1.58, Revision 1.
2) ANSI N45.2.6-1978.

5. Schedule

The procedures will be reviewed and revised as necessary within 10 working days following approval of this plan by the CPRT Senior Review Team Certification tests will be reviewed and revised as needed to conform to the new procedure and revised requirements prior to use.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: II.a

Title: Reinforcing Steel in the Reactor Cavity

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	DGaitankar			
Date	10/5/84			
Reviewed by: Review Team Leader	CRHooton			
Date	10/5/84			
Recommended by: Program Manager*	J J Merritt Jr.			
Date	10/5/84			
Approved by: Senior Review Team				
Date				
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER II.a

Reinforcing Steel in the Reactor Cavity

1. Description of Issue Identified by NRC

The TRT investigated a documented occurrence in which reinforcing steel was omitted from a Unit 1 reactor cavity concrete placement between the 812-foot and 819-foot 1/2 inch elevations. This reinforcement was installed and inspected according to drawing 2323-S1-0572, Revision 2. However, after the concrete was placed, Revision 3 to the drawing was issued showing a substantial increase in reinforcing steel over that which was installed. Gibbs & Hill Engineering was informed of the omission by Brown & Root Nonconformance Report CP-77-6. Gibbs & Hill Engineering replied that the omission in no way impaired the structural integrity of the structure. Nevertheless, the additional reinforcing steel was added as a precaution against cracking which might occur in the vicinity of the neutron detector slots should a loss of coolant accident (LOCA) occur. A portion of the omitted reinforcing steel was also placed in the next concrete lift above the 819-foot ½-inch level. This was done to partially compensate for the reinforcing steel omitted in the previous concrete lift and to minimize the overall area potentially subject to cracking.

The TRT requested documentation indicating that an analysis was performed supporting the Gibbs & Hill conclusion. The TRT was subsequently informed that an analysis had not been performed. Therefore, the TRT cannot determine the safety significance of this issue until an analysis is performed verifying the adequacy of the reinforcing steel as installed.

2. Action Identified by NRC

Accordingly, TUEC shall provide an analysis of the as-built condition of the Unit 1 reactor cavity that verifies the adequacy of the reinforcing steel between the 812-foot and 819-foot 1/2-inch elevations. The analysis shall consider all required load combinations.

3. Background

Concrete placement of reactor cavity wall between elevation 812'0" and 819'½" was made according to revision "2" of Gibbs & Hill drawing 2323-S1-0572. Subsequent revision (revision "3") of the same drawing called for additional reinforcing steel in the part of the wall that was constructed in accordance with prior revision of the drawing. Gibbs & Hill reviewed this situation and replied per GTN-19283 (07/06/77) that omission of above mentioned reinforcement did not in any way impair the structural integrity of the reactor cavity wall. This Gibbs & Hill conclusion will be analytically confirmed under TUEC Action Plan.

ITEM NUMBER II.a
(cont'd)

4. TUEC Action Plan

Scope and Methodology

An analysis of the "as-built" reactor cavity wall will be performed to demonstrate adequacy of installed reinforcing steel considering all applicable loading combinations. Engineering calculations with applicable assumptions stated therein will be performed to evaluate the subject wall with "as installed" reinforcing steel between elevations 812'-0" and 819'-0½".

Expanded Review

All instances of reinforcement omissions will be researched. This effort will cover all the safety related Class I building structures. Review of every such case will be made to ascertain proper engineering evaluation and documentation does exist in support of the disposition of each such item.

Participants' Roles and Responsibilities

The Issue Coordinator for this item is D. G. Patankar, Lead Civil/ Structural Design, Unit 2.

The following organizations and personnel will participate in this effort:

a) Comanche Peak Project Civil Engineering

Scope - CPP Civil Engineering will be involved in the overall engineering evaluation of this issue, as well as the development of the Action Plan Results Report.

Personnel:

C.R. Hooton	Project Civil Engineer
D.G. Patankar	Civil/Structural Lead Engineer

b) Gibbs & Hill, Inc., New York, N.Y.
Scope - Structural department - Gibbs & Hill, Inc., will perform the analysis/design calculations as required under this action plan and will also complete the design review of these calculations.

Personnel:

E.L. Bezkor	Structural Job Engineer
A.M. Kenkre	Structural Squad Leader
S. Sengupta	Senior Engineer
C. Zion	Senior Engineer
M. N. Shah	Senior Engineer

ITEM NUMBER II.a
(cont'd)

c) (External Organization to be determined).

Scope - Perform additional design review of calculations prepared by Gibbs & Hill, Inc.

Standards/Acceptance Criteria:

Building Code requirement for reinforced concrete - ACI-318-71 and stipulations of section 3.8 of FSAR form the basic standard/acceptance criteria of calculations performed under this action plan.

Decision Criteria:

The results and conclusions drawn from analysis/design calculations performed and assessment of the expanded review outlined earlier will be the criteria for closing out the subject item.

5. Schedule

The analysis/design phase of this action plan is already underway and nearing completion. Activities pertaining to the expanded review program are being currently planned. The target date for completion of this item is October 26, 1984.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: II.b

Title: Concrete Compression Strength

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	Scott Harrison			
Date	10-5-84			
Reviewed by: Review Team Leader	CR Hooton			
Date	10-5-84			
Recommended by: Program Manager*	J F Streeter			
Date	10/5/84			
Approved by: Senior Review Team				
Date				
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER II.b

Concrete Compression Strength

1. Description of Issue Identified by NRC

The TRT investigated allegations that concrete strength tests were falsified. The TRT reviewed an NRC Region IV investigation (IE Report No. 50-445/79-09; 50-446/79-09) of this matter that included interviews with fifteen individuals. Of these, only the alleger and one other individual stated they thought that falsification occurred, but they did not know when or by whom. The TRT also reviewed slump and air entrainment test results of concrete placed during the period the alleger was employed (January 1976 to February 1977) and did not find any apparent variation in the uniformity of the parameters for concrete placed during this period. Although the uniformity of the concrete placed appears to minimize the likelihood that low concrete strengths were obtained other allegations were raised concerning the falsification of records associated with slump and air content tests. The Region IV staff addressed these allegations by assuming that concrete strength test results were adequate. Furthermore, a number of other allegations dealing with concrete placement problems (such as deficient aggregate grading and concrete in the mixer too long) were also resolved by assuming that concrete strength test results were adequate. The TRT agrees with Region IV that, while the preponderance of evidence suggests that falsification of results did not take place, the matter cannot be resolved completely on the basis of concrete strength test results, especially if there is any doubt about whether they may have been falsified. Due to the importance of the concrete strength test results, the TRT believes that additional action by TUEC is necessary to provide confirmatory evidence that the reported concrete strength test results are indeed representative of the strength of the concrete installed in the Category I concrete structures.

2. Action Identified by NRC

Accordingly, TUEC shall determine areas where safety-related concrete was placed between January 1976 and February 1977, and provide a program to assure acceptable concrete strength. The program shall include tests such as the use of random Schmidt hammer tests on the concrete in areas where safety is critical. The program shall include a comparison of the results with the results of tests performed on concrete of the same design strength in areas where the strength of the concrete is not questioned, to determine if any significant variance in strength occurs. TUEC shall submit the program for performing these tests to the NRC for review and approval prior to performing the tests.

ITEM NUMBER II.b
(cont'd)

3. Background

Falsification of concrete strength tests is alleged to have occurred between January 1976 and February 1977. Air entrainment and slump tests have been reviewed, and no apparent variations were found in the the uniformity of the parameters for concrete placed during the allegation time frame. Because these parameters were in accordance with the laboratory approved concrete mix designs this reduces the chances that low concrete strengths were obtained. Concrete compressive strength tests have been used to resolve allegations of falsifications of slump and air entrainment tests and allegations dealing with concrete placement problems (such as deficient aggregate grading and concrete in the mixer too long). Due to the importance of concrete compressive strength tests, the TRT requested that additional testing be performed by TUEC to confirm that concrete strength tests performed on the concrete in question are representative of the actual concrete strength. Therefore, TUEC has decided to implement a program to test the concrete in question for verification of acceptable strength.

4. TUEC Action Plan

Scope and Methodology

The Schmidt (rebound) Hammer Test, a non-destructive test, will be utilized and conducted in accordance with procedure QI-QP-2.5-7 "Determination of Strength of Concrete By Use of the Concrete Test Hammer". This procedure complies with the requirements given in ASTM-C805-79 "Standard Test Method for Rebound Number of Hardened Concrete". Rebound hammer test data will be converted into concrete compressive strength through the calibration curves provided for the testing equipment.

The test program will be as follows:

(1) Engineering shall determine the areas where concrete was placed in Category I structures between January 1976 and February 1977.

(2) From these areas,engineering shall randomly select test samples. Sample size will be in accordance with military standard, MIL STD-105D. (See discussion below.)

(3) Brown & Root craft shall prepare the concrete surface for testing per project procedures.

ITEM NUMBER II.b
(cont'd)

(4) Quality Engineering (QE) shall then test the randomly selected areas using a Schmidt (rebound) hammer test in accordance with QI-QP-2.5-7.

(5) QE will test additional randomly selected areas for which concrete had been placed outside the time frame in question using a Schmidt (rebound) hammer test per project procedures. Engineering will determine the areas for testing.

(6) Engineering shall perform a statistical analysis per ACI 214-65 "Recommended Practice for Evaluation of Compressive Test Results of Field Concrete" on the two data sets.

(7) Engineering shall compare the statistical analysis results in step 6 to determine if a significant variation occurs between the two data sets.

Procedures to be used:

(1) QI-QP-2.5-7, "Determination of Strength of Concrete by Use of the Concrete Test Hammer"

(2) QI-QP-13.0-5, "Verification of Concrete Test Hammer"

(3) An operational traveler will be issued to prepare surface for testing, repair concrete and replace protective coatings after tests are performed.

Participants' Roles and Responsibilities:

CPPE Civil Engineering and Quality Engineering will be the organizations involved in testing. Quality Engineering will perform the test. Civil Engineering will monitor testing and evaluate test results. Scott Harrison, Civil Engineering Lead, Safeguards Building #2, will be the Issue Coordinator and Carl Corbin will be the responsible Quality Engineer. Brown & Root craft will be responsible for preparation of concrete test surface.

Qualifications of Personnel:

The Quality Engineer responsible for performing the rebound hammer test will be trained in the requirements of procedures CP-QP-2.1, QI-QP-2.5-7 and QI-QP-13.0-5.

ITEM NUMBER II.b
(cont'd)

Sampling Plan:

Military standard MIL-STD-105D will be used only to determine the sample size to be used in testing. A random sample will be obtained from the concrete placements in Category I structures throughout the time frame in question.

Through preliminary investigation, Engineering has determined there were 327 concrete placements in Category I structures between January 1976 and February 1977. From the standard referenced above, a sample size of 50 will be used in testing. A sample size of 50 will also be used to test concrete placed outside the time frame in question.

Standards/Acceptance Criteria:

Gibbs & Hill Concrete Specification 2323-SS-9, American Concrete Institute Standard ACI-318 "Building Code Requirements for Reinforced Concrete" and ACI-301 "Specification for Structural Concrete for Buildings" will be used as acceptance criteria. ACI-214 "Recommended Practice for Evaluation of Compression Test Results of Field Concrete" will be used for computation of rebound hammer test data. The concrete average strength, standard deviation and variation will be determined for each of the two data sets (the concrete within the alleged time frame of falsification and the concrete not included in this time frame). These values will then be compared with respect to one another using the comparison of means statistical method. This evaluation will establish to a 95% level of confidence that the concrete placed during the alleged time frame is acceptable.

Decision Criteria:

Closure of this item is based on an acceptable variance in comparing the test results of the two different time frames. If significant variation exists between the two data sets, additional testing will be initiated by TUEC.

5. Schedule

Preparation and approval of test procedures and procurement of test equipment has commenced. TUEC will submit the program for performing these tests to the NRC staff prior to performing the tests. Pending delivery of test equipment and discussion with the NRC staff, TUEC plans to begin testing the week of October 8, 1984.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: II.c

Title: Maintenance of Air Gap Between Concrete Structures

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	O.B Jones			
Date	10/5/84			
Reviewed by: Review Team Leader	CRHooton			
Date	10/5/84			
Recommended by: Program Manager*	J.T. Merritt, Jr.			
Date	10/5/84			
Approved by: Senior Review Team				
Date				
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER II.c

Maintenance of Air Gap Between Concrete Structures

1. Description of Issue Identified by NRC

The TRT investigated the requirements to maintain an air gap between concrete structures. Based on the review of available inspection reports and related documents, on field observations, and on discussions with TUEC engineers, the TRT cannot determine whether an adequate air gap has been provided between concrete structures. Field investigations by B&R QC inspectors indicated unsatisfactory conditions due to the presence of debris in the air gap, such as wood wedges, rocks, clumps of concrete and rotofoam. The disposition of the NCR relating to this matter states that the "field investigation reveals that most of the material has been removed." However, the TRT cannot determine from this report (NCR C-83-01067) the extent and location of the debris remaining between the structures.

Based on discussions with TUEC engineers, it is the TRT's understanding that field investigations were made but that no permanent records were maintained. In addition, it is not apparent that the permanent installation of elastic joint filler material ("rotofoam") between the Safeguard Building and the Reactor Building, and below grade for the other concrete structures, is consistent with the seismic analysis assumptions and dynamic models used to analyze the buildings, as these analyses are delineated in the Final Safety Analysis Report (FSAR). The TRT, therefore, concludes that TUEC has not adequately demonstrated compliance with FSAR Section 3.8.1.1.1, 3.8.4.5.1, and 3.7.B.2.8, which require separation of Seismic Category I buildings to prevent seismic interaction during an earthquake.

2. Action Identified by the NRC

Accordingly, TUEC shall:

(1) Perform an inspection of the as-built condition to confirm that adequate separation for all seismic category I structures has been provided.

(2) Provide the results of analyses which demonstrate that the presence of rotofoam and other debris between all concrete structures (as determined by inspections of the as-built conditions) does not result in any significant increase in seismic response or alter the dynamic response characteristics of the Category I structures, components and piping when compared with the results of the original analyses.

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(cont'd)

3. Background

TUGCO has committed in the FSAR to provide separation between Category I structures to prevent unacceptable seismic interaction during an SSE. Design documents permit permanent installation of elastic joint filler material (rotofoam) in the separation space for specific locations. Inspection Reports have identified rotofoam and other types of debris in areas where the design drawings require air gaps.

Therefore, the TRT has requested results of analyses for the effect of these materials on the seismic response or dynamic response characteristics. The analyses will be based on additional inspections clarifying the as-built separation condition. Results will be compared to the original analysis for determining separation acceptability. Results will also consider changes in dynamic responses, if any, for effects on building structures, components and piping.

All separations between Category I buildings and between Category I and non-Category I structures for the whole plant will be inspected. Inaccessible areas will be conservatively estimated for size and nature of debris by the QC inspectors, and transmitted to Engineering for review. If the estimated material cannot be justified in place, Engineering will issue appropriate instruction.

4. TUEC Action Plan

Scope and Methodology

The following sequence will be used to resolve the issue:

1) QC inspections of the seismic gaps between Category I structures and between Category I and Non-Category I structures for both Unit 1 and Unit 2 will be re-performed and documented. Engineering and QC will identify access points to the craft for seal or flashing removal; with the use of temporary lighting or magnification instruments, QC will then inspect the existing separation per procedure QI-QP-11.0-3 (CONCRETE OR MORTAR PLACEMENT INSPECTION). These inspections will verify gap width, and will locate and identify size and type of all materials in the separation areas. QC will document the debris characteristics on a "best-effort" basis, using conservative estimations as needed.

2) Any debris encountered in the separation space may be removed through vacuuming or other methods by the craft, documented by QC and the documentation attached to the as-built documentation package developed in step 1.

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(cont'd)

3) Upon completion of the inspections, engineering will review both as-builts (before and after debris removal) for impact on the seismic and dynamic responses. The original analyses were based on clear gaps between the buildings; subsequently, the design engineer evaluated the portions of the separation areas for the effects of the presence of rotofoam. Therefore, based upon the results of steps 1 and 2, a re-evaluation will be performed utilizing similar methodology with revised stiffnesses (or spring values) based on the actual debris characteristics and locations. The re-evaluation will determine the change in frequency from the original fundamental mode and evaluate structural interaction effects. Based on the significance derived from review of the change in frequency, further engineering actions will be determined for impact on components and piping.

4) Engineering will issue necessary instructions for removal (with QC witnessing) of any debris which significantly impacts the original design calculations. After receipt of QC documentation verifying removal, the engineering calculations performed in step 3 will be revised as necessary to reflect the final as-built condition.

5) Engineering and QA/QC will review project procedures for establishment of requirements for maintenance of adequate separation conditions.

6) Engineering will evaluate the need to update the FSAR for reflection of the as-built condition.

Procedures to be used:

QC inspections will be performed in accordance with procedure QI-QP-11.0-3 for Unit 1 and Unit 2 areas. This revised procedure will provide criteria for inspecting separation thickness, documenting both permanent and removed debris, and maintenance of the inspected conditions. Results will be documented on inspection reports. The procedure revision will be submitted for review and approval in accordance with procedure CP-QP-6.0 (PREPARATION OF QUALITY PROCEDURES AND INSTRUCTIONS).

Craft work will involve preparing areas for inspecting and for cleaning out debris. Existing site procedures will be used for these activities, primarily issuance of Item Removal Notices (IRN) for removal of permanent seals.

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(cont'd)

Participants' Roles and Responsibilities:

The Issue Coordinator for this item is O. B. Jones, Lead Engineer, Safeguards Building #2.

The following organizations and personnel will participate in this effort:

a) Comanche Peak Project Civil Engineering

Scope - evaluate as-built and perform calculations to determine further removal requirements

- assist design engineer in final analysis and conclusions

- issue design changes as required to document permanent items remaining in gaps; disposition Non-Conformance Reports (NRC) relating to this matter

Personnel:

C. R. Hooton - Project Civil Engineer
O. B. Jones - Engineering Lead - Safeguard Unit #2

b) Gibbs & Hill, Inc., New York, N.Y.

Scope - perform calculations for effect of the as-built conditions on the seismic response and dynamic response characteristics

- perform design review of calculations prepared for the effect of the as-built conditions on the seismic response and dynamic response characteristics

- assist CPPE Civil Engineering in evaluating conclusions and safety significance

Personnel:

E. L. Bezkor - Structural Job Engineer
A. M. Kenkre - Structural Squad Leader

c) TUGCO Quality Assurance

Scope - inspect separation for compliance with design documents and document findings

- document on a "best-effort" basis debris prior to removal by the craft

- document permanent debris, including location, type and approximate size

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(cont'd)

Personnel:

Tony Vega - TUGCO Site Quality Assurance Manager
Carl Corbin - Quality Engineer

d) Brown & Root, Inc.

Scope - area preparation for QC Inspections, including initiation and completion of Item Removal Notices (IRN)

- removal of debris as directed by engineering and QC after as-builting

- expeditious installation of permanent seal or temporary flashing upon completion of as-built in a given region

Personnel:

Craft personnel as required

Qualification of Personnel:

The QC inspectors performing the separation verifications and as-builts will be trained in the requirements of procedure QI-QP-11.0-3. The minimum QC certification level necessary for this activity will be Level I. As these procedures have been revised to include as-builting and maintenance of the separation condition as well as verification of the design separation requirements, the inspectors will be at least as qualified as the original inspectors. The inspectors to be used in the Action Plan were not involved in previous final separation verifications.

Standards/Acceptance Criteria:

Acceptance of the as-built conditions fall into three categories:

1) All air spaces are acceptable per the FSAR provided that separation requirements shown on the design drawings (including ACI tolerances) are met. QC inspection reports will be prepared documenting these areas.

2) Specific areas have been approved on the design drawings for permanent installation of elastic joint filler; enginecring analysis will be provided justifying this material. QC inspection reports will document rotofoam presence in these areas.

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(cont'd)

3) Remaining areas that contain debris not accessible for removal will be evaluated by engineering based on the type, size and location indicated on the inspection reports.

Decision Criteria:

The engineering analysis for the final as-built condition will determine impact on the dynamic response characteristics of the structures. These values will be compared to the original response values for determining separation acceptability. Upon evaluation of the change in frequency as compared to the original values, consideration will be given to determine the necessity for further evaluation of components and piping.

5. Schedule

Procedures for implementation of the QC inspection section of the Action Plan will be finalized by October 15, 1984. Engineering and QC walkdowns have been initiated to identify access points for inspections. Pending inspector training/certification, commencement of the Action Plan will occur during the week ending October 20, 1984.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN.

Item Number: II.d

Title: Seismic Design of Control Room Ceiling Elements

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	MR Mc Mahon			
Date	10/5/84			
Reviewed by: Review Team Leader	CR Hooton			
Date	10/5/84			
Recommended by: Program Manager*	J. T. Merritt			
Date	10/5/84			
Approved by: Senior Review Team				
Date				
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER II.d

Seismic Design of Control Room Ceiling Elements

1. Description of Issue Identified by NRC

The TRT investigated the seismic design of the ceiling elements installed in the control room. The following matrix designates those ceiling elements present in the control room and their seismic designation:

1.	Heating, Ventilating and Air Conditioning	- Seismic Category I
2.	Safety-Related Conduits	- Seismic Category I
3.	Nonsafety-Related Conduits	- Seismic Category II
4.	Lighting Fixtures	- Seismic Category II
5.	Sloping Suspended Drywall Ceiling	- Non-Seismic
6.	Acoustical Suspended Ceiling	- Non-Seismic
7.	Lowered Suspended Ceiling	- Non-Seismic

According to Regulatory Guide 1.29 and FSAR Section 3.7B.2.8, the seismic Category II and non-seismic items should be designed in such a way that their failure would not adversely affect the functions for safety-related components or cause injury to operators.

For the non-seismic items (other than the sloping suspended drywall ceiling), and for non-safety related conduits whose diameter is 2 inches or less, the TRT could find no evidence that the possible effects of a failure of these items had been considered. In addition, the TRT determined that calculations for seismic Category II components (e.g., lighting fixtures) and the calculations for the sloping suspended drywall ceiling did not adequately reflect the rotational interaction with the non-seismic items, nor were the fundamental frequencies of the supported masses determined to assess the influence of the seismic response spectrum at the control room ceiling elevation would have on the seismic response of the ceiling elements.

2. Action Identified by NRC

Accordingly, TUEC shall provide:

1. The results of seismic analysis which demonstrates that the non-seismic items in the control room (other than the sloping suspended drywall ceiling) satisfy the provisions of Regulatory Guide 1.29 and FSAR Section 3.7B.2.8.

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(cont'd)

2. An evaluation of seismic design adequacy of support systems for the lighting fixtures (seismic Category II) and the suspended drywall ceiling (non-seismic item with modification) which accounts for pertinent floor response characteristics of the systems.

3. Verification that those items in the control room ceiling not installed in accordance with the requirements of Regulatory Guide 1.29 satisfy applicable design requirements.

4. The results of an analysis that justify the adequacy of the non-safety related conduit support system in the control room for conduit whose diameter is 2 inches or less.

5. The results of an analysis which demonstrate that the foregoing problems are not applicable to other Category II and non-seismic structures, systems and components elsewhere in the plant.

3. Background

Regulatory Guide 1.29 states: "Those portions of structures, systems, or components whose continued function is not required but whose failure could reduce the functioning of any plant feature included in items 1.a through 1.q above to an unacceptable safety level should be designed and constructed so that the SSE would not cause such failure." Specifically item 1.n states: "The control room, including its associated vital equipment, cooling systems for vital equipment, and life support systems, and any structures or equipment inside or outside of the control room whose failure could result in incapacitating injury to the occupants of the control room."

The specific issue involves the ability of the control room ceiling to remain in place during a seismic event thus avoiding the potential of disabling operators due to its failure. Portions of the ceiling installations are non-seismic, non-safety related and do not have provisions of seismic Category II installations which are seismically supported or restrained as described below.

The control room ceiling at the location of the control board area proper is comprised of three (3) ceiling systems. Attached is a drawing to aid understanding of the configuration.

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(cont'd)

The ceiling directly adjacent to the control boards at elevation 839'-6" is a suspended louvered ceiling system with exposed grid utilizing interlocking main and cross tees for panel support. The louvered ceiling is directly below the lighting fixtures above the control boards and is supported by 12 gauge, minimum, cold drawn wire attached to the seismically restrained unistrut lighting support grid 1'-0" above. The 2'-0" x4'-0"x½"x½"x½" louvered ceiling panels are supported by the main and cross tee grid and by closure strips at edge intersections.

Also above the louvered ceiling, at the location of the lights is mineral acoustical tile which rest on the light fixture flanges with tee sections installed perpendicular to the light fixtures for end of tile support.

The second ceiling system, a sloping gypsum wall, is to the center of the control board area and extends from elevation 839'-6" to the underside of the above floor. This sloping gypsum wall was originally constructed as non-seismic and non-safety related. The construction used 1½" supporting channels attached to the underside of elevation 854'-4" floor slab with a 16 gauge C channel secured with 2-3/8" Ø Hilti Kwik Bolts. The vertical 1½" channel supports for attaching the horizontal furring channels is attached to the supporting channels at the bottom of the wall. The upper attachment for the 1½" vertical channel is by a bolted connection to a 16 gauge C channel secured to the underside of elevation 854'-4" floor slab with 2-3/8" Ø Hilti Kwik Bolts. The bolted connections used ¼" Ø bolts. The 1½" channels are by U.S. Gypsum, constructed of cold rolled 16 gauge steel with 19/32" flange and 1½" depth. Horizontal "hat shaped" furring channels are placed on 1'-0" C to C for attaching the 3/8" gypsum panels. The horizontal furring channels are secured to the support channels with galvanized furring channel clips.

A review of the mass involved in the sloping gypsum wall determined that seismic restraint was necessary to assure integrity of the ceiling system during a seismic event. To provide assurance that the sloping gypsum wall framework would remain in place during an SSE, restraints were added by attaching stainless steel cable through alternating horizontal furring channels next to each vertical 1½" channel. The six 1/8" stainless steel cables are suspended from two (three each) angles which are anchored to the underside of elevation 854'-4" floor slab. In addition the furring channel attachment to the vertical channels was reinforced by adding 2-¼" self tapping sheet metal screws at each intersection.

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(cont'd)

The 3/8" gypsum board is attached to the sloping wall furring channels with 1" type S bugle head screws on 12" vertical and 7" horizontal spacing. Screw attachments, of this type, in gypsum panels meeting ASTM C-36 requirements typically exhibit 60 pound pull out each.

The sloping gypsum wall was evaluated for acceptability and compliance with Regulatory Guide 1.29. Based on the original design and addition of seismic restraint cables, and considering the quantity and pull out strength of the screw attachments securing the gypsum panels, the sloping gypsum wall was considered acceptable as restrained.

The third ceiling system is at elevation 847'-2" in the center of the control board area. This ceiling is again the louvered ceiling configuration which is supported by suspending the main tees from the seismically restrained unistrut lighting support grid above. Suspension of the main tees is by 12 gauge, minimum, cold drawn wire. The 2'-0"x4'-0"x1"x1"x1" louvered ceiling panels are supported by the main and cross tees grid and closure strips at sloping wall intersection.

All lighting fixtures in the control room complex are seismically restrained in accordance with the restraint details shown on Gibbs & Hill drawing 2323-E1-1704-01. The lighting fixtures located in the control board area proper are also attached to seismically restrained unistrut grid framework. The seismic restraint of these fixtures and members was deemed necessary to ensure compliance with the requirements of Regulatory Guide 1.29.

In reviewing the design of the control room ceiling the TRT has requested that analyses be provided for all non-safety related items which demonstrate that the provisions of Regulatory Guide 1.29 and FSAR section 3.7B2.8 have been satisfied. This request encompasses the architectural ceiling system and non-safety related conduit whose diameter is two (2) inches or less.

The TRT has requested that seismic calculations for the support systems of the lighting fixtures and the suspended gypsum ceiling in the control room reflect all loading conditions that would be experienced due to a seismic event. In addition, an analysis has been requested by the TRT to show that the present design of the attachment of gypsum to its frame will ensure separation will not occur during a seismic event.

ITEM NUMBER II.d
(cont'd)

TUEC was also requested to review and provide results which demonstrate that proper consideration was provided for potential interactions between non-seismic installations and safety-related systems and components in all areas of the plant such that a failure of adjacent non-seismic items due to an SSE would not impair the ability of the safety related performances as defined in position C.1.a through C.1.q of Regulatory Guide 1.29.

4. TUEC Action Plan

Scope and Methodology

(a) TUEC has performed a preliminary evaluation to confirm our position regarding to compliance of the control room ceiling with Regulatory Guide 1.29. The present design of the ceilings was predicated on the position that failure of architectural features with small masses would not be adverse to the occupants of the control room. However, in consideration of the present NRC issue, we believe that the most direct and timely resolution is to take steps to preclude any item from falling which could possibly impair an operator. To implement this philosophy the following steps will be taken: (Items 1, 2, and 3 of the Action Identified by NRC above).

(1) Initial evaluation of the potential interaction between the lower lighting fixture support grid (ceiling no. 1), the upper lighting fixture support grid (ceiling no. 3) and the suspended gypsum ceiling (ceiling no. 2) has determined that installation of restraining elements for horizontal motion would result in a more expedient resolution of this issue than the alternative of performing a very detailed analysis.

Accordingly unacceptable interactions will be prevented by restraining the relative motion between these elements through the use of horizontal seismic restraints on the ceiling support system. These horizontal restraints will act together with the existing vertical cable seismic restraints.

The existing ceiling structures, consisting of an interlocking grid of unistruts, dead weight supports and vertical seismic restraints, together with the new horizontal seismic restraints will be evaluated and augmented where necessary to confirm their adequacy to carry seismic loads from contributing structural and architectural elements.

ITEM NUMBER II.d
(cont'd)

Work will be performed by:

Organization: Gibbs & Hill, Inc.

Personnel:
- John Eichler - Manager of Civil/Structural Department
- Ed Bezkor - Structural Job Engineer
- Mercea Pope - Structural Engineer
- Dhirej Chanda - Senior Structural Engineer

Organization: Brown & Root, Inc.

Personnel: Construction personnel will install horizontal restraints using applicable procedures for type of design provided.

Organization: Quality Assurance

Personnel: Quality control personnel will inspect installation to appropriate inspection procedures.

(2) It is anticipated that a failure analysis or test of the existing gypsum panel on the sloped suspended ceiling would prove to be time consuming and costly. Therefore, to resolve this issue, TUEC has elected the direct approach of removing the gypsum panel along with its supports and providing a total seismically qualified sloped ceiling. Upon completion of the design and procurement, installation will be initiated with appropriate construction and quality control inspection procedures.

Work will be performed by:

Organization: Gibbs & Hill, Inc.

Personnel:
- John Eichler - Manager of Civil/Structural Department
- Ed Bezkor - Structural Job Engineer
- Mercea Pope - Structural Engineer
- Dhirej Chanda - Senior Structural Engineer

ITEM NUMBER II.d
(cont'd)

Organization: Brown & Root, Inc.

Personnel: Construction personnel will install the new sloped ceiling design using applicable procedures for type of design provided.

Organization: Quality Assurance

Personnel: Quality control personnel will inspect installation to appropriate inspection procedures.

(3) An evaluation of the acoustical and louvered ceilings will be made to demonstrate that the physical arrangement of these modular lightweight architectural features meet the requirements of Regulatory Guide 1.29 and FSAR Section 3.7B.2.8. This evaluation will determine that individual non-safety components will not fail in an unacceptable manner or positive attachment will be provided for the component.

Work will be performed by:

Organization: Gibbs & Hill, Inc.

Personnel: John Eichler - Manager of Civil/Structural Department
Ed Bezkor - Structural Job Engineer
Mercea Pope - Structural Engineer

Organization: Comanche Peak Project Engineering (CPPE)

Personnel: Randy Hooton - Project Civil Engineer
Mark Wells - Architectural Engineer

(4) Items which are designed and constructed to seismic Category I and seismic Category II criteria receive Quality Control inspection in accordance with applicable criteria established per 10CFR50 Appendix B. Items which are designed non-seismic do not require inspection by the Quality Control Organization.

ITEM NUMBER II.d
(cont'd)

To comply with the TRT request for verification that items in the control room ceiling comply with design the following steps will be taken:

1. Quality Control records will be reviewed to verify that inspections were performed on Category II items.

   Work will be performed by:

Organization:	Quality Assurance	
Personnel:	Tony Vega	- TUGCO Site Quality Assurance Manager

2. For architectural items above the control room for the three ceiling systems of concern, Engineering will provide proper attributes to Quality Control to permit development of procedures for inspection. The inspectors will be trained and qualified to the procedures prior to performing the inspections.

   Work will be performed by:

Organization:	Comanche Peak Project Engineering (CPPE)	
Personnel:	Randy Hooton	- Project Civil Engineer
	Mark Wells	- Architectural Engineer
Organization:	Quality Assurance	
Personnel:	Tony Vega	- TUGCO Site Quality Assurance Manager

(b) Non-Nuclear Safety Related Conduit less than or equal to 2" Ø which is non-seismically supported is common within the entire plant. This issue is covered generically in Action Plan Item Number I.c; therefore, it will not be addressed in this item (Item 4 of Action Identified by NRC above).

(c) TUEC will provide results of evaluations which demonstrate that proper consideration has been given to other Category II and non-seismic structures, systems and components elsewhere in the plant. The purpose of the seismic/non-seismic interaction study (i.e. the Damage Study) was to ensure piping, conduit and equipment would not cause unacceptable damage to safety-related components during and following a seismic event.

ITEM NUMBER II.d
(cont'd)

The seismic/non-seismic interaction study, which was performed, in 1983, involved the walkdown of 287 rooms. The walkdown of each room was performed in accordance with Engineering Instruction CP-EI-4.0-36 (CONTROL OF SEISMIC & NON-SEISMIC COMPONENT INTERACTION EVALUATIONS) with all potential interactions evaluated to the acceptance criteria developed for the study. Methods for resolution of potential interactions of a falling source impacting a nuclear safety class target consisted of analysis, evaluation, use of barriers, administrative controls, addition of seismic supports or restraints. Each of these activities includes pertinent requirements of the CPSES QA program. Maintenance of this evaluation is performed in accordance with Engineering Instruction CP-EI-4.0-53 (MAINTENANCE OF DAMAGE STUDY ANALYSIS).

As noted in 4(a) above, the design of the ceilings in the control room was predicated on the position that failure of architectural features with small masses would not adversely affect the occupants of the control room and, consequently, the safety of the plant. On this basis, Engineering advised the Damage Study Group that the control room architectural features in question should not be evaluated as part of the Damage Study Program. Therefore, these features were not evaluated by the Damage Study Group.

Although TUEC believe that this was are isolated situation, a review will be conducted of the Damage Study Group's evaluation of other architectural features throughout the plant. (Reference item 5 of Action Identified by NRC above.)

(1) A summary document will be prepared which delineates clearly the philosophy and implementation of the portion of the Damage Study Program which performed this evaluation.

Our study identified 1777 non-seismic sources of which 969 had interactions. The detail of the resolution of these interactions will be included in the report.

Work will be performed by:

Organization: Comanche Peak Project Engineering (CPPE)

Personnel: David West - Field Damage Study Group Supervisor

ITEM NUMBER II.d
(cont'd)

(2) A review will be performed of architectural specifications and drawings to identify non-seismic sources to be evaluated in accordance with Regulatory Guide 1.29 and FSAR section 3.7B.2.8. It is anticipated that this review will confirm that architectural features have been appropriately considered and evaluated in our present damage study program.

Work will be performed by:

Organization:	Comanche Peak Project Engineering (CPPE)
Personnel:	Randy Hooton - Project Civil Engineer David West - Field Damage Study Group Supervisor
Procedure:	CP-EI-4.0-36 (CONTROL OF SEISMIC AND NON-SEISMIC COMPONENT INTERACTION EVALUATIONS) and CP-EI-4.0-53 (MAINTENANCE OF DAMAGE STUDY ANALYSIS) will be used to evaluate sources.

Standards/Acceptance Criteria

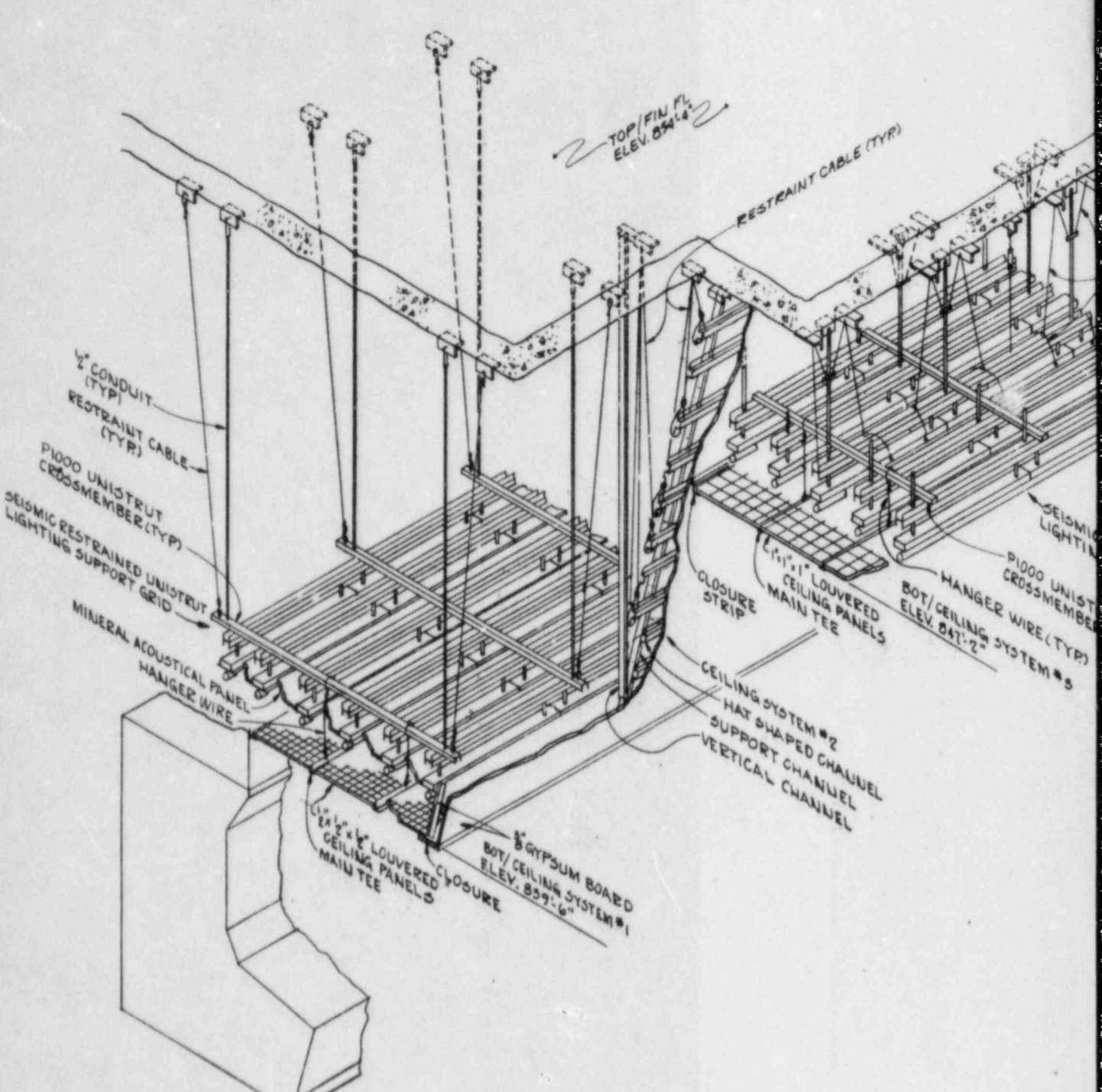
Compliance with FSAR 3.7B.2.8 and Regulatory Guide 1.29.

Personnel

The Issue Coordinator for this item is M. R. McBay, CPSES Building Manager, Reactor Building No. 2. Other personnel assigned are as noted in the discussion of the scope and methodology above.

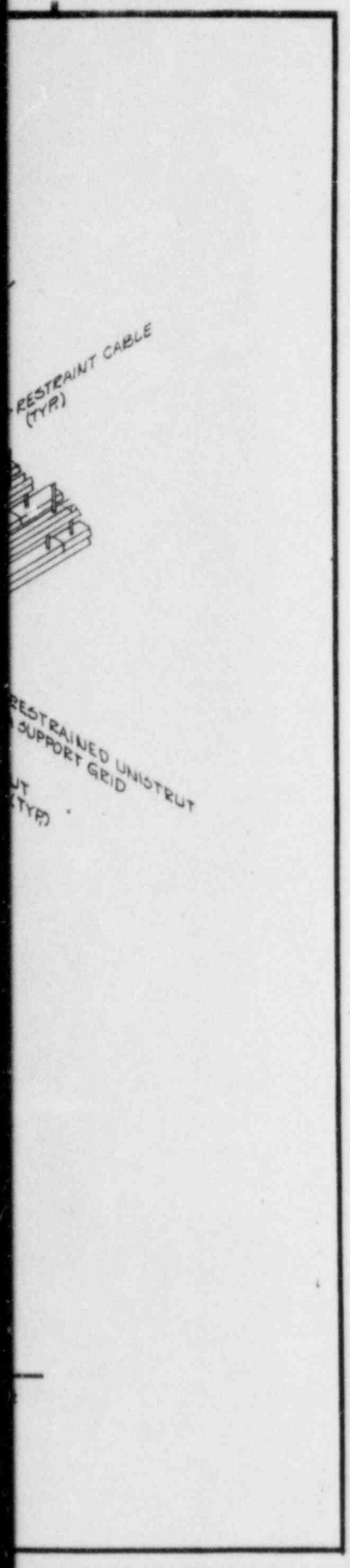
5. Schedule

Item	Target Completion Date
4.A.1	11/23/84
4.A.2	11/23/84
4.A.3	11/23/84
4.A.4.1	10/31/84
4.A.4.2	11/23/84
4.B	11/23/84
4.C.1	10/26/84
4.C.2	10/31/84



COMPOSITE ISOMETRIC #1

DRAWN BY: K. FISSEL DATE: OCT 1, 19


RESTRAINT CABLE
(TYP.)
RESTRAINED UNISTRUT
SUPPORT GRID
(TYP.)

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN.

Item Number: II.e

Title: Rebar in the Fuel Handling Building

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	D Ipatenkar			
Date	10/5/84			
Reviewed by: Review Team Leader	CR Hooton			
Date	10/5/84			
Recommended by: Program Manager*	J F Merritt Jr.			
Date	10/5/84			
Approved by: Senior Review Team	[illegible]			
Date	[illegible]			
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER II.e

Rebar in the Fuel Handling Building

1. Description of Issue Identified by NRC

The TRT investigated an alleged instance of unauthorized cutting of rebar associated with the installation of the trolley process aisle rails in the Fuel Handling Building. The claim is that during installation of 22 metal plates in January 1983, a core drill was used to drill about 10 holes approximately 9 inches deep. The TRT reviewed the reinforcement drawings for the Fuel Handling Building and determined that there were three layers of reinforcing steel in the top reinforcement layer of the slab. This reinforcement layer consisted of a No. 18 bar running in the east-west direction in the first and third layers, and a No. 11 bar running in the north-south direction on the second layer. The review also revealed that the layout of the reinforcement and the trolley rails was such that the east-west reinforcement would interfere with the drilling of holes along only one rail location. However, if 9-inch holes were drilled, both the first and third layers of No. 18 reinforcement would be cut. Design Change Authorization No. 7041 was written for authorization to cut the uppermost No. 18 bar at only one rail location, but did not reference authorization to cut the lower No. 18 bar. DCA-7041 also stated that the expansion bolts and base plates may be moved in the east-west direction to avoid interference with reinforcement running in the north-south direction. The information, described in DCA-7041, was substantiated by Gibbs & Hill calculations. If the ten holes were actually drilled 9 inches deep, then the allegation that the reinforcement was cut without authorization would be valid.

2. Action Identified by NRC

Accordingly, TUEC shall provide:

1. Information to demonstrate that only the No. 18 reinforcing steel in the first layer was cut, or

2. Design calculations to demonstrate that structural integrity is maintained if the No. 18 reinforcing steel on both the first and third layers was cut.

3. Background

During the drilling of holes for installation of the Hilti Kwik bolts for process aisle trolley rails at El. 810'6", it is alleged that 10 holes were drilled approximately 9 inches deep. The depth would cut through top and bottom (1st and 3rd layers) of the east-west No. 18 reinforcing steel located in the top reinforcement of the concrete

ITEM NUMBER II.e
(cont'd)

mat. The No. 18 reinforcing steel runs longitudinally along the aisle rails. The governing design document (DCA #7041) authorized cutting of only top (1st layer) No. 18 bar at only one rail location. It is evident that reinforcement would be encountered at only one rail location in east-west direction due to the spacing of rebars running east-west compared to the spacing rails and Hilti bolts. Also, design required the rail base plates to be so located in east-west direction such as to avoid cutting of 2nd layer of No. 11 rebar which runs in the north-south direction.

TUEC has opted for the analytical approach under this action plan out of the two options proposed by NRC-TRT to resolve this item.

4. TUEC Action Plan

Scope and Methodology

Design calculations will be generated to demonstrate that structural integrity of concrete mat at El. 810'6" will be maintained even if No. 18 bar in 3rd layer is cut, due to alleged drilling of 9" deep holes.

TUEC will also review the programs controlling cutting of reinforcing steel. These activities include control of rebar cutting machines, craft procedures, inspections and proper engineering authorization.

Participants' Roles and Responsibilities

The Issue Coordinator for this item is D. G. Patankar, Lead Civil/Structural Design, Unit 2.

The following organizations and personnel will participate in this effort:

a) Comanche Peak Project Civil Engineering

Scope - CPP Civil Engineering will perform design calculations and will be involved in overall engineering evaluations and development of Action Plan Results Report.

Personnel:

C.R. Hooton	Project Civil Engineer
D.G. Patankar	Civil/Structural Lead Engineer
S.A. Raz	Structural Engineer

ITEM NUMBER II.e
(cont'd)

b) Gibbs & Hill - Site Design Review Team

Scope - Site design review team will design review calculations performed by CPP Civil Engineering.

Personnel:

B. Wilcoxson	Design Review Group Supervisor
B.K. Bhujang	Structural Group Lead
R. P. Shah	Principal Engineer

Standards/Acceptance Criteria

Building Code requirements of reinforced concrete - ACI-318-71 and stipulations of FSAR section 3.8 formed the basic standards and acceptance criteria for original design of concrete mat at El. 810'6" in Fuel Handling Building - Calculation Book No. SFB 102C, Section 1. The design calculations generated per this action plan will stay within the confines of original design.

Decision Criteria

The results and conclusions of calculations performed as well as conclusions drawn from review of procedural controls on rebar cutting will be the criteria for closing out the subject item.

5. Schedule

According to actions proposed by NRC-TRT, engineering evaluation phase of this action plan is already underway and nearing completion. Activities pertaining to procedural controls review are being currently planned.

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: III.a.1

Title: Hot Functional Testing (HFT) Data Packages

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator				
Date	10/5/84			
Reviewed by: Review Team Leader				
Date	10/5/84			
Recommended by: Program Manager*				
Date	10/5/84			
Approved by: Senior Review Team				
Date	10/5/84			
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER III.a.1

Hot Functional Testing (HFT) Data Packages

1. Description of Issue Identified by NRC

The TRT reviewed a sample of the completed data packages for HFT preoperational test procedures, pertinent startup administrative procedures, NRC inspection reports, and the preoperational test index and its schedule. The TRT also inspected test deficiency reports (TDRs) that were generated as a result of test deficiencies found prior to and during HFT.

Chapter 14 of the FSAR and Regulatory Guide 1.68 provide requirements for the conduct of preoperational testing. In reviewing test data packages, the TRT found that certain test objectives were not met. It appears that the joint Test Group approved incomplete data packages for at least three preoperational hot functional tests. These were:

Test Procedure	Deficiency
1CP-PT-02-12, "Bus Voltage and Load Survey"	Because acceptable voltages could not be achieved with the specified transformer taps, they were changed. A subsequent engineering evaluation required returning to the original taps, but no retest was performed.
1CP-PT-34-05, "Steam Generator Narrow Range Level Verification"	Level detectors 1-LT-517, 518 and 529 were replaced with temporary equipment of a design that was different from that which was to be eventually installed.
1CP-PT-55-05 "Pressurizer Level Control"	Level detector 1-LT-461 appeared to be out of calibration during the test and was replaced after the test. The retest approved by the JTG was a cold calibration rather that a test consistent with the original test objective, which was to obtain satisfactory data under hot conditions.

ITEM NUMBER III.a.1
(Cont'd)

2. Action Identified by NRC

Accordingly, TUEC shall review all complete preoperational test data packages to ensure there are no other instances where test objectives were not met, or prerequisite conditions were not satisfied. The three items identified by the TRT shall be included, along with appropriate justification, in the test deferral packages presented to the NRC.

3. Background

The technical review team performed a review of 17 of the 24 hot functional (simulated operating plant) test data packages in an effort to ascertain the acceptability of the test results and to determine if the test objectives were satisfied. The team questioned the adequacy of retest specified on Test Deficiency Reports (TDRs) associated with the tests, in that, specific test objectives may not have been met. TDRs are issued when unacceptable or indeterminate conditions exist in the operating characteristics, test documentation or for procedure noncompliance. In cases where TDRs are issued to describe equipment problems, corrective actions are established and additional retest are considered to ensure adequacy of actions taken to correct the problem in addition to consideration of preoperational test requirements. TDRs contain a description of the problem, the corrective action and retest requirements, as applicable. A description of the three specific procedure concerns are described below.

Prior to initiation of test, 1CP-PT-02-12 "Bus Voltage and Load Survey", it was determined that the 480V motor control centers (MCC) were not within the required voltage levels. To ensure that optimum current and voltage will be present at all buses and subsequent equipment, transformer taps are provided for voltage regulation. Therefore, the 6.9kv to 480 volt transformer taps were changed in order to bring the 480 volt MCC's within acceptable levels. A note contained in the procedure states, "If voltage measured during this test is not in accordance with acceptance criteria of section 2.0, adjust tap settings for proper voltage and reperform affected section of test. Tap adjustment may also be performed at completion of test." Upon completion of the test, review of the test data revealed that 6.9kv bus voltages, being supplied by the 138kv startup transformer, were outside the acceptance criteria as specified by the procedure. TDR #1189 was initiated and forwarded to TUEC Engineering for evaluation. Engineering provided a response to the TDR which stated that the tap setting must be returned to -5% and that steps should be taken to preclude prolonged bus over voltages by increasing plant loads and regulating grid voltages within acceptable limits. Plant operations was subsequently requested to establish administrative controls to

ITEM NUMBER III.a.1
(Cont'd)

ensure that bus voltages are maintained within acceptable limits. No retest was specified based on the request to regulate administratively grid voltage within limits. This decision was also based on the fact that proper transformations, from 138kv and 345kv to 480 volt, were demonstrated during the test and that both the 6.9kv and 480 volt buses would be within limits if the incoming grid voltages were within limits. Upon identification of the technical review teams finding, TDR#3226 was initiated to re-evaluate and confirm the disposition for TDR#1189 in order to fully substantiate the adequacy of the test data package.

The objective of preoperational test 1CP-PT-34-05 "Steam Generator Narrow Range Level Verification" is to demonstrate that the setpoints for alarms and channel trips are actuated at the design values and that the level channels compare properly with each other for actual changes in steam generator water level. Additionally, the test demonstrates that each of the level channels indicate properly at the upper and lower instrument taps to confirm that the correct span between the level taps on the steam generators was used for the instrument calibration. Prior to conduct of the test, TDR#635, 709 and 732 were written to document three defective Barton, (Model 764) instruments. Due to the long lead time required for repair of the defective instruments, Rosemount (Model 1163) instruments were installed on a temporary basis and calibrated to facilitate conduct of hot functional testing (HFT). Each of the four steam generators are provided with four transmitters that provide four distinct level indications in the control room. Two temporary transmitters were utilized on steam generator #1 and one temporary transmitter was installed on steam generator #2. A comparison of the temporary transmitter data with permanent transmitter data is contained within the test results. These values reveal proper span of the instrument taps on the steam generators, as required by the test objectives, and confirm the adequacy of the permanent Barton (Model 764) instruments, that were installed during the test, for hot conditions. HFT testing was completed with the above mentioned temporary transmitters installed. After HFT, the permanent Barton transmitters were installed. The specified retest for the three defective permanent Barton transmitters required normal calibration to ensure that the instrument would perform it's design function over it's entire range which is in accordance with industry practice. It is additionally important to note that technical specifications require a verification of proper indication be documented on each shift (every eight hours) for the applicable modes of operation. This requirement will further ensure the detection and correction of abnormal instrument behavior.

ITEM NUMBER III.a.1
(Cont'd)

Preoperational Test 1CP-PT-55-05 "Pressurizer Level Control" demonstrated the capability of the pressurizer level control and Chemical and Volume Control systems to maintain pressurizer level in the manual and automatic modes of operation. During review of the test results, TDR#1232 was initiated to document that data recorded on Data Sheets 6 and 8 was inconclusive and thus did not satisfy notations on the test data sheets and the acceptance criteria as specified in paragraph 2.1 of the test procedure. Test data indicated that upon return to low (approximately 0 to 5% indication) pressurizer level, indication provided by one of the three installed instruments did not agree within ± 2% of the corresponding Digital Volt Meter (DVM) readings nor within 4% deviation of the other two instruments. All other data outside of the 0 to 5% range was acceptable. The data in question does not invalidate the ability of the control system to operate properly in that the questionable data was taken to confirm adequacy of the instrument calibration and the questionable data is outside the normal control band of the control system. Upon further investigation into the cause, the instrument calibration was checked and found to be unsatisfactory. Attempts to obtain a satisfactory calibration were unsuccessful causing the instrument to be replaced with a li.e type. Normal calibration of the replacement instrument was specified as the required retest to demonstrate that the instrument would perform its design function over its entire range and was completed satisfactorily. Similar to the steam generator level issue, technical specifications will govern the operability of these instruments during the applicable mode of operation.

4. TUEC Action Plan

A. Scope and Methodology

1. Initiate Test Deficiency Reports on 1CP-PT-34-05 and 1CP-PT-55-05 to document fully the review of the associated test data packages for compliance with the test objectives.

2. The Joint Test Group will review all Test Deficiency Reports associated with the completed preoperational test data package for 1CP-PT-02-12 "Bus Voltage and Load Survey" for compliance with the test objectives and provide technical justification for acceptability.

3. The Joint Test Group will review all Test Deficiency Reports associated with the completed preoperational test data package for 1CP-PT-34-05 "Steam Generators Narrow Range Level Verification" for compliance with the test objectives and provide technical justification for acceptability.

ITEM NUMBER III.a.1
(Cont'd)

4. The Joint Test Group will review all Test Deficiency Reports associated with the completed preoperational test data package for 1CP-PT-55-05 "Pressurizer Level Control" for compliance with the test objectives and provide technical justification for acceptability.

5. Although satisfactory justifications for Actions 2, 3, and 4 above are anticipated by TUEC, the seven remaining preoperational test data packages and associated TDRs conducted during hot functional testing, that were not previously reviewed by the TRT, will be reviewed to reverify compliance with the test objectives.

6. If the results of the review conducted in item 5 above, reveal that test objectives were not satisfied, the 136 remaining preoperational tests, not associated with hot functional testing, that were completed (approved) as of September 17, 1984 will be statistically sampled using the double sampling plan specified in MIL-STD-105A Table X-G-2. This sample plan will require a first sample of 20 procedures. Upon identification of a reject an additional sample of another 20 procedures will be selected. Test deficiency reports will be issued for all instances where it is suspect or indeterminate as to whether or not the test objectives were met.

   The Joint Test Group (JTG) will be responsible for specifying corrective actions and retest requirements for all TDR's issued as a result of this review. Any TDR dispositioned by the JTG that requires a retest to be performed to satisfy a test objective will constitute a reject.

   Conduct of all retests resulting from this review will be scheduled. In the case where these tests are not planned until after fuel loading, a test deferral package will be submitted to the NRC.

   Requirements of the following Startup Administrative Procedures will be used for review of the completed test data packages:

   CP-SAP-1 STARTUP ADMINISTRATIVE PROCEDURES MANUAL
   CP-SAP-2 STARTUP PROGRAM ORGANIZATION & RESPONSIBILITIES
   CP-SAP-11 REVIEW, APPROVAL AND RETENTION OF TEST RESULTS
   CP-SAP-12 DEVIATIONS TO TEST INSTRUCTIONS/PROCEDURES
   CP-SAP-16 TEST DEFICIENCY AND NONCONFORMANCE REPORTING

ITEM NUMBER III.a.1
(Cont'd)

The JTG will be responsible for review of the completed test data packages and disposition of all resulting TDRs as described above. This committee includes the following:

TUGCO Manager, Nuclear Operations - Chairman
TUGCO Manager, Plant Operations - Vice-Chairman
TUGCO Lead Startup Engineer
TUGCO Nuclear Engineering Manager
WESTINGHOUSE - Site Manager
TUGCO Startup Manager

The Issue Coordinator for this item is Mr. S. Franks.

B. Output

This item will be considered closed upon completion of review required by the action plan and, if required, submittal of test deferral packages to the NRC.

5. Schedule

Action	Target Completion Date
4.A.1	Complete
4.A.2	October 29, 1984
4.A.3	October 29, 1984
4.A.4	October 29, 1984
4.A.5	To commence upon completion of 4.A.2, 4.A.3, and 4.A.4
4.A.6	Dependent upon review results of action 4.A.5

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: III.a.2

Title: JTG Approval of Test Data

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	S.M. Franks			
Date	10/5/84			
Reviewed by: Review Team Leader	[signature]			
Date	10/5/84			
Recommended by: Program Manager*	[signature]			
Date	10/5/84			
Approved by: Senior Review Team	[signature]			
Date	10/5/84			
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER III.a.2

JTG Approval of Test Data

1. Description of Issue Identified by NRC

The TRT noted during a review of HFT completed test data that the JTG did not approve the data until after cooldown from the test. The tests are not considered complete until this approval is obtained. In order to complete the proposed post-fueling deferred preoperational HFT, the JTG, or a similarly qualified group, must approve the data prior to proceeding to initial criticality. The TRT did not find any document providing that TUEC is committed to do this.

2. Action identified by the NRC

Accordingly, TUEC shall commit to having a JTG, or similarly qualified group, review and approve post-fueling preoperational test results prior to declaring the system operable in accordance with the technical specifications.

3. Background

This issue appears to be based on the fact that the TRT could not find evidence of the TUEC commitment to require the Station Operations Review Committee (SORC) to evaluate deferred preoperational test data as part of the initial startup test program. The current station and initial startup administrative procedures comply with the FSAR and technical specifications with regard to declaration of system operability and test results approval.

TUEC is committed to having all deferred preoperational test results reviewed by the SORC. The test deferral process is intended as a formal mechanism to defer preoperational testing activities until after fuel load and to transfer the testing responsibility to the plant operations organization. The conduct of these deferred preoperational tests will be directed by the initial startup organization. This deferral process simultaneously closes the JTG's responsibility for this testing and transfers the review and approval responsibility to the SORC. Tracking of these deferred tests as well as the responsibilities of the SORC are identified in procedures STA-805, "Deferred Preoperational Testing" and ISA-005, "Initial Startup Test Package Preparation, Review, and Approval."

The SORC is the qualified group that is expected to review and approve all startup testing after fuel load, i.e. deferred preoperational tests and initial startup tests.

ITEM NUMBER III.a.2
(Cont'd)

This role is identified in FSAR paragraph 14.2.5, "Review, Evaluation, and Approval of Test Results". The makeup and qualifications of the SORC are identified in FSAR Section 13.4.1. These meet the requirements of Regulatory Guide 1.68 Rev. 2 and the Standard Review Plan Section 14.2 which encompass both preoperational testing and initial startup testing. Additionally, it should be noted that all activities of the SORC are reviewed by the Operations Review Committee (ORC) which is described in FSAR paragraph 13.4.2.2. Qualifications of the ORC are also described in the FSAR.

The deferred preoperational test results will be reviewed in the same manner as other initial startup tests as deliniated in Initial Startup Administrative Procedure ISA-005. This SORC review is specifically called out in the FSAR and Station Procedure STA-801, "Initial Startup Test Program" to occur in the following manner (Ref. FSAR Section 14.2.5):

> "Following each major phase of the test program test results and or test status will be reviewed to ensure that all required tests have been performed and that the test results have been approved. This review will ensure that all required systems are operating properly, and that testing for the next major phase will be conducted in a safe and efficient manner.
>
> "This type of review will be performed to the extent required before major test phases such as fuel load, initial criticality, and power escalation. During the power escalation phase, review and approval of initial startup test procedure results will be completed for each of these plateaus (30 percent, 50 percent, and 90 percent) prior to proceeding with power ascension to the next plateau."

4. TUEC Action Plan

A. Scope and Methodology

TUEC is committed to SORC approval of the deferred preoperational tests per the above discussion. Presently, all deferred preoperational tests, except for the thermal expansion retest, will be completed prior to initial criticality with approval received from NRR via correspondence dated June 19, 1984 and Aug. 17, 1984. These tests and the completed portions of the thermal expansion retest program will be reviewed and approved by the SORC prior to initial initial criticality. The thermal expansion retest program is expected to be finished with the completion of the 30 percent testing plateau. This test

ITEM NUMBER III.a.2
(Cont'd)

will be reviewed and approved by SORC, along with the other 30 percent plateau tests, prior to power escalation to the next plateau, i.e. 50 percent power.

The Issue Coordinator for this item is MR. S. Franks.

B. Output

This potential open issue does not constitute a discrepancy requiring further investigation into root causes, evaluation of safety significance or imply any generic weakness. This item is considered complete.

5. Schedule

Action	Target Completion Schedule
4.A.	Complete

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: III.a.3

Title: Technical Specification For Deferred Tests

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	S.M. Franks			
Date	10/5/84			
Reviewed by: Review Team Leader	[signature]			
Date	10/5/84			
Recommended by: Program Manager*	[signature]			
Date	10/5/84			
Approved by: Senior Review Team	[signature]			
Date	10/5/84			
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER III.a.3

Technical Specification For Deferred Tests

1. Description of Issue Identified by NRC

The TRT pointed out that in order to conduct preoperational tests at the necessary temperatures and pressures after fuel load, certain limiting conditions of the proposed technical specifications cannot be met, e.g., all snubbers will not be operable since some will not have been tested.

2. Action Identified by NRC

Accordingly, TUEC shall evaluate the required plant conditions for the deferred preoperational tests against limiting conditions in the proposed technical specifications and obtain NRC approval where deviations from the technical specifications are necessary.

3. Background

To date, TUEC has submitted seven deferred preoperational test authorization requests to NRR. The processing of these requests were in accordance with station procedure STA-805, "Deferred Preoperational Testing". The TUEC action plan response to TRT issue III.a.2 briefly describes the deferred preoperational test process, as controlled by Station Administrative Procedure STA-805. During this process, technical specification requirements are evaluated and the need for technical specification exceptions is also considered. This evaluation addresses the operability requirements of the technical specifications and the impact of incomplete preoperational testing on equipment operability. Also, the required plant conditions for conducting these deferred preoperational tests are assessed against the CPSES technical specifications, including the limiting conditions for operation (LCO's). The results of these evaluations revealed that no technical specification deviations (exceptions) were required. Authorization to perform the above mentioned deferred testing prior to initial criticality has since been formally received by TUEC from NRR via letters dated June 19, and August 17, 1984. However, in an effort to perform the post fuel load heatup and thermal expansion testing in an effective manner (i.e. to minimize potential for unnecessary cyclic mode changes) TUEC is in the process of seeking a special test exception to the technical specifications for snubber operability. TUEC is not aware of any additional concerns regarding the remaining deferred preoperational test packages.

ITEM NUMBER III.a.3
(Cont'd)

4. TUEC Action Plan

A. Scope and Methodology

TUEC will submit a request for a special test exception to CPSES Technical Specification 3/4.7.9.

Mr. S. Franks is the Issue Coordinator for this item.

B. Output

This potential open issue does not constitute a discrepancy requiring further investigation into root causes, evaluation of safety significance or imply any generic weakness. This item will be considered closed upon approval of our request for a special test exception to technical specification 3/4.7.9 for post fuel load thermal expansion testing.

5. Schedule

Action	Target Completion Schedule
4.A	October 15, 1984

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: III.a.4

Title: Traceability of Test Equipment

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	S.M. Franks			
Date	10/5/84			
Reviewed by: Review Team Leader	[signature]			
Date	10/5/84			
Recommended by: Program Manager*	[signature]			
Date	10/5/84			
Approved by: Senior Review Team	[signature]			
Date	10/5/84			
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER III.a.4

Traceability of Test Equipment

1. Description of Issue Identified by NRC

Data for the thermal expansion tests (which have not yet been approved by the JTG) did not provide for traceability between the calibration of the measuring instruments and the monitored locations, as required by Startup Administrative Procedure-7. The information was separately available in a personal log held by Engineering.

2. Action Identified by NRC

Accordingly, TUEC shall incorporate the information necessary to provide traceability between thermal expansion test monitoring locations and measuring instruments. TUEC shall also establish administrative controls to assure appropriate test and measuring equipment traceability during future testing.

3. Background

It is acknowledged that the traceability between the calibration of temperature measuring instruments and the monitored locations were not documented in verbatim compliance with the requirements delineated in Startup Administrative Procedure CP-SAP-7 in that the required information was not contained in the test data package which is under review. However, the required information was available in a personal log held by engineering which relates the temperature measuring instruments to the monitoring teams that used the instruments. Additionally, the monitoring teams were assigned specific test packages which identified the locations that were monitored. Therefore, the instrumentation used can be correlated to the location by the known assignments of monitoring teams and specific test packages.

Since the necessary administrative controls to prevent this type of occurrence were in use during conduct of the thermal expansion tests, this error is attributed to the engineering personnel temporarily assigned to startup for thermal expansion testing not being thoroughly familiar with startup administrative requirements for traceability of test instrumentation.

4. TUEC Action Plan

A. Scope and Methodology

1. Documentation to provide traceability between the calibration of temperature measuring devices and locations where they were used has been included in the test data package.

ITEM NUMBER III.a.4
(Cont'd)

2. All startup personnel responsible for conduct of testing will be reinstructed on the existing startup administrative requirements applicable to the traceability of measuring and test equipment.

The Issue Coordinator for this item is Mr. S. Franks.

B. Output

This potential open issue does not constitute a discrepancy requiring further investigation into root causes, evaluation of safety significance or imply any generic weakness. This item will be considered closed upon completion of actions described above.

5. Schedule

Action	Target Completion Schedule
4.A.1	Complete
4.A.2	October 9, 1984

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: III.b

Title: Conduct of the CILRT

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	S.M. Franks			
Date	10/5/84			
Reviewed by: Review Team Leader	[signature]			
Date	10/5/84			
Recommended by: Program Manager*	[signature]			
Date	10/5/84			
Approved by: Senior Review Team	[signature]			
Date	10/5/84			
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER III.b

Conduct of the CILRT

1. Description of Issue Identified by NRC

The TRT reviewed the data package for CILRT performed on Unit 1, and discussed the conduct of the test with TUEC and NRC personnel who participated in or witnessed it. Apparently after repairing leaks found during the first two attempts, the third attempt at a CILRT was successful. It was successfully completed after three electrical penetrations were isolated because the leakage through them could not be stopped. Though the leaks were subsequently repaired and individually tested with satisfactory results, NRC approval was not obtained to perform the CILRT with these penetrations isolated. In addition, leak rate calculations were performed using ANSI/ANS 56.8, which is neither endorsed by the NRC nor in accordance with FSAR commitments.

2. Action Identified by NRC

Accordingly, TUEC shall identify to NRC any other differences in the conduct of the CILRT as a result of using ANSI/ANS 56.8 rather than ANSI N45.4-1972. Additionally, TUEC shall identify to NRC all other deviations from FSAR commitments.

3. Background

During the developement of CPSES Unit 1 Containment Integrated Leak Rate Test Program, the calculation methods prescribed by ANSI N45.4 - 1972 i.e., the POINT TO POINT METHOD, and the TOTAL TIME METHOD, were evaluated against the current industry practice and standards. Based on this evaluation, CPSES elected to use the MASS PLOT METHOD as prescribed by ANSI/ANS 56.8 - 1981 for calculation of the Type A leakage rate because it more accurately represents the actual physical conditions of the containment during the test. In addition, during conduct of the Unit 1 CILRT, three electrical penetrations were isolated to permit successful completion of the test. Preoperational Test Procedure 1CP-PT-75-02 Section 5.5 described the special conditions under which potentially excessive leakage paths were to be isolated and retested. A containment integrated leak rate test report was transmitted to the NRC in May, 1983 as required by 10CFR50 Appendix J. A supplement to the test report was transmitted to the NRC in July, 1983. The retest results of the electrical penetrations and attendant impact on the Unit 1 CILRT was provided in the test report and test report supplement. Due to an oversight, however, the CPSES FSAR was not amended to reflect these deviations from 10CFR50 Appendix J and ANSI N45.4 - 1972 prior to performance of the test.

ITEM NUMBER III.b
(Cont'd)

Subsequent to the Technical Review Team's identification of this issue, the NRC staff requested additional information by letter dated August 27, 1984. Based on that letter, this issue will be listed as an open item in the SER identified as "Deviation to the integrated leak rate test methodology of ANSI N45.4 - 1972 committed to in the FSAR".

It is our understanding that responsibility for resolution of this issue has been transferred from the TRT to the applicable NRR Review Branch. For information, the request for additional information is as follows:

> "It is stated in the FSAR that the methodology of ANSI N45.4 - 1972 will be used to conduct the ILRT. The staff Technical Review Team (TRT) has found that the methodology of ANSI/ANS 56.8 - 1981, instead of ANSI N45.4 - 1972, was used in performing the test; ANSI/ANS 56.8 - 1981, however, has not been endorsed by the staff. In reviewing the ILRT summary report, dated May 6, 1983, we note that the "mass-plot method" of ANSI/ANS 56.8 - 1981, was used to calculate the containment leakage rate. Although we find this acceptable, the applicant is requested to identify and justify any other differences in applying ANSI/ANS 56.8 - 1981 in lieu of ANSI N45.4 - 1972."

4. TUEC Action Plan

A. Scope and Methodology

1. The CILRT procedure 1CP-PT-75-02 will be compared with the FSAR and ANSI N45.4 - 1972 to identify any differences other than the calculation method that may have been caused by the use of ANSI/ANS 56.8 - 1981.

2. Respond to NRC letter dated August 27, 1984, including submittal of the required FSAR Amendment.

Mr. S. Franks is the Issue Coordinator for this item.

B. Output

This item will be considered satisfactorily resolved upon approval of the response to Q022.22.

5. Schedule

Action	Target Schedule Completion
4.A.1	October 22, 1984
4.A.2	October 31, 1984

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN

Item Number: III.c

Title: Prerequisite Testing

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator	W. A. Jacobs			
Date	10/5/84			
Reviewed by: Review Team Leader				
Date	10/5/84			
Recommended by: Program Manager*				
Date	10/5/84			
Approved by: Senior Review Team				
Date	10/5/84			
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER III.c

Prerequisite Testing

1. Description of Issue Identified by NRC

The TRT reviewed FSAR commitments, startup administrative procedures, prerequisite test records, craft personnel qualification records, and discussed them with startup and craft management personnel. The TRT also observed test support craft personnel at work and interviewed some of them to gain familiarity with their attitudes and capabilities.

The review of test records revealed that craft personnel were signing to verify initial conditions for tests in violation of Startup Administrative Procedure-21, entitled: "Conduct of Testing" (CP-SAP-21). This procedure requires this function to be performed by System Test Engineers (STE). Startup management had issued a memorandum improperly authorizing craft personnel to perform these verifications on selected tests.

2. Action Identified by NRC

Accordingly, TUEC shall rescind the startup memorandum (STM-83084), which was issued in conflict with CP-SAP-21, and ensure that no other memoranda were issued which are in conflict with approved procedures.

3. Background

Startup Administrative Administrative Procedure CP-SAP-1, "Startup Administrative Procedures Manual" allows the Startup Manager to issue interim changes or other necessary instructions as a temporary substitute with specific instructions concerning applicability and use. Instructions issued in this manner are required to be followed with a procedure revision.

The referenced startup memorandum (SIM-83084) is acknowledged to have issued directives contrary to the requirements of Startup Administrative Procedure CP-SAP-21 "Conduct of Testing" without a followup administrative procedure revision as required by Startup Administrative Procedure CP-SAP-1.

Startup memorandum SIM-83084 authorized Electrical Test Group (ETG) personnel to validate prerequisites for Prerequisite Test Procedures XCP-EE-1 "Megger Testing" and XCP-EE-14 "Molded Case Circuit Breaker and Thermal Overload Relay/Heater Testing". Startup Administrative Procedure CP-SAP-21 requires the System Test Engineer (STE) to verify prerequisites prior to test conduct.

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(Cont'd)

The consequences associated with improper validation of prerequisites for the affected tests are insignificant. Both tests are preliminary verifications which are made to detect damage and verify operability of items used for equipment protection prior to subsequent equipment energization and testing activities being performed. Failure to adequately verify completion of prerequisites or improper conduct of the affected tests would be detected during independent review and approval of the test results or during subsequent operation of the equipment.

4. TUEC Action Plan

A. Scope and Methodology

1. Startup memorandum (SIM-83084) was recinded by issuance of SIM-84220 dated September 25, 1984.

2. System Test Engineers will be instructed that SIM-83084 has been recinded and that it is their responsibility to validate test prerequisites for the affected test as required by CP-SAP-21.

3. All ETG personnel will be instructed that they are not responsible for validation of test prerequisites.

4. All Startup Interoffice Memoranda (SIM) will be reviewed to determine if any other directives have been issued which conflict with requirements of the current revision of the Startup Administrative Procedures.

Mr. A. Lancaster is the Issue Coordinator for this item.

B. Output

This item will be considered closed upon completion of the actions described above.

5. Schedule

Action	Target Completion Schedule
4.A.1	Complete
4.A.2	Oct. 8, 1984
4.A.3	Oct. 8, 1984
4.A.4	Oct.15, 1984 (Completion dependent upon review findings.)

COMANCHE PEAK RESPONSE TEAM

ACTION PLAN.

Item Number: III.d

Title: Preoperational Testing

Revision No.	0			
Description	Original Issue			
Prepared by: Issue Coordinator				
Date	10/5/84			
Reviewed by: Review Team Leader				
Date	10/5/84			
Recommended by: Program Manager*				
Date	10/5/84			
Approved by: Senior Review Team				
Date				
*VP-Nuclear Operations for QA/QC Issues				

ITEM NUMBER III.d

Preoperational Testing

1. Description of Issue Identified by NRC

The TRT assessed the preoperational test program by reviewing administrative procedures, interviewing startup personnel, and examining test records, schedules, system assignments, subsystems definition packages, and the master data base.

Problems found with test data are addressed in section III.a of this enclosure. The TRT also found that STEs were not being provided with current design information on a routine, controlled basis, and had to update their own material when they consider it appropriate.

2. Action Identified by NRC

Accordingly, TUEC shall establish measures to provide greater assurance that STEs and other responsible personnel are provided with current controlled design documents and change notices.

3. Background

Actions associated with completed preoperational test data packages are addressed in Action Plan Item Number III.a.1. Startup personnel receive and utilize design documents that can be placed into either of two categories: design documents used for testing activities or design documents used for general information. Design documents used for testing activities are issued to the STE on a controlled basis in that he is required by approved test and administrative procedures to ensure that the latest design information is used. Design documents used for general information are not issued to the STEs on a controlled basis since these documents are not used for conduct of testing or other safety related activities.

With regard to testing activities, it is incumbent upon each STE to obtain the latest design information when required by approved test and/or Startup Administrative Procedures, not when he considers it to be appropriate.

Since the STE is administratively required to use the latest design information for conduct of tests and verification that procedures to be used for testing reflect the current design, it is our understanding that the TRT reviewers were concerned that this requirement imposes undue hardship on the STE at the time he is under pressure to start and/or complete testing activities in that he may not already have the latest design information in his possession. It is also our understanding that this concern does

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(Cont'd)

not express or imply any fault with implementation of the existing requirements. In order to minimize the impact on personnel required to utilize the latest design information during the course of their job performance, TUEC established "satellite" document control centers to locate the latest design information physically as close as practical to the major work locations. Furthermore, a "satellite" document control center is established at the startup offices for convenience. Additionally, TUEC management considers that due to the large number of design documents utilized by startup, it would create a condition adverse to quality and impose undue hardship on the STE if the STE is required to maintain all of the design information issued to him in a controlled condition.

4. TUEC Action Plan

A. Scope and Methodology

1. In order to minimize the potential for oversight that may be caused by schedule pressure to start test activities, Startup Administrative Procedure CP-SAP-21 will be revised to include instructions for the STEs to begin review of test procedures several weeks in advance of the schedule test start date to ensure that the test procedure reflects the design to be tested.

2. Instruct the STE's on the new requirements of CP-SAP-21 to describe the purpose and provide other clarification as required for implementation.

The Issue Coordinator for this item is Mr. R. E. Camp.

B. Output

This potential open issue does not constitute a discrepancy requiring further investigation into root causes, evaluation of safety significance or imply any generic weakness. This item will be considered closed upon completion of the actions described above. Preventative action will be implemented during the normal indoctrination and qualification process for new employees as described by Startup Administrative Procedure CP-SAP-19, "Training/Qualification Requirements for Startup Personnel".

5. Schedule

Action	Target Completion Date
4.A.1	Oct. 15, 1984
4.A.2	Oct. 22, 1984