

STAFF EVALUATION OF

COMANCHE PEAK RESPONSE TEAM

PROGRAM PLAN, REVISION 2

DETAILED COMMENTS/CONCERNS

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## TABLE OF CONTENTS

	Page
ACRONYMS	ii
1.0 INTRODUCTION	1-1
2.0 OBJECTIVES	2-1
3.0 STAFF EVALUATION - DETAILED COMMENTS/CONCERNS	3-1
3.1 Main Report (Sections I to VIII and Attachments 1-5)	3-2
3.2 Design Adequacy Program Plan (Appendix A)	3-9
3.3 Quality of Construction and QA/QC Adequacy Program Plan (Appendix B)	3-15
3.4 Action Plans (Appendix C)	3-18
3.5 CPRT Sampling Approach, Applications, and Guidelines (Appendix D)	3-93
3.6 Procedure for the Classification, Evaluation, and Tracking of Specific Design or Construction Discrepancies Identified by the CPRT (Appendix E)	3-95
3.7 CPRT Interfaces (Appendix F)	3-96
4.0 CONCLUSION	4-1

## ACRONYMS

ASLB - Atomic Safety and Licensing Board

CAT - Construction Appraisal Team

CPRT - Comanche Peak Response Team

CPSES - Comanche Peak Steam Electric Station

DSAP - Discipline Specific Action Plan

FSAR - Final Safety Analysis Report

G&H - Gibbs & Hill

IAP - Independent Assessment Program

ISAP - Issue Specific Action Plan

SER - Safety Evaluation Report

SIT - Special Inspection Team

SRT - Special Review Team

SSER - Supplemental Safety Evaluation Report

SWEC - Stone & Webster Engineering Corporation

TRT - Technical Review Team

TUEC - Texas Utilities Electric Company

TUGCO - Texas Utilities Generating Company

QA/QC - Quality Assurance/Quality Control

## 1.0 INTRODUCTION

In March 1984, the NRC established a program designed to assure coordinated resolution of technical concerns and allegations related to Comanche Peak Steam Electric Station (CPSES) design and construction activities. As a means of executing its programmatic responsibilities, the NRC's Comanche Peak Project formed five Technical Review Teams (TRTs) representing the following disciplines:

- o Electrical/Instrumentation
- o Civil/Mechanical
- o QA/QC
- o Protective Coatings
- o Testing Programs

The TRTs initiated a series of onsite inspections and evaluations in July 1984 and documented the results of these activities in five supplements to the Comanche Peak Safety Evaluation Report.

In response to the concerns and issues identified by the TRTs, Texas Utilities Electric Company (TUEC) formed the Comanche Peak Response Team (CPRT) for the purpose of addressing all TRT concerns. The CPRT, in response to TUEC direction, submitted in October 1984 its initial Program Plan which included Issue-Specific Action Plans (ISAPs).

TUEC, in Revision 2 to the Program Plan, has expanded the CPRT scope to address all issues identified by external sources and has also committed to perform self-initiated evaluations of design adequacy and quality of construction. The expanded scope was submitted to the NRC for review on June 28, 1985.

The Comanche Peak Response Team Program Plan, Revision 2, is intended to address all NRC concerns and demonstrate the quality of design and construction. The Program Plan, as revised, has the following principal objectives:



- o Evaluate and recommend solutions for all issues raised by the TRI, ASLB, SSER, CAT, SRT, SIT, Region IV, Intervenors, Applicant and JAP<sup>1</sup>.
- o Determine root cause and generic implications of each safety-significant deficiency found.
- o Perform self-initiated evaluations for the purpose of assuring that there are no undetected and uncorrected safety significant deficiencies at CPSES.

The CPRT's role through this Program Plan is to resolve issues and determine root cause and generic implications of each safety significant deficiency.

The NRC staff has reviewed the Comanche Peak Response Team Program Plan, Revision 2, and our programmatic concerns were included in our report to Texas Utilities Generating Company (TUGCO) dated August 9, 1985. Detailed concerns and comments are provided in this report. Programmatic concerns discussed in detail in the August 9, 1985, report are not repeated here.

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<sup>1</sup> Acronyms are defined on page ii of this report.

## 2.0 NRC STAFF REVIEW OBJECTIVES

The objective of the staff's evaluation of the CPRT Program Plan is to determine whether the approach set forth by the applicant in the CPRT Program Plan (including scope, structure, and methodology), when implemented satisfactorily, will demonstrate that:

- (1) All concerns related to design and construction adequacy identified by the NRC staff (e.g., TRT, SIT, CAT, SRT, Region IV Inspections and FSAR SERs), CYGNA IAP, ASLB, Intervenors and the Applicant have been satisfactorily resolved,
- (2) Root cause and generic implications of plant deficiencies have been investigated and satisfactorily resolved,
- (3) Self initiated design and construction issues have been satisfactorily resolved, and
- (4) There is reasonable assurance that the design and construction of Comanche Peak Steam Electric Station (CPSES) in all areas of the plant complies with the requirements embodied by the regulations and meets licensing commitments.

The staff was guided by the following principles as the bases for its assessment of the CPRT Program Plan:

- (1) Scope must clearly indicate that the objectives stated above will be met.
- (2) All elements of the design process are addressed.
- (3) Safety significance of specific, generic and programmatic deficiencies are evaluated.
- (4) Root causes and evaluation of generic implications to determine their collective significance are determined.

- (5) Corrective action techniques are specified appropriately.
- (6) Acceptability or exclusion of any system, structure, component, or organization from samples identified in this Program Plan is justified.
- (7) Categorizing and trending of existing and new concerns, determining impact of trends and establishing a program to resolve the implications of trends are included in the Program Plan.
- (8) Qualification and training requirements for the personnel involved in conducting the various review and inspection activities are specified as appropriate.
- (9) The bases for the sampling methods are provided.
- (10) Documentation of program activities is provided.
- (11) Quality assurance of CPRT activities is appropriate.

### 3.0 STAFF EVALUATION - DETAILED COMMENTS/CONCERNS

The NRC staff and its consultants have reviewed the applicant's Program Plan and find that the Plan has been structured in accordance with the principles identified in this document, except as noted in the staff's evaluation of August 9, 1985, and in this evaluation. The Program Plan is comprehensive in scope and provides a structure capable of addressing all existing and future external issues, as well as a set of self-initiated programs intended to demonstrate the adequacy of design and construction at CPSES. The NRC staff's detailed concerns and comments on the Comanche Peak Program Plan, Revision 2, are presented in the following sections of this report. These detailed concerns and comments supplement the programmatic concerns previously transmitted to the applicant. Only those sections of the Plan for which the staff has comments are included in this report. As indicated in our previous report, the staff's concerns and comments must be satisfactorily resolved prior to final approval of the Plan.

### 3.1 MAIN REPORT (SECTIONS I TO VIII) AND ATTACHEMENTS 1-5)

#### INTRODUCTION

The general objectives of the Applicant's Program Plan are provided in this section are the CPRT's Principles, Charter, Methodology, Process and Organization. The foundation on which the remainder of the Plan is built is presented here; all other sections essentially implement the process described in Sections I through VIII.

#### COMMENTS/CONCERNS

1. The criteria for determination of a deficiency is based on safety significance. Appendix E of the Plan defines safety significance as follows:

"The identified design (or construction) discrepancy, if uncorrected, would result in the loss of capability of the affected system, structure, or component to perform its intended safety function. Credit is not allowed for redundancy at the component, system, train or structure level."

A deficiency is the major mechanism used to increase sample size. Appendix A, Attachment 5, addresses Scope Expansion for the Design Adequacy Program (DAP) by stating that it may be necessary to expand the scope to investigate trends, deviations, or root causes. Scope expansion is a requirement only when (a) deficiencies (safety significant concern) exist, (b) one or more deviations exist that would be deficiencies if occurring elsewhere or (c) design activities are affected by identified root causes. However, a deviation which is a violation to licensing commitments may not be safety significant and, therefore, will not result in an increase of the sample size. In addition, the criteria for determination of whether a deviation will be a deficiency can vary from component to component or system to system depending upon the plant event and the component or system function under consideration in the evaluation of the deviation.

The concern is that compliance with the FSAR, Codes, and NRC guidelines and determination of acceptability cannot be assured until the evaluation of each specific component is completed and the acceptance criteria specified. Furthermore, this approach does not appear to be in compliance with the commitment in the letter of transmittal that:

"It should be made unequivocally clear that we consider satisfaction of our FSAR commitments as the first guiding principle in execution of the CPRT program."

For example, in the Piping and Supports DSAP, the Plan states that the purpose is to provide reasonable assurance that all safety significant piping and pipe support deficiencies have been identified and resolved. Attachment 2, which is the Stone and Webster reanalysis effort, does not define acceptance criteria for piping and supports. It does, however, refer to a procedure (CPPP-7) which contains the analysis approach and criteria for Class 2 and 3 piping systems. It is assumed that the acceptance criteria for Class 2/3 piping and Class 1/2/3 supports are specifically included in procedure CPPP-7 and comply with the current FSAR. The third-party review activity for piping is to ensure consistency with the input and conformance to applicable Code and specification acceptance criteria. This is not a specific statement of compliance with current FSAR commitments. In the pipe support area, the third-party review is to ensure that the functional and capacity requirements identified in the piping analysis are met. Again, this does not ensure a commitment to the current FSAR.

It is the staff's position that all acceptance criteria should be the current licensing commitments. Where licensing commitments cannot be met, the proposed acceptance criteria should be defined and the applicant should submit a request for modification to current commitments. The definition of acceptance criteria prior to Plan implementation is critical in order for the applicant to avoid performing extensive work which may need to be repeated if the staff finds the acceptance criteria unacceptable. For those areas for which criteria cannot be established at this time, the



Plan should include tasks which are aimed at quickly providing the necessary input to make appropriate judgments and to assist in establishing criteria.

Augment the Plan to identify areas which:

- (1) will not meet licensing commitments, or
  - (2) acceptance criteria are not determinable at this time.
2. Corrective action for the resolution of only external source issues by the CPRT is provided on page 2. The provision of corrective action by the CPRT is not explicitly stated in this section for root cause effects or generic implications of external source issues nor for deficiencies uncovered in the self-initiated program. For example, page 8 indicates the CPRT is responsible for specifying corrective action yet it does not appear on the list of items covered by the CPRT Program Plan (page 3). The responsibility for providing corrective action should be uniform throughout the Plan. The CPRT should provide corrective action to TUGCO in the form of a number of acceptable alternatives. This would allow TUGCO to select the most appropriate solution for their current situation. In order to provide consistency, revise the CPRT Program Plan to define corrective action for all deficiencies uncovered in implementing the Plan. In addition to defining corrective action, the CPRT should provide third-party review of the corrective action because of the CPRT's familiarity with the issues. Revise the Plan to clearly define this third-party review responsibility.

Also, the staff has indicated in its August 9, 1985 evaluation the need for the applicant to augment the Program Plan to describe the criteria and the CPRT overview role for assuring that the CPSES project will satisfactorily implement CPRT-recommended corrective actions. This is necessary to assess the overall adequacy of TUGCO recovery efforts and the finished Quality Program. The Applicant's Program Plan does not convey that all recovery, rework, and other corrective action activities that are

presently ongoing at the site are being appropriately integrated. Revise the Plan to describe the criteria and the CPRT overview role for assuring implementation of corrective action.

On page 12 of 22, Item III.K, paragraph 4 describes the implementation of CPRT-recommended corrective action. Since the Non-Conformance Report (NCR) and corrective action systems are an issue under review by the CPRT in ISAP VII.a.2, there is a concern that corrective action taken in any area prior to the satisfactory resolution of this ISAP may result in inconsistencies. The CPRT should review the impact of establishing corrective actions prior to the resolution of ISAP VII.a.2. Provide the results of this review.

On page 5 of 22, Items II and III contain an apparent conflict as to which organization is responsible for specifying corrective actions. Item II indicates TUGCO will define corrective actions to the satisfaction of the CPRT while Item III indicates the CPRT will specify corrective actions. The organizational responsibilities must be clearly defined and adhered to during implementation of the Plan. Resolve this inconsistency.

3. The training of personnel working on CPRT activities is discussed in the CPRT Program Plan. However, there is no discussion that the training programs utilized will be controlled and subject to review. Further, the Plan does not indicate that personnel training will be documented. Describe the process for documenting, controlling, and reviewing training programs utilized by the CPRT and the process for documenting that personnel working on CPRT related activities have received required training.
4. On page 3 of 22, the third Objective states that when completed, "the results will be extrapolatable to all design criteria, disciplines, processes and organizations involved in the design of the safety significant aspects of the plant that is not designed by Westinghouse, the NSSS vendor." This is a broad statement and does not provide the basis for the extrapolation. Provide a more detailed discussion of the basis and technical justification for such a statement.



5. On page 4 of 22, Item II states that TUEC is responsible for determining where and to what extent Unit 2 incorporates the lessons learned from CPRT actions on Unit 1. However, the details of how CPRT actions address Unit 2 are not provided in the Plan. Provide the basis and rationale for incorporating Unit 1 actions in Unit 2, and identify the procedure to be used where TUEC does not intend to adopt for Unit 2 the CPRT recommendations for Unit 1.
6. On page 6 of 22, Item III.A, the Plan states that each external source issue will be thoroughly evaluated, even if a preliminary assessment indicates that an issue has no safety significance. However, the Plan does not define the approach to be used in evaluating each of these external source issues after preliminary assessment of no safety significance. The Plan should provide the approach to be used in the overall evaluation of these external source issues.
7. On pages 6 and 7 of 22, Items III.C and D identify the principles of the Program Plan pertaining to root cause determination and generic implication evaluation that are required to ensure that the CPRT objectives are satisfied. The CPRT objectives of the Program Plan, however, are not complete in these areas since trending of deviations has not been addressed as indicated previously on page 2 of 22, Item I. Modify the Plan to define trending of deviations and include it as a requirement to ensure satisfactory completion of the objectives, or justify its omission.
8. On page 9 of 22, Item III.I states that sampling techniques are used in many of the CPRT ISAPs and DSAPs. This section further defines the sampling method, basis for sampling and rejection criteria. However, a review of the individual ISAPs and DSAPs reveals that they do not explicitly define the sampling method, basis, and rejection criteria as stated in this section. The Plan should be modified to insure that individual ISAPs and DSAPs are consistent with the sampling requirements of this section.

9. On page 13, the Design Adequacy Program (DAP) Plan provides for (a) complete reanalysis of a given design area rather than addressing specific issues, and (b) proceeding directly to hardware modifications rather than evaluating existing hardware by analysis. The staff is concerned that when a DAP topic proceeds directly to a hardware modification, the issues which led to that decision will not be evaluated to assure that program or procedural deficiencies do not exist elsewhere. The CPRT should provide a process which, upon implementation, would address this concern, or justify its omission.
10. The following general comments concern the comparison of compliance of individual ISAPs with the requirements presented in Attachment 3 of the Main Report. These comments involve the content of the ISAPs and not the format. Correct the ISAPs to include:
- o Procedures are required by Attachment 3 to implement action, yet these actions are not identified in all ISAPs.
  - o Confidence level definitions are not consistent.
  - o Sampling plans and bases are not always defined or consistent.
  - o Acceptance standards criteria against which revisions are being performed are not consistently provided in all ISAPs.
  - o Decision criteria are not consistent, are only available in some plans, are marked N/A in others and, in general, do not describe the criteria for closing out the item.
  - o Other participants referred to in the action plans should be identified.
  - o Interfaces between disciplines and interdependent activities are not explicitly defined.

### 3.2 DESIGN ADEQUACY PROGRAM PLAN (APPENDIX A)

#### INTRODUCTION

The Design Adequacy Program Plan (DAP) has been developed by the CPRT to evaluate and resolve a number of concerns regarding the adequacy of the CPSES design and design process. This Appendix provides the methodology for execution of Discipline Specific Action Plans (DSAPs) which are the basis for the implementation of the DAP. DSAPs are organized in accordance with the design disciplines and include (1) civil/structural, (2) piping/supports, (3) mechanical systems and components, and (4) electrical/instrumentation and control systems and components.

#### COMMENTS/CONCERNS

1. In general, the DSAPs which follow the methodology of this Appendix provide a comprehensive approach to adequately address the design and design process issues raised by external sources. However, in order for the CPRT to adequately investigate the root cause of each safety significant deficiency found, the staff finds that there needs to be a mutually agreeable definition of the term "safety significant". The use of "safety significant" as currently defined for all discipline issues is unacceptable. See comment number 1 of the Main Report (Sections I to VIII). The Program Plan should be modified to provide an acceptable definition for "safety significant".
2. It is not completely clear in the DAP who is responsible for recommending corrective actions, implementing the corrective actions, and following up the implementation of the corrective actions. Provide further information to specifically address how the above responsibilities are handled with respect to the piping/support, cable tray/conduit support, and self-initiated efforts. See comment number 2 of the Main Report (Sections I to VIII.)
3. The end products of the DAP will be (1) Results Reports for all Category 1, 2 and 3 DSAPs, and (2) a final Design Adequacy Program Report documenting a Collective Evaluation, Appendix A should be

modified to confirm that end products as they are completed will be issued concurrently to the appropriate parties (applicant, intervenors, and NRC staff).

4. Attachment 1, page 18, identified "Check of Supplier Documentation" as one of the CPRT Program Plan activities during the evaluation of design QA/QC. However, the Attachment 4 matrices, Page 22 through 29 do not include this activity. Reconcile this difference.
5. Attachment 4, page 23, does not indicate design output review for (1) system alignment/switchover, (2) flow requirements and (3) stored volume. Provide justification for this omission.
6. Attachment 4, page 23, indicates a review area on heat removal capability. However, since AFW does not include heat exchangers, design adequacy on heat removal capability can not be judged by review of the water makeup supply to steam generators. Identify other provisions made for addressing this review area.
7. Attachment 4, page 24, does not indicate design output review for (1) single failure/FMEA, (2) class 5 piping, (3) High Energy Line Break, (4) HVAC and (5) Cooling Water. Additionally, station air is not included in the review area of Support Systems. Provide justification for these omissions.
8. Attachment 4, page 25, does not include transformer characteristics review. Provide justification for this omission.
9. Attachment 4, page 26, does not indicate design output review for (1) Diesel Generator (DG) Fuel Oil Transfer, and (2) DG Cooling Water. Provide justification for this omission.
10. Attachment 4, page 26, does not indicate the review scope for Status Indication, as shown in Appendix C Section XI, Page 25. Resolve this inconsistency.

11. Attachment 4, page 27, does not indicate the review scope for High and Moderate Energy Line Break, as shown in Appendix C, Section XI, Page 26. Resolve this inconsistency.
12. Attachment 4, page 28, does not include cable sizing in the Electrical Characteristics review area. The Control area does not include design output review for the Control Process. Provide justification for these omissions.
13. Attachment 4, page 29, indicates that the electrical and instrumentation support systems for the AFW are those identified for the Power Supplies, Instrumentation and Controls System and Components Initial Review Matrix. This reference could be in error, since support systems for AFW are not those of the power supplies and their instrumentation and controls. Resolve this inconsistency.
14. Figure 1 does not appear to make provisions for the revision of design documents when either safety or non-safety significant deficiencies are identified. The staff believes that an up-to-date set of design documents is important for determining any future modifications to plant systems. Provide justification for the lack of such provisions.
15. Our review of the Program Plan could not find the information with respect to the questions listed below. Provide the information requested.
  - (a) Will preliminary records be maintained of design adequacy findings before entries are made in the design verification checklist?
  - (b) Will CPRT Team Leaders, Coordinators, or members of the Senior Review Team review potential discrepancies before they are documented?
  - (c) Will there be any communication with Gibbs & Hill or other organizations responsible for the design of record before discrepancies or the action plan results are listed?



- (d) What is the document cutoff date for the self-initiated review?
  - (e) Will the documented results of the exploratory phase of the Program Plan implementation be provided?
  - (f) Will the third-party consultants, individually and organizationally, be considered as part of the normal regulatory process and, therefore, required to report all safety related information under 10 CFR 50.55(e) and 10 CFR Part 21?
16. Section 1 describes the three components of the Design Adequacy Review: (1) evaluation of concerns raised by the External Source Issues; (2) investigation of root causes, generic implications and safety significance of the deficiencies identified by the External Source Issues; and (3) self-initiated evaluation.
- This Section indicates that upon completion of the first two components of the Design Adequacy Review, the CPRT will be able to assess the adequacy of the design at CPSES, the process by which that design was accomplished, and the effectiveness of implementation of the design QA program. The staff does not believe that such a statement can be made based solely on the results from the first two components of the Design Adequacy Review. The staff believes that the self-initiated evaluation is necessary in order to fully assess the adequacy of the design. The Program Plan should be amended to reflect that the execution of the proposed three components of the Design Adequacy Program Plan is necessary before a conclusion can be reached about the adequacy of the design, its process and QA program.
17. Section 4.0, "Responsibilities," Attachment 6, Page 43, describes the role of the Programmatic/Generic Implications Coordinator, who is responsible for evaluating deviations and deficiencies received from the design discipline review teams or External Sources. Section II, page 5, of the Program Plan states that the construction QA/QC and Design Adequacy Programs will consider the root cause and generic implications of concerns which have been raised and subsequently

closed out by the External Source that raised the issue. This activity is not described in Appendix A Section 4.0, nor is it depicted in Attachment A Figure 2. Justify this omission.

18. On page 4, the term "Balance Of Plant" (BOP) appears. This is a common term used in nuclear power plant design which sometimes varies from plant to plant. Provide the definition of BOP as used in this Plan.
19. On page 13, Item 4, the function of the Gibbs & Hill design review is not clear. Provide a clear statement regarding the function of G & H, as well as: (1) a description of how deviations or deficiencies discovered by G&H will be handled; (2) a description of the interfaces between G&H and SWEC; and (3) a description of the interface between G&H and the CPRT.
20. Attachment 4, multidiscipline considerations, does not include interfaces between Civil/Structural, Mechanical, Piping, Supports, and Electrical disciplines. Justify this omission.

Multi-discipline considerations are limited to HELB and Seismic Qualification. Provide justification for excluding consideration of other multi-discipline items such as Category I tanks and concrete component supports.

Design output review is not indicated for a number of activities for which it should be requirement; (e.g., support system, seismic qualification, etc.) Justify this omission.

21. Attachment 6, page 40, paragraph 3.2 states that some generic issues can be defined using similarities among identified deficiencies. Provide more detail on how this will be accomplished and define the similarities that are of importance.

22. Review of field changes are identified in the block diagram of Attachment 1. However, there are no details as to how the review will be conducted. Provide a clarification for this aspect of your review.
23. The Plan should provide more details regarding seismic and environmental equipment qualification of safety-related components.



### 3.3 QUALITY OF CONSTRUCTION AND QA/QC ADEQUACY PROGRAM PLAN (APPENDIX B)

#### INTRODUCTION

This appendix describes the scope, methodology and structure that will be used to accomplish the three components of the Plan: (1) evaluation of concerns highlighted by the External Source Issue; (2) determination of root causes, generic implications and safety significance of the deficiencies identified by the External Source Issues; and (3) self-initiated evaluation.

#### COMMENTS/CONCERNS

1. Section II, Page 7, paragraph 2, states that "Categories of safety-related hardware constructed using similar safety-related work activities will be placed into reasonably homogeneous populations (based on similarity of construction process, similarity of components, or both), the adequacy of which can be verified using similar reinspection techniques and/or documentation review activities." The Plan states that the final list of homogeneous hardware populations will be defined after the engineering drawings and specifications have been researched to ensure homogeneity of each population. The staff believes that researching specifications and drawings to ensure homogeneity of hardware populations is unnecessary since populations will be selected on similarity of construction work activities.

Section 4.1.1, "Establish Populations," Page 3 of Action Plan VII.c of Appendix C states that the process to establish homogeneous hardware populations is specified in a QA/QC Review Team instruction. The staff review of this instruction indicates that it does not but should include the necessary basic information to permit an independent evaluation of how the homogeneous hardware populations are to be established.

The section titled APPLICATIONS, Page 1 of Appendix D indicates that the construction process produces hardware by execution of numerous relatively uniform construction activities. No other information has been presented in this section, Appendix D, or the CPRT Program Plan describing how homogeneous hardware populations are to be established.

The basis for establishing homogeneous hardware populations has been a subject of concern expressed in various meetings with the members of the CPRT. The staff expected that this subject would be properly addressed in the Program Plan. However, it remains unexplained. The staff considers the establishing of the hardware populations to be the main foundation of the self-initiated Quality of Construction and Construction QA/QC Adequacy Program Plan. The basis used to form this foundation must be clearly stated.

Include the basis and rationale for establishing homogeneous hardware populations. The Plan must include a step by step explanation of how a homogeneous hardware population is formed based on the similarity of the construction process.

2. The staff assumes that a homogeneous population of cables includes the following types: 6.9 Kv cables, 480 V cables, thermocouples, and others. Explain the basis for concluding that a given type of cable has been adequately installed even though none of this type of cable was selected as part of the random sample of all cables in the population. Furthermore, describe the construction work process for cables and explain how it will be determined that it was the same for all types of cables from the time the first cable was installed at CPSES until now.
3. CASE's first critique of applicant's Comanche Peak Response Team (CPRT) Plan submitted to the Atomic Safety and Licensing Board on August 14, 1985, contains numerous concerns on the appropriateness of

welding and welded construction in pipe supports. The applicant should address the CASE comments on welding and justify those items which the applicant concludes are not applicable.

4. Section 11, page 5 of 15, defines the term inaccessible and provides examples such as piping, reinforcing steel, and conduit embedded in concrete. Provide a complete listing of these inaccessible hardware components or processes and justify any exclusions or substitutions.

### 3.4 ACTION PLANS (APPENDIX C)

Issue-Specific Action Plan  
Item No. 1.a.3 Rev. 3

TITLE BUTT-SPLICE QUALIFICATION

INTRODUCTION This ISAP addresses additional staff recommendations with respect to the use of butt splices. These recommendations included procedures to verify operability, qualification, and staggering or separation of butt splices.

COMMENTS/CONCERNS

1. Section 4.2.2, page 3, does not include the following item as a responsibility of the Electrical Team: Review of procedures for retraining of craft and inspection personnel. Justify this omission.

Issue-Specific Action Plan

Item No. 1.b.1, Rev. 3

TITLE FLEXIBLE CONDUIT TO FLEXIBLE CONDUIT SEPARATION

INTRODUCTION This ISAP addresses the adequacy of less than 1 inch separation between redundant safety conduits or between safety and non-safety conduits inside panels.

COMMENTS/CONCERNS

1. The concerns highlighted in this ISAP, as well as ISAP 1.b.2, may be indicative of a generic problem regarding the interpretation of the electrical separation criteria.

Examine the generic implications in this case and determine whether to classify these concerns as External Source Issues to be further evaluated as part of the Design Adequacy Program Plan.

2. The concerns highlighted in this ISAP and others pertain to the electrical and structural disciplines and they may be indicative of a generic problem in all disciplines regarding lack of analyses to substantiate the adequacy of designs.
3. Section 4.2.2, Part 5, does not but should include the following items as a responsibility of the Electrical Team: (1) Review of procedures for retraining craft and inspection personnel, and (2) review of separation criteria and analysis prepared by Gibbs & Hill.

Issue-Specific Action Plan

Item No. 1.b.2, Rev. 3

TITLE FLEXIBLE CONDUIT TO CABLE SEPARATION

INTRODUCTION This ISAP addresses the adequacy of direct contact or no separation between safety or non-safety-related cables and safety-related conduit associated with the other redundant safety train.

COMMENTS/CONCERNS

1. See ISAP No. 1.b.1, Comments/Concerns, No. 1.
2. Section 4.3, page 3, of this ISAP, as well as ISAPs 1.b.3, 1.b.4, and 1.c, states, in part, that the participants in the implementation of these action plans meet the personnel qualification requirements of the CPSES Quality Assurance Program as applicable.

It is the staff's concern that the implementation program found by the TRT regarding the CPSES Quality Assurance Program has not yet been corrected and the participants in the implementation of these action plans are being qualified against the old questionable requirements. Justify using the CPSES Quality Assurance Program in view of this concern.

Issue-Specific Action Plan  
Item No. 1.b.3, Rev. 3

TITLE CONDUIT TO CABLE TRAY SEPARATION

INTRODUCTION This ISAP addresses the adequacy of a 1-inch separation between redundant safety cable trays and conduits.

COMMENTS/CONCERNS

1. See ISAP Item 1.b.2, Comments/Concerns, No. 2.

Issue-Specific Action Plan  
Item No. 1.b.4, Rev 3

TITLE      BARRIER REMOVAL

INTRODUCTION    This ISAP addresses two instances where barriers used to separate redundant devises and cables were found missing.

COMMENTS/CONCERNS

1.    See ISAP, Item No. 1.b.2, Comments/Concerns, No. 2.



Issue-Specific Action Plan  
Item No. 1.c Rev. 2

TITLE      ELECTRICAL CONDUIT SUPPORTS

INTRODUCTION

This ISAP addresses the adequacy of nonsafety-related conduit support installations in seismic Category I areas of the plant. They 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.

COMMENTS/CONCERNS

1. Section 4.1.2.5 defines a reject as "any conduit runs predicted to damage safety-related targets to failure." On page 5, Section 4.1.2.1, 4th paragraph, any conduit run is a candidate for inclusion in the engineering sample if it makes 5 out of 9 attributes. One of these attributes (Attribute 1) is associated with damage to targets. Since 4 other attributes would be required to include a specific conduit which meets attribute 1, then the sample may not include all conduits which have the potential for damage to safety-related targets. Resolve this inconsistency.
2. On page 7, Section 4.1.2.3, 3rd paragraph, it states that "each support will be considered independently in the vertical and transverse directions." The conduit clamps, however, may restrain the conduit in three directions as stated in DSAP VIII, Table VIII-3, Item 11. Reconcile this discrepancy.
3. Section 4.1.2.5 only mentions looking at the rejects if the number of rejections is greater than two. No mention is made of looking at root cause or generic implication of these two rejects. Provide justification.
4. See ISAP, Item No. 1.b.1, Comments/Concerns No. 2.
5. See ISAP, Item No. 1.b.2, Comments/Concerns No. 2.

## Issue-Specific Action Plan

Item No. I.d.1 Rev. 1

### TITLE      QC INSPECTOR QUALIFICATIONS

INTRODUCTION This ISAP addresses the Training Qualification Certification and Recertification for all Electrical QC Inspectors, all current ASME Inspectors and current Non-ASME Inspectors.

### CONCERNS/COMMENTS

1. Although this ISAP addressed electrical inspectors and current ASME and non-ASME inspectors, the NRC's concern regarding the QC inspector training, qualification, and certification program was not limited to current personnel.

In Section 4.1.1.2, Page 7, the first paragraph states: "Inspectors whose qualifications are found to be acceptable will be dispositioned and documented without further action." Since the TRT found examples of deficient inspections performed by qualified inspectors, a sampling of the previous work of qualified inspectors should be included in this Action Plan. Provide justification for this omission. This also applies to inspectors whose qualifications were found acceptable in Phase I (as described in Section 4.1.1.1 of this ISAP).

2. Page 9, Section 4.1.1.3, the first two paragraphs refer to the agreement rates between the original inspection and the reinspection for objective and subjective type attributes.

Provide clarification or definition of objective and subjective type attributes and explain if the inspection check lists will delineate the difference between the types of attributes.

3. Section 4.7.1 states that the results of this Action Plan will form a portion of the input to Action Plan VII.a.1 Quality Control Inspection. Action Plan VII.2.1 is entitled Material Traceability. Correct this error.

Issue-Specific Action Plan  
Item No. I.d.2 Rev. 1

TITLE      GUIDELINES FOR ADMINISTRATION OF QA INSPECTOR TEST

INTRODUCTION This ISAP primarily addresses the Training and Certification Program for Electrical Inspectors. In light of potential generic implication for other QA Inspector Training and Certification, this ISAP addresses all CPSES Inspectors.

COMMENTS/CONCERNS

1. Revise the ISAP to include the items identified in SSER 11, Section 4.3, page P-28, or justify their omission. These items must be added to Section 4.1.1, page 3, items to be considered during Special Evaluation Team (SET) review of the procedures.
2. Section 4.1.2 describes that the objective of Phase II is to evaluate the recommendations submitted by SET. The improvement recommendations will be transmitted to TUEC with copies transmitted to the QA/QC Review Team Leader (RTL). This interface action implied in the second sentence is erroneous. The SET interfaces with the RTL, not with TUEC. The recommendations should be transmitted to TUEC by the QA/QC RTL not by the SET. The SET overview of TUEC's action should be added to this paragraph. Provide clarification.

Issue-Specific Action Plan  
Item No. 11.a Rev. 2

TITLE      REINFORCING STEEL IN THE REACTOR CAVITY

INTRODUCTION

This ISAP addresses the civil/structural concern regarding the justification for reinforcing steel which was omitted in a reactor cavity concrete placement between the 812-foot and 819-foot 1/2-inch elevations.

COMMENTS/CONCERNS

1. The logic diagram on page 7 appears to contain errors. For instance, if the third-party review is considered "unacceptable", a results report may be written after a broadened review, without subsequent third-party review. Also, development of additional documentation, as required, may be performed without third-party review; a condition which is inconsistent with Section III.k of the Program Plan. Section III.k states, in part:

"Analyses and calculations will be performed either by an organization not previously responsible for the technical subject area for the CPSES project or by the originating organization with an overview of the analysis/calculation being performed by a third-party organization."

Resolve these inconsistencies.

2. See ISAP, Item No. I.b.1, Comments/Concerns No. 2.

Issue-Specific Action Plan

Item No. 11.b Rev. 2

TITLE      CONCRETE COMPRESSION STRENGTH

INTRODUCTION

This ISAP addresses the civil/structural allegation of possible falsification of concrete strength tests.

COMMENTS/CONCERNS

1. On page 3, Section 4.1, the 4th paragraph appears to be inconsistent with the preceding paragraph and accepted statistical practice. Clarify this apparent inconsistency in the last two sentences.
2. On page 10, the logic diagram provides a path from "unacceptable" to "consideration of additional alternatives" to "prepare results report". Additional alternatives should lead to revision of the Plan as stated on page 9, Section 4, last paragraph. The logic diagram appears inconsistent with the intent of the ISAP. Provide clarification.

Issue-Specific Action Plan

Item No. 11.d Rev. 2

TITLE      SEISMIC DESIGN OF CONTROL ROOM CEILING ELEMENTS

INTRODUCTION

This ISAP addresses the civil/structural allegation that the field-run conduit, drywall, and lighting installed above the control room were classified nonseismic and were thus inadequately supported.

COMMENTS/CONCERNS

1. On page 8, Section 4.1.3, reference is made to the Unit 1 damage study. It is not clear whether there is a Unit 2 damage study or whether the two Units are identical so as to make the results of the Unit 1 study applicable to Unit 2. Provide clarification or justification for the omission of a Unit 2 damage study.
2. On pages 17 and 18, the logic diagram indicates that the issuance of construction drawings for control room ceiling modifications can be made with no third party involvement. This is inconsistent with Section III.k of the Program Plan and Section 4.1.1.5 of the ISAP. Resolve or justify this inconsistency.
3. See ISAP, Item No. I.b.1, Comments/Concerns, No. 2.

Issue-Specific Action Plan  
Item No. 11.e Rev. 2

TITLE REBAR IN THE FUEL HANDLING BUILDING

INTRODUCTION

This ISAP addresses the civil/structural allegation of unauthorized cutting of rebar in the fuel handling building.

COMMENTS/CONCERNS

1. Page 3, 2nd paragraph, provides the method which will be used to determine cut rebar when the embedment depth is found to be greater than the clear cover.
2. In the logic diagram on page 7, the confirmation of rebar cutting should occur before the analysis of the as-built condition. Also, the logic diagram has no branch to account for the possibility that the design review may show the mat to be deficient. Correct these deficiencies.



Issue-Specific Action Plan  
Item No. III.a.1, Rev. 3

TITLE      HOT FUNCTIONAL TESTING (HFT) DATA PACKAGES

INTRODUCTION

This ISAP provides for the CPRT review of the Hot Functional Test Data Packages and Preoperational Test Data Packages to assure that FSAK commitments are satisfied.

COMMENTS/CONCERNS

1. Section 2.0 states, in part, that TUEC shall review all preoperational tests to ensure that there are no other instances where test objectives were not met or prerequisite conditions were not satisfied. Section 4.1.6 addresses a sampling plan for evaluation of preoperational tests. Justify or resolve this inconsistency.
2. Page 7, Section 4.0, provides a narrative description of the scope of the Plan; whereas it appears that the actual scope of the Plan is given in Section 3.0, Background. Justify this inconsistency.
3. On page 7, the first paragraph states that approval levels for TPDs will be evaluated further during the conduct of Section 4.0 of the CPRT Action Plan. Section 4.0 does not address approval levels. Revise the Plan to include the evaluation.
4. Page 12, Section 4.6, refers to Attachment 1 criteria entitled Guidelines. Clarify whether Attachment 1 is mandatory criteria to be applied to the review or is to be used as a guide.



5. On page 6, the third paragraph addresses preoperational tests and states in part:

The determination of the practicality of proceeding with a pre-operational test without specific permanent equipment installed is the responsibility of TUEC management. Retest for these cases is specified with respect to the objective of the preoperational test, function of the equipment and knowledge of other program requirements, such as surveillance tests, and future plant conditions required for completion of the initial test program (preoperational and initial startup) by Regulatory Guide 1.68, Revision 2.

"Retest for these cases is specified with respect...." is interpreted by the staff to mean that the missing component can be bench tested and then installed in the system and the test objectives are met without a system preoperational retest.

This practice could give rise to the potential problem of a component being installed in reverse orientation. Clarify or justify the condition addressed in the sentence in question.

## Issue-Specific Action Plan

Item No. V.a Rev. 1

TITLE      INSPECTION FOR CERTAIN TYPES OF SKEWED WELDS IN NF SUPPORTS

### INTRODUCTION

This ISAP addresses the adequacy of inspection for certain types of skewed welds in NF supports.

### COMMENTS/CONCERNS

1. Page 2, Section 3.1 states that Rev. 12 of Procedure QI-QAP-11.1-28, dated September 3, 1982, established inspection methodology for type 2 skewed welds. The TRT review indicated that only type 1 skewed welds were addressed by this procedure. Resolve this inconsistency.
2. Page 3, Section 3.1 of the text states that procedure QI-QAP-11.1-26 for inspection of piping was used directly or by reference to define inspection methods for type 2 skewed welds. The TRT could find no evidence, nor was provided any documentation by TUGCO, to substantiate this statement. Provide justification for the above statement.
3. On page 5, Section 4.1.3, the sample plan and the definition of a reject are incompatible as currently written. Since this ISAP addresses a quality control (inspection) issue, the acceptance or rejection of the sample should be based on the subsequent inspection and not on analysis. Resolve this incompatibility.
4. Page 5, Section 4.2, of the plan does not mention QA/QC involvement. Because inspections are a QA/QC function, QA/QC should be called out in the participant's section. Resolve this omission.

## Issue-Specific Action Plan

Item No. V.b Rev. 1

TITLE      IMPROPER SHORTENING OF ANCHOR BOLTS IN STEAM GENERATOR UPPER LATERAL  
SUPPORTS

### INTRODUCTION

This ISAP addresses the improper shortening of the bolts which are threaded into blind threaded holes in embedded plates for the steam generator upper lateral restraints.

### COMMENTS/CONCERNS

1. On page 2 of Section 4.0, the Action Plan addresses only the bolts and does not address other related portions of the restraint, such as beams, baseplates and shim plates. Since TUEC could not provide the TRT with any installation records (i.e., material data, QA inspection documents, final as-built drawings, purchase orders, etc.) for these restraints (not just the bolts), which is a potential violation of 10 CFR 50, Appendix B, Criterion XVII, the ISAP should specify what actions are planned to verify the proper installation of all portions of the restraint.
2. On page 9, the logic diagram could better show the "flow" of activities; for instance, two leads enter the activity "perform UT inspection of steam generator upper lateral restraint bolts to determine bolt engagements;" however, no activities follow. Revise logic diagram to reflect the actual "flow" of activities.
3. Verify that concerns stated in Item 1 are not a generic problem.

## Issue-Specific Action Plan

Item No. V.c Rev. 1

TITLE      DESIGN CONSIDERATION FOR PIPING SYSTEMS BETWEEN SEISMIC CATEGORY 1  
AND NONSEISMIC CATEGORY BUILDINGS

### INTRODUCTION

This ISAP addresses the FSAR commitment to provide isolation between the seismic Category 1 piping systems and the nonseismic Category 1 piping systems by separation barrier or restraint.

### COMMENTS/CONCERNS

1. This ISAP as written does not require specific procedures to be prepared by SWEC to preclude the reoccurrence of this issue during the Pipe Stress and Pipe Support Qualifications (Item No. 1X, Appendix C, Attachment 2). The staff review of this ISAP concludes that procedures should be written for this ISAP. Provide justification for the omission of written procedures.
2. Page 3, Section 3.2 states that the root cause and generic implications will not be identified as part of the Action Plan. The staff concludes that it is important to identify root cause since it may also affect other action plans. Provide justification for the omission of root cause and generic implications.
3. On page 4, Section 4.1.4a, it is unclear to the staff what type of systems would fall into group "a." Identify what ASME Class 1,2 or 3 systems are neither high nor moderate energy.

4. Page 4, Section 4.1.4, has omitted 4.1.2 from the Results Report. Include 4.1.2 in the Results Reports or justify its omission.

## Issue-Specific Action Plan

Item No. V.d Rev. 1

TITLE      PLUG WELDS

### INTRODUCTION

This ISAP addresses the adequacy of uncontrolled plug welding of misdrilled holes in pipe supports, cable-tray supports, and base plates in Units 1 and 2.

### COMMENTS/CONCERNS

1. The sample plan (Section 4.1) and the definition of a reject are incompatible as currently written. Since this ISAP addresses a quality control (inspection) issue, the acceptance or rejection of the sample should be based on the subsequent inspection and not on analysis. The criterion for expanding the sample should also be based on the same criterion. Reconcile these differences.
2. There is an uncertainty of whether a plug weld which is covered by paint can be detected. Factor this uncertainty into the basis of the sample size. This will have the effect of increasing the sample size. This uncertainty may be minimized by prior testing (i.e., obtaining a sample of structural steel which has been plug welded and then painted in accordance with painting standards. This steel can then be inspected by the QC inspectors to determine the percentage of welds which would be missed).

3. The first sentence, Section 3.1.1, Page 2, needs modification. Since some plug welds were found; (i.e., in cable tray supports) the allegation was substantiated and the effects of unauthorized plug welds should be evaluated with respect to their locations in piping and cable tray supports. (See SSER #10, Category #4). The sentence is misleading and should be either deleted or modified.
4. The last sentence of the first paragraph of Section 3.1.1, page 2, contains an incorrect reference. The undocumented plug welds found in the three cable tray supports were reported in "Addendum to page 27 of NRC Staff testimony on welding fabrication concerns raised (allegers name withheld)" which was entered in the ASLB hearings approximately April 1984. Correct this reference.
5. On page 8, Section 4.1.4, clarify if the November 10, 1980, date refers to cable tray supports, to base plates, or to both. Also, identify the documentation on which the statement is based.



## Issue-Specific Action Plan

Item No. V.e Rev 1

TITLE      INSTALLATION OF MAIN STEAM PIPES

### INTRODUCTION

This ISAP addresses the adequacy of specifications and procedures for the support of the main steam line during flushing and for the use of temporary supports for piping and equipment in general. Further, this ISAP addresses the assessment of the conditions of the main steam piping subsequent to final support installation.

### COMMENTS/CONCERNS

1. The effects of the loads imposed on the steam generator nozzles as a result of pipe repositioning prior to final welding have not been included in the evaluation of the steam generator nozzles (or other affected nozzles). This is inconsistent with paragraph NB/NC/ND-3623.1 of the ASME BPVC, Section III. Provide justification for this omission and inconsistency.
2. On page 1, Section 2.0, the 3rd and 4th paragraphs, reference paragraphs 2.2.1 through 2.2.3. There are no paragraphs listed as such. Provide clarification.

3. On page 5, Section 4.2, 7th paragraph, "highly stressed" is not specific enough criteria to identify locations for reinspection. Provide specific criteria (such as stress level) that, if exceeded, would require reinspection.
4. On page 6, Section 4.2, the last paragraph does not include a review of steam (or other gaseous) piping systems subjected to flushing and hydrostatic testing. The staff concludes that since this concern was raised due to a flushing operation on the M.S. system, a review of other systems requiring flushing or hydrostatic testing should also be included in the Plan. Provide justification for not including all systems that require flushing or hydrostatic testing (See NB/NC/ND 3623.1 of ASME BPVC, Section III) in this Plan.

## Issue-Specific Action Plan

Item No. V.e Rev 1

TITLE      INSTALLATION OF MAIN STEAM PIPES

### INTRODUCTION

This ISAP addresses the adequacy of specifications and procedures for the support of the main steam line during flushing and for the use of temporary supports for piping and equipment in general. Further, this ISAP addresses the assessment of the conditions of the main steam piping subsequent to final support installation.

### COMMENTS/CONCERNS

1. The effects of the loads imposed on the steam generator nozzles as a result of pipe repositioning prior to final welding have not been included in the evaluation of the steam generator nozzles (or other affected nozzles). This is inconsistent with paragraph NB/NC/ND-3623.1 of the ASME BPVC, Section III. Provide justification for this omission and inconsistency.
2. On page 1, Section 2.0, the 3rd and 4th paragraphs, reference paragraphs 2.2.1 through 2.2.3. There are no paragraphs listed as such. Provide clarification.

3. On page 5, Section 4.2, 7th paragraph, "highly stressed" is not specific enough criteria to identify locations for reinspection. Provide specific criteria (such as stress level) that, if exceeded, would require reinspection.
4. On page 6, Section 4.2, the last paragraph does not include a review of steam (or other gaseous) piping systems subjected to flushing and hydrostatic testing. The staff concludes that since this concern was raised due to a flushing operation on the M.S. system, a review of other systems requiring flushing or hydrostatic testing should also be included in the Plan. Provide justification for not including all systems that require flushing or hydrostatic testing (See NB/NC/ND 3623.1 of ASME BPVC, Section III) in this Plan.

## Issue-Specific Action Plan

Item No. VI.b Rev. 1

TITLE      POLAR CRANE SHIMMING

### INTRODUCTION

This ISAP addresses the miscellaneous allegation which identifies problems with the shimming of the polar crane rail and rail support. As a result of the TRT investigation, a number of additional issues, such as circumferential movement, broken Cadwelds, and additional gaps were identified.

### COMMENTS/CONCERNS

1. An assessment of the use of the polar crane in its present state should be made to determine if it has had a detrimental effect on the integrity of the (polar crane) support system.
2. Repeat of the load test, if any modifications are made, has not been included in the Plan. Justify this omission.
3. In Section 1.0. it is assumed that the Cadwelds described in this section are nonstructural. If they are structural, clarify the scope and methodology to address this issue.

4. In Section 4.1.1, it is not clear that all requirements of the "Crane Manufacturer's Association of American, Inc. (CMAA) Specification 70" will be met as required by Section 3.8.3.2.3 of the FSAR. The plan should be clarified to identify which standards it will address, as stated in the ISAP format (Attachment 3 of the basic plan). Mechanical guides which prevent derailing should also be evaluated in accordance with Section 3.8.3.1.2 since rail movement could impair this important system. (Failure could result in dynamic loads on the rail.) Provide clarification and justification for the omission of the evaluation in accordance with Section 3.8.3.1.2.

Issue-Specific Action Plan  
Item No. VII.a.2 Rev. 0

TITLE NONCONFORMANCE AND CORRECTIVE ACTION SYSTEMS

INTRODUCTION This ISAP addresses individual NRC, TRT and SSER findings and provides a comprehensive evaluation of the CPSES construction site nonconformance, corrective action and 10 CFR 50.55(e) reporting systems.

COMMENTS/CONCERNS

1. Page 4, Section 3.1, last paragraph, states: "This plan is written... as well as to address the detailed individual findings listed by the TRT."

This ISAP does not identify all of the individual findings nor does it include a description of the methodology to be used to resolve those individual concerns.

The plan does not justify their omission nor provide a complete listing of all identified nonconformance, corrective action and 10 CFR 50.55(e) concerns; it does not include the action taken to resolve the individual concern nor document the verification of the resolution of the concern.

2. Section 4.1.1.2 states that each randomly selected nonconformance report will be reviewed utilizing a prepared checklist which includes listed attributes as a minimum.

Since the cause of improper dispositioning of NCRs could be attributable to a person, checklists for the review of nonconformance reports must include a check of the signatures of appropriate personnel as required by procedures and by the NCR form.

3. On page 7, it states that reworked, repaired, and replacement items are inspected and tested in accordance with original requirements or acceptable alternates.



The term "acceptable alternates" is not as clear as (say) "...in accordance with the NCR disposition." Clarify this terminology.

Issue-Specific Action Plan  
Item No. VII.a.3 Rev. 0

TITLE      DOCUMENT CONTROL

INTRODUCTION    The scope of this ISAP is to provide confidence that, although problems were identified over a period of time in the implementation of the Document Control program during the construction phase of CPSES, the hardware has been installed in accordance with the current design requirements.

COMMENTS/CONCERNS

1. Page 3, Section 3.1.5 states in part that this Action Plan is designed to provide reasonable assurance that the specific TRT and SSER items pertaining to document control have been addressed.

This ISAP does not specify the methodology to address and resolve past concerns. Section 4.5, "Standards and Acceptance," implies that the document control issues addressed in this Plan are acceptable (resolved) if a document control system is in place to prevent recurrence of document control problems.

Amend Section 4.5 to add the acceptance criteria for the resolution of past concerns and Section 4.6 to add decision criteria if applicable.

Issue-Specific Action Plan  
Item No. VII.a.4 Rev. 0

TITLE      AUDIT PROGRAM AND AUDITOR QUALIFICATION

INTRODUCTION    This ISAP will assess and report on the adequacy of the current TUEC QA Audit Program, including TUEC's response to the Region IV Notice of Violation.

COMMENTS/CONCERNS

1.    On page 1, Section 2.0, the action identified by the NRC requested in part an evaluation to consider the implication of these findings on construction quality and an examination of the potential safety implications. Amend the scope and methodology of this plan should be responsive to NRC's request.
2.    On page 2, the last paragraph states in part that this plan will describe the action taken by TUGCO regarding the Region IV Notice of Violation which identified concerns pertaining to TUGCO's audit program. Amend the scope and methodology of this ISAP to include the description of the CPRT action to address the TUGCO response to the Notice of Violation.
3.    Page 4, Section 4.1.2.1 the listing of specific topics to be reviewed by the CPRT to evaluate the effectiveness of the implementation of TUGCO's QA audit program should include management audits.

The list includes two topics identified as:

1.    Organizations Performing Verification Activities.
2.    Application of Verification Activities to Hardware vs Program/Procedures.

It is apparent that the use of the terms "verification process" and "verification activity," etc., as used in the plan scope and methodology,

is intended to mean audit. Since there are verification processes and activities performed that are not within the audit program, the plan must be revised to state clearly "audit processes, audit activity, etc.," when that is the process, activity, or organization being reviewed or evaluated.

4. Page 6, Section 4.5 addresses the standards and acceptance criteria applicable to an evaluation and resolution of the issue addressed in this plan.

For the Class 5 Nonnuclear Safety-Related Supports program, TUGCO was committed to ANSI 45.2.12, Draft 3, Revision 0. Amend Section 4.5 to include the ANSI standard.

## Issue-Specific Action Plan

Item No. VII.a.5 Rev. 0

### TITLE      MANAGEMENT ASSESSMENT

#### INTRODUCTION

This ISAP commits to review in-place Management Assessment Programs in other organizations and to consult with recognized authorities, such as INPO, to obtain a consensus on the criteria for an adequate and effective Management Assessment Program.

The ISAP will then evaluate the current CPSES Management Assessment Program against the criteria developed above and recommend appropriate revisions to the CPSES Program.

#### COMMENTS/CONCERNS

1. On page 1, Section 2.0, the action identified by the NRC requested in part an evaluation to consider the implication of the TRT's findings on construction quality and an examination of the potential safety implications. Amend the scope and methodology of this ISAP to address responsiveness to the NRC's requested action.
2. On page 1, last paragraph, it states in part that this plan will describe the action taken by TUGCO regarding the Region IV Notice of Violation which identified concerns pertaining to TUGCO's audit program. This planned CPRT action is described as background information; however, the plan does not describe how that action will be accomplished. Amend the scope and methodology of this ISAP to include the description of the CPRT action to address the TUGCO response to the Notice of Violation.

Issue-Specific Action Plan  
Item No. VII.a.6 Rev. 0

TITLE EXIT INTERVIEWS

INTRODUCTION This ISAP will evaluate the adequacy of the policies, procedures and activities of the CPSES site Ombudsman and the CPSES SAFETEAM in identifying and resolving CPSES site personnel concerns which have potential safety implications, and will ensure that an adequate program is now in place.

COMMENTS/CONCERNS

1. Section 4.1.2.4 states that an Action Plan report will document the results of the CPRT's evaluation of the current exit interview system conducted under Sections 4.1.2.1 and 4.1.2.2. Section 4.1.2.4 does not require that the results of the CPRT's evaluation of past concerns, which is conducted under Section 4.1.2.3, will be included in the report.

In Section 4.0, the scope and methodology of this plan must address the interaction of this plan with the other CPRT investigations (Action Plans?) which will address past concerns involving exit interviews where potential safety significant implications may have been identified. Include in the Action Plan Report the results of the CPRT review of past items, which is performed under Section 4.1.2.3, or provide justification for why the results are not included.

2. Page 5, Section 4.5, states that the acceptance criteria for this action plan are defined in paragraph 4.1.2.1. Paragraph 4.1.2.1 only defines the criteria evaluated to determine that an effective program is currently in place. Contingent on the action taken for comment 1, amend Section 4.5 to include the acceptance criteria for the review of past concerns (Ref. Section 4.1.2.3.), and amend Section 4.6 to include applicable decision criteria.

Issue-Specific Action Plan

Item No. VII.a.7 Rev. 0

TITLE      HOUSEKEEPING AND SYSTEM CLEANLINESS

INTRODUCTION    The scope of this ISAP is to determine the validity of the current housekeeping system and system cleanliness program for Units 1 and 2. Results of other action plans, procedural requirements, surveys, etc. will be analyzed to determine any impact on hardware and programmatic implications.

COMMENTS/CONCERNS

1. On page 2, Section 3.1, the first paragraph refers to an NRC letter dated November 29, 1984, Item V.b (which identified anchor bolts in the steam generator upper lateral supports where the length of thread engagement) was indeterminate. The concern addressed in ISAP V.b "Improper Shortening of Anchor Bolts in SG Upper Lateral Supports," although there was "debris" in the holes, is not related to housekeeping practices. This concern is not appropriate for review in this action plan (VII.a.7) and should be deleted from Section 4.1.2.1.
2. Page 4, Section 4.1.2.3, does not identify the flush procedure that is the item of concern. Revise the section to identify flush procedure FP-55-08. Also, the next to last line must clearly state: "The adequacy of only two swipe tests as required by the procedure" (see Section 1.0 Description of Issues).
3. Page 4, Section 4.1.2.5, states that recent TUGCO information will be reviewed. Recent TUGCO information is vague. Revise the Plan to identify the time span that encompasses the information to be reviewed.  
Note: The word recent is also used in the third paragraph, this section on page 5. Also, revise this paragraph in accordance with the comment above.



4. Page 6, Section 4.2.2.1, states that ERC will perform a review of the data, but does not identify who is responsible for performing the reinspections which may be required by Section 4.1.26. Amend this section to identify the organization responsible for the reinspection.

Issue-Specific Action Plan  
Item No. VII.b.1 Rev. 0

TITLE      ONSITE FABRICATION

INTRODUCTION    The scope of this ISAP covers both Units 1 and 2 and is to determine if the material control discrepancies identified by the NKC in the onsite fabrication shop have any safety validity significance or generic implications.

COMMENTS/CONCERNS

1.    Page 2, Section 4.1.1, first paragraph, uses the phrase "safety validity significance". To be consistent with the definitions used throughout the Plan, delete the word validity.
2.    On Page 4, Section 4.1.2.6, the two paragraphs preceeding the note appear to be ambiguous. Provide clarification. Also, clarify the word design as used in the second sentence: If no additional design significant.... Also, revise the note pertaining to reinspections of expanded samples to state that all attributes will be reinspected.
3.    Page 6, Section 4.3, states, in part: All persons associated with the analysis and evaluation of findings....  
The word findings is not an appropriate classification in accordance with Appendix E, Section B 2. Revise this section to identify the correct classification in compliance with Appendix E.
4.    Page 7, Section 4.5, second paragraph, states that if no portion of the population is accessible, only a documentation review will be performed.

This statement implies that even if the documentation review doesn't resolve the item or issue the CPRT will not avail themselves of any possible alternate means of resolution. Accordingly, delete the word only.

Issue-Specific Action Plan  
Item No. VII.b.2 Rev. 0

TITLE VALVE DISASSEMBLY

INTRODUCTION

The scope of this ISAP is to evaluate the proper reassembly of valves which required disassembly. Valves to be considered are those installed in Units 1 and 2 and common to both, and which have been disassembled or may require disassembly, regardless of reason for disassembly or plant system.

CONCERNS/COMMENTS

1. Page 3 of 9, Section 4.1.5, indicates that valve reinspection will be done if a review of documentation for a specific valve shows probable improper reassembly. Provide justification which shows how reviewing documentation can determine improper reassembly.
2. Page 6, Section 4.6, the issue identified dealt in general with poor control of the valve installation process. Resolution of this issue does not depend solely on the acceptance criteria as defined. Other important criteria are site installation procedures, valve disassembly procedures, permanent equipment transfers, and code data reports. Include the above criteria in addition to the acceptance criteria stated in Section 4.6 or justify their omission.

Issue-Specific Action Plan  
Item No. VII.b.3 Rev. 0

TITLE      PIPE SUPPORT INSPECTIONS

INTRODUCTION

This ISAP addresses the adequacy of as-built documentation of safety related pipe support installations.

CONCERNS/COMMENTS

1. This action plan does not address the trending of deviations even though the trending of deviations may lead to safety significant concerns. In accordance with Appendix A, Attachment 5 trending needs to be incorporated into this ISAP. Resolve this inconsistency between Appendix A (Attachment 5) and this ISAP.
2. Page 7, Section 4.4, 2nd paragraph, the first two sentences address Safety Significant Discrepancies. The third sentence addresses Design Significant Discrepancies. Define these terms, and resolve this apparent inconsistency.
3. Page 7, Section 4.4, states that in all cases reinspections performed for expanded samples will look at only the attribute associated with the safety significant discrepancy. The staff does not agree with the assumption that if there is a safety significant deficiency of one type in the initial sample the expanded samples need only consider the attribute associated with the safety significant discrepancy. Justify this aspect of the sampling program or amend the Plan to indicate that all attributes considered in the initial sample will also be considered in the expanded sample.

Issue-Specific Action Plan  
Item No. VII.b.4 Rev. 0

TITLE      HILTI ANCHOR BOLT INSTALLATION

INTRODUCTION

This ISAP addresses the adequacy of Hilti anchor bolt installation on pipe supports and electrical raceway supports.

CONCERNS/COMMENTS

1. Page 5, Section 4.5, states that in all cases reinspections performed for expanded samples will look at only the attribute associated with the safety significant discrepancy. The staff does not agree with the assumption that if there is a safety significant deficiency of one type in the initial sample the expanded samples need only consider the attribute associated with the safety significant discrepancy. Justify this aspect of the sampling program or the Plan should be amended to indicate that all attributes considered in the initial sample will be also considered in the expanded sample.

Issue-Specific Action Plan  
Item No. VII.b.5 Rev. 0

TITLE      ELECTRICAL CABLE TRAY RACEWAY SUPPORT INSPECTIONS

INTRODUCTION

This ISAP addresses the adequacy of the electrical conduit supports and cable tray hanger inspections.

COMMENTS/CONCERNS

1. Contrary to Attachment 3 of the Program Plan, the Issue-Specific Action Plan format, Section 4.6 of this ISAP does not "provide information relative to the sampling plan and justification for the sample size," nor the definition of a "reject". Provide justification of these omissions.
2. Contrary to Attachment 3 of the Program Plan, the Issue-Specific Action Plan format, Section 4.7 of this ISAP does not describe the standards (e.g., FSAR, IEEE, Regulatory Guides, etc.) against which the review is performed. Justify this omission.

Issue-Specific Action Plan  
Item No. VII.c Rev. 0

TITLE CONSTRUCTION REINSPECTION/DOCUMENTATION REVIEW PLAN

INTRODUCTION This ISAP is self-initiated and includes a reinspection/-documentation review of QC accepted safety-related construction work activities at CPSES. It includes those areas that have not been identified as areas of concern by external sources.

CONCERNS/COMMENTS

1. On page 2, Section 4.1, first paragraph, the last sentence states that the definition of inaccessible and non-creatable attributes are contained in Appendix B.

The definitions are on Page 5 of Appendix B but they are "buried" in a paragraph entitled Engineering Analysis and Evaluation.

Since each action plan participant may not have a copy of Appendix B, the definitions must be included in the ISAP.

2. On page 3, the fourth paragraph states that the results from other ISAP's may be used either to supplement or reduce the sample size of reinspections or documentation reviews, and that such decisions will be documented. Revise the last sentence to state that such decisions shall be documented and retained as a record in the ISAP file.
3. Page 3, Section 4.1.2.1, the second paragraph, first sentence states that wherever possible reinspections will be performed "in lieu of" document reviews. The statement "in lieu of" is not consistent with Section 4.1 Scope and Methodology, first paragraph, which implies that the purpose of the Plan is to perform reinspections except where certain conditions can only be resolved by a documentation review. Resolve this inconsistency.



4. In Section 4.1.3, on page 6, the first partial paragraph addresses the development of checklists and inspection procedures for safety significant attributes. The last sentence of the paragraph appears to contradict this when it states: "Attributes considered nonsafety significant or inaccessible will be documented but not inspected."
5. On Page 6, second paragraph, the last sentence states: "Inspectors are required to document the acceptability of each attribute on the inspection checklist." Revise this last sentence to clarify that inspectors are also required to document the results of inspection of each attribute on the inspection checklist.
6. On Page 8, Section 4.1.6.2, the first paragraph should be moved to Section 4.1.6.1 which addresses invalid DRs, and must be revised to state that the invalidated DR's will be retained as a record in the Action Plan file.
7. On Page 9, Section 4.1.6.4 states that evaluation of valid DRs for safety significance will be conducted in accordance with Appendix E and augmenting instructions for methodology. If the use of Appendix E requires augmenting instructions identify those augmenting instructions in this Plan.
8. Section II.2 of Appendix B, the second paragraph last sentence implies that the results of action under the self initiated ISAP VII.c will resolve any concerns regarding adverse impacts on the quality of the hardware attributable to inadequately qualified inspectors not evaluated in ISAP I.d.1, or potential harassment or intimidation of QC inspectors. Intimidation and potentially inadequate qualifications are also identified as an issue of concern in Action Plan VII.C Section 1.0.

ISAP VII.c, Scope and Methodology, does not directly address the subjects of qualification and harassment; however, the intent of this plan is to assist in their resolution.

Since inspector qualifications and harassment are identified issues of concern and have an effect on closure of this Action Plan, they must be addressed in Section 4.7, Decision Criteria, as part of the decision process for closure of this Action Plan.

## Discipline-Specific Action Plan

Item No. VIII Rev. 0

### TITLE      CIVIL/STRUCTURAL DISCIPLINE SPECIFIC ACTION PLAN

#### INTRODUCTION

This Discipline-Specific Action Plan (DSAP) for the civil/structural discipline is both Issue-Responsive and Self-Initiated as defined in Section IV of the program plan. The self-initiated portion of this DSAP includes the areas of concrete and structural steel, design, and HVAC and "other" supports. The issue-responsive portion of this DSAP includes seismic Category II items, steam generator lateral supports, cable tray supports, and conduit supports. The number of external issues raised in the area of cable tray and conduit supports necessitated the formation of a subprogram (CTCS). This subprogram has been developed to evaluate and resolve all external source issues and to establish design adequacy for this hardware by analyses, testing and/or direct modifications.

#### COMMENTS/CONCERNS

1. HVAC and other support designs which have been selected will only be reviewed for modeling assumptions, analysis procedure, design methodology, and interface between vendors and design organization. This portion of the civil/structural design review scope should also address the design process, including all issues raised in the cable tray/conduit support areas; e.g., choice of anchorage, design changes. Appropriately broaden the scope or provide justification for the proposed scope.
2. Define the root cause and any generic implications prior to the initiation of the cable tray/conduit support subprogram and the review and evaluation of the HVAC plan. Further define the sample size of the two systems for the HVAC supports and clarify what is a "system" and do two systems constitute an acceptable sample relative to population size.

3. The self-initiated portion of the DSAP provides a "vertical slice" review approach, with exploratory samples in specific areas. The size of the samples presented in this DSAP for some topics is inadequate to demonstrate to extrapolate the results to total populations with confidence. For instance, in the area of equipment mounting (page 16 of 35), only one mechanical and one electric mounting will be reviewed. The basis of sampling for the concrete and steel analysis and design is not known, nor is the size and scope of a "calculation" known as presented in Section 4.2.2.1. The sample size of design activities in general should be such that the population selected will be extracted from all design groups involved within, as well as external to, the Architect-Engineer. The sample sizes should be increased and the bases justified to provide the level of confidence defined in the third objective of the program plan.
4. One area of concern not apparent in the scope of this DSAP is embedments. Since many pipe, conduit, and cable tray supports are currently being reanalyzed within the current scope of the plan, the loading on the embedments, including items such as Richmond inserts, and the loading on the structure as a whole must be reevaluated. Include embedments and load tracking in the scope of the DSAP or justify its omission.
5. The Containment Building consists of a concrete structure with an integrally attached liner plate. Review of the containment design should also include the liner and anchorage, or the omission of these attributes justified.
6. The decision criteria, identification of specific procedures, schedule, and definition of a "reject", as specified in the general DSAP format presented in Attachment 4 of the program plan, have not been incorporated in Revision 0 of the DSAP. Provide clarification of these items.
7. The Cable Tray and Conduit Supports (CTCS) subprogram, as currently structured, does not rely on current industry practice in the design area. Page 6 of Item No. VIII states:

"The objective of the CTCS program will be to demonstrate functional performance by verifying overall system performance. Emphasis will be directed at verification of adequate anchorage and support to insure stable behavior."

The subprogram is heavily research oriented and does not comply with the approach used on Unit 2. The criterion, which will be developed from this subprogram, appears to be based on functional capability of cable trays after (or during) a seismic event, whereas the FSAR states that supports will meet AISC criteria.

The sample size may not result in a generic criterion which can be applied to all cable trays and supports and are, therefore, not defensible. The subprogram plan as written will not demonstrate compliance with FSAR commitments. Amend the DSAP to resolve this concern.

8. The last paragraph of Section 3.1, page 4, states that "any additional hardware components identified to exhibit undesirable behavior will be identified to the project and modified." Provide a definition of "undesirable behavior."
9. In Section 4.2.1.4, page 13, the self-initiated portion of the DSAP (e.g., concrete, steel, HVAC) should be based on the latest information available which includes all the modifications, changes and DCAs incorporated during the construction of the plant. Clarify how the civil/structural DSAP will provide assurance that there are no significant mismatches between as-built conditions and the final design requirements.
10. In Section 4.2.2.2, page 15, the structural steel review is limited to only two "sections." Clarify the definition of a "section" and why these two sections will represent the population.
11. In Table VIII.1, page 20, ACI-349-76, Appendix B is used as reference for the design factor of safety for Richmond inserts. Justify the basis for its use.

12. A review of the CYGNA letters of April 23, 1985 and June 21, 1985, and Table VIII.2, shows the following items omitted from the table:

- Item 3F, Richmond insert spacing and prying factor.
- Item 3I, Base angle boundary conditions assumptions.
- Item 4C, Effect of weld undercut on section properties.
- Items 12B, C, and D in the April 23 letter.
- Items 12E and F in the June 21 letter.
- Item 24, Design of flexural members.
- Item 25, Cable tray qualification.

Reconcile these differences.

TITLE      TASK VIII.a: CABLE TRAY/CONDUIT SUPPORTS - IDENTIFICATION OF  
CRITICAL PARAMETERS AND PHYSICAL MODIFICATIONS

COMMENTS/CONCERNS

1. If modifications are considered to be more expeditious, as mentioned in Section 1.0, then reasons (discrepancies) must be identified, and root cause and generic implications should be considered for overall design. The Plan does not address identifying root cause and generic implications for modifications. Justify this omission.
2. On page 1, Section 3.0, the Program Plan should provide details of Unit 2 cable tray and conduit support design and construction programs. The approach, the modifications that were made, and why they were required should be described as should the differences in the approach for Units 1 and 2. The activities of both the Project and Third Party for both Units 1 and 2 should be clarified as should the assessments that were made to determine whether Unit 2 requirements were necessary for Unit 1. Where differences have occurred elsewhere in the plant design, clarify how the justifications for the differences are being investigated in the Design Adequacy Program? Clarify how the resolution of the CYGNA issues will be documented for Unit 2.
3. In Section 4.1, 1st paragraph, the statement "Once the generic supports are the same in both units, ...." is made. Clarify this statement to explain why the generic supports are not the same and what is being done to make them the same.



TITLE      TASK VIII.b:    CABLE TRAY/CONDUIT SUPPORTS - POPULATION  
IDENTIFICATION, SAMPLE SELECTION AND AS-BUILT

COMMENTS/CONCERNS

1. On page 1, Section 2.0, more explanation of the sampling plan should be given. For instance, mention is made of a random sample of 60 runs. However, in Section 3 an analysis of two runs will be done. Clarify this apparent inconsistency and define whether sampling will be done for both cable trays and conduits or whether sampling numbers represent totals for both?
2. Page 3, Section 4.1.1 states "Statistics describing both support and system populations in terms of their principal attributes will be developed." Provide a description of what the principal attributes are in this DSAP.
3. Page 3, Section 4.1.2 states "The total population of conduit supports will be obtained... the population of runs will be identified.... The applicable statistics will be developed." Provide a description of what these applicable statistics are in this DSAP.
4. On page 3, Section 4.2, provide the definition of a system and clarify the differences between "runs" and "systems."
5. On page 4, Section 4.3, include or justify the omission of the direction of the tray (horizontal, vertical or sloping) and any additional attachments to the trays or supports. Clarify whether or not the thermolag will be removed in the areas that are covered and whether or not the as-built torque will be verified for the tray clamp bolts.
6. In Section 4.4, page 6, provide the reason for proposing performance of confirmatory tests for conduit supports on an as needed basis rather than as a definitive task as was committed for the cable tray supports. The basis and criteria should be included in the Plan.



TITLE      TASK VIII.c:    CABLE TRAY/CONDUIT SUPPORTS - DETERMINATION OF  
GOVERNING LOADS

COMMENTS/CONCERNS

1. On page 2, Section 4.0, the effect of loadings (due to failure) of safety Category II items on Category I structures and supports, in accordance with Regulatory Guide 1.29 and FSAR Section 3.7B.2.8, has not been addressed. Justify this omission.

TITLE      TASK VIII.d:    CABLE TRAY/CONDUIT SUPPORTS - TESTING

COMMENTS/CONCERNS

1. On page 1, Section 1.0, 1st paragraph, the statement is made "The testing will ... evaluate component and system stability and establish appropriate margins of safety." If this means licensing commitments may not be met the proposed acceptance criteria must be identified for approval by the staff prior to implementation. In areas for which criteria cannot be established at this time, the Plan should identify tasks which are aimed at quickly providing the necessary input to assist in establishing criteria.
2. For testing, identify the specific standards to be utilized. The plan should also describe how plant procedures will be used during the construction phase to simulate plant conditions.
3. The issue is not clear about whether test results will be used for third party verification of adequacy of design or will test results be used by the project for determination and use of developing design criteria? Provide clarification.
4. As part of the tests of cable tray clips, Page 3, Section 4.1.1, a justification is not provided for the use of friction in a connection using A-307 bolts. There must be considerations given to the amount of torque/preload, material properties (yield and ultimate), and load relaxation between the tested items and the items that are installed in the field.

TITLE      TASK VIII.f:    CABLE TRAY/CONDUIT SUPPORTS - SYSTEM ANALYSIS

COMMENTS/CONCERNS

1.    In Section 4.0, the random sample for the CTCS system analysis should not be selected until the modifications based on the analysis of the engineering sample have been identified for each specific cable tray/conduit support run. Clarify sample selection timetable. In addition, demonstrate the "homogeneity" of the sample population.
2.    In Section 3.0, clarify how the sample of five systems to be analyzed tie in with samples in Task VIII.b and the two samples of runs mentioned in the last paragraph in this section.
3.    In Section 4.0, page 2, define what is meant by "...to demonstrate overall design adequacy and acceptable system functional performance....". Will this meet FSAF commitments?
4.    In Section 4.2, page 3, it states "As the analysis program progresses, any additional modifications required will be selected and applied." The meaning of "modification" is not clear as to whether they are physical, analytical, or pertain to the sample size.

TITLE      TASK VIII.g:    COMPONENT DESIGN EVALUATION

COMMENTS/CONCERNS

1.    In Section 4.3, qualification and acceptance of Unit 1 cable tray/conduit supports through development of acceptance criteria based on system performance and functionality are a concern. If licensing commitments can not be met, the proposed acceptance criteria must be identified for approval by the staff prior to implementation. In areas for which criteria cannot be established at this time, the Plan should identify tasks which are aimed at quickly providing the necessary input to assist in establishing criteria. This criteria must be identified for approval by the staff prior to implementation.
  
2.    In Section 4.4 clarify the exact meaning of the first sentence. Will the stresses in the components be compared with the criteria developed in Section 4.3 above? Also, clarify as to how the procedures of the last sentence would affect the design margins. If the margin of a component is negative, then is it possible for the system to satisfy FSAR commitments?

## Discipline-Specific Action Plan

Item No. IX Rev. 0

TITLE      PIPING AND SUPPORTS DISCIPLINE SPECIFIC ACTION PLAN

### INTRODUCTION

This DSAP has been developed to provide reasonable assurance that all safety significant piping and pipe support deficiencies have been identified and resolved.

### COMMENTS/CONCERNS

This DSAP provides an adequate framework to resolve a number of external source issues identified in piping and support design, contingent upon an acceptable resolution of the following comments and concerns identified by the staff.

1. The major area of concern with the reanalysis of piping and supports is that the details required for review are contained in procedures which are not included in the Plan. This DSAP is highly dependent on the technical and engineering details to be provided in Stone & Webster project procedures CPPP-5, CPPP-6 and CPPP-7. Compliance with licensing commitments must be inherent in the details provided in these procedures. Provide these procedures for NRC staff review.
2. Additional information is required regarding the process of verification for the small bore piping. Paragraph 2.0 simply states that "small bore piping and supports will be verified on a sampling basis." The only other place in this plan where small bore piping is mentioned is in Attachment 2, paragraph B, where the Plan states "reanalysis of small bore (2" and under) piping and supports on a sampling basis to verify adequacy." Provide details to the Plan including, but not limited to, the following:
  1. The basis for sampling; i.e., what are the samples and how will they be defined?
  2. What will be done with the samples when they are defined?
  3. What is the acceptance criteria to be used?

3. There are a number of external issues associated with piping and supports. Apparently, due to the major rework in the area by Stone and Webster, Issue Specific Action Plans will not be generated. It is understood in the plan, paragraph 4.2.1.1 that the issues will be identified, reviewed, evaluated and tracked by the Third Party Review. Document the method to accomplish this third party review.
4. Even though a complete reanalysis is being performed on the ASME Class 2 and 3 large bore piping and pipe supports, root cause and generic implications for all issues must still be obtained since it may affect other disciplines. Also, root cause and generic implications for all issues must be evaluated for the small bore piping to determine if a sampling approach for the small bore piping and supports will be sufficient.
5. Concerns have been identified by the staff related to support/piping interdependence. The concerns include the ability to properly model the support in the piping analysis so that the piping analytical response is representative of its actual behavior, and the determination of representative loading in uniquely designed support structures. Specifically address in the DSAP the techniques to be used (or the referenced procedures) in resolving these concerns.
6. It appears that the adequacy of supports to comply with licensing commitments will be demonstrated by initially reviewing existing analyses rather than performing a reanalysis. Provide a more detailed description of the approach to be used, criteria to be applied, and extent of the review required for the pipe support requalification effort.
7. Page 1, Section 3.0, 2nd paragraph states that none of the external source issues has been shown to be a safety significant deficiency. Clarify what is the basis of the no safety significant deficiency statement with respect to external source issues.

6. Page 2, Section 4.2, last sentence states that the third party verification of the SWEC effort will provide reasonable assurance that all identified issues are resolved and presently unidentified issues are detected and resolved. Include details in the plan as to how this third party verification will be accomplished.
9. On page 2, Section 4.2.1.1, we are concerned that previously identified external source issues such as the CYGNA IAP, ASLB, intervenor, and staff concerns are still pending. The CPRT should assure that all external source issues in the SWEC scope of responsibility are clearly identified prior to initiation of piping reanalysis by SWEC.
10. On page 4, Section 4.2.1.3, it states that procedures will be reviewed to assure "Resolution of externally identified issues." Identify which Stone and Webster procedures will address the resolution of externally identified issues.
11. On pages 4 & 5, Piping Analysis and Pipe Support Design paragraphs, the review to be performed on piping does not appear to be consistent with that for pipe support. Compliance with licensing commitments should be explicit and consistent with both paragraphs. Provide clarification for "functionality" and "capacity requirements" for pipe supports to resolve this inconsistency.
12. On page 8, Attachment 2, Section A, 4th paragraph, it states that the SWEC effort will be overviewed by TUGCO Project assisted by R. L. Cloud Associates, Gibbs & Hill, and CPRT. Provide clarification of this overview function and the reasoning for such a multi-group overview.
13. Page 8, Attachment 2, Section B, 1st paragraph, states that SWEC will qualify all ASME Class 2 and 3 piping systems and supports. Provide further clarification of the qualification to be performed for the various piping systems and supports including the responsibilities to be assumed by SWEC as a design agent.



14. Page 8, Attachment 2, Section B, second hyphen, states "100% of the large bore supports including supports for Class 1 systems." Clarify whether these Class 1 system supports include those supports designed by Westinghouse.

If SWEC is committing to requalifying only those Class 1 large bore supports designed by other than Westinghouse, then the CPRT should ensure that the interface between Westinghouse and SWEC is functioning properly. This is required to account for any effects that pipe support deficiencies have on the existing Class 1 piping analyses (i.e., reduced pipe support stiffness).

15. Clarify if SWEC or CPRT will be reviewing those ASME Class 1 auxiliary branch lines connected to the reactor coolant loop. Provide justification if the Class 1 (non-RCL) piping are excluded from SWEC or CPRT review.
16. On page 8, Attachment 2, Section B, the Program Plan states that Stone & Webster Engineering Corporation has been retained to implement the piping and pipe support reanalysis effort. Attachment 2 of Item IX in Appendix C provides information concerning SWEC responsibilities and their Action Plan. Provide more details to clarify SWEC's approach to the resolution of the ASLB hearing issues, the CYGNA IAP concerns, and NRC staff concerns (i.e., SWEC procedures CPPP-5 through CPPP-7).
17. On page 11, Attachment 2, Section D.1.c, support problems associated with Richmond inserts are listed as having no effect on the piping analysis. Provide clarification to address the rationale for this statement.
18. On page 11, Attachment 2, D.2, Code Case N-411 on piping damping is referenced. Approval by the NRC staff for the use of Code Case N-411 included certain requirements which must be satisfied. Develop procedures to ensure compliance to these requirements.



19. On page 12, Attachment 2, Section D.6, SWEC has indicated that procedures CPPP-6 and CPPP-7 will be used for the piping reanalysis and the support requalification. SWEC must state that all FSAR commitments (unless otherwise approved by the staff) and the ASME III Code of record will be met with the implementation of these procedures.

## Discipline-Specific Action Plan

Item No. X Rev. 0

TITLE      MECHANICAL SYSTEMS AND COMPONENTS DISCIPLINE SPECIFIC ACTION PLAN

### INTRODUCTION

The purpose of the mechanical discipline specific action plan is to investigate, evaluate, and resolve presently known and potentially unknown design concerns regarding mechanical systems and components. The principal review is focused on the design aspects of the Auxiliary Feedwater System.

### COMMENTS/CONCERNS

1. Section 4.1.2 indicates that review criteria will be subjected to a third party review without identifying the third party that will conduct this review.
2. Section 4.1.4 indicates that inconsistencies in the implementing document's review will be reviewed against test program results. It is unclear whether further actions are planned to resolve the inconsistencies in the design documents in spite of test results. Clarify this aspect of the Design Adequacy Program Plan.
3. From the discussion of Section 4.1.5.2.1 it is unclear whether the rated flow or runout calculations will be used for determining NPSH in order to verify that  $NPSH_a$  is greater than  $NPSH_r$ . The calculations listed in Table X-2 do not include runout conditions. Provide clarification for this area of review.
4. Table X-4 does not appear to include for review the breakdown orifices located in the motor driven pumps' minimum flow lines. Provide justification for this omission.
5. From the discussion of Section 4.1.5.5 it is unclear whether the review will verify that the equipment functional requirements are accurately represented in the equipment purchase specification. Clarify this aspect of the review.

6. Section 4.1.5.8 describes Seismic II/I systems interaction and it is unclear from the discussion in this section whether the review will consider seismic class changes within the system. Clarify this aspect of the review.

Additionally the review should include other non-seismic components and systems (i.e., fans, pumps, instrument racks, duct work, etc.) whose failure could compromise the safety function of safety-related systems.

7. This Action Plan does not set forth the objectives and procedures that must be followed to accomplish an engineering walkdown of as-built. Justify these omission.
8. Justify the omission from Section 4.1.5.9 of those inspection activities which will check the implementation of the E/I&C criteria for HELB, flooding and missile protection as stated in Section 3.2.5.11 of Item XI of Appendix C.
9. Paragraph 4.1.5.9.5 does not clearly state that the equipment purchase specifications will be reviewed to determine whether the correct environment has been included to assure proper qualification. Provide clarification.

## Discipline-Specific Action Plan

Item No. X1 Rev. 0

TITLE      ELECTRICAL/I&C SYSTEMS AND COMPONENTS DISCIPLINE-SPECIFIC ACTION PLAN

### INTRODUCTION

This DSAP addresses the Electrical, Instrumentation, and Control system disciplines with respect to issues raised by external sources and to the technical adequacy of Electrical/Instrumentation and Control and component designs.

### COMMENTS/CONCERNS

1. Section 2.0 makes reference to Figure X1-3, as an illustration of the scope of the initial systems selection; however, the figure depicts only Train A of the auxiliary feedwater system. Elements of AFW Train B and the turbine AFW loop would also appear to be necessary in order to provide a complete review of the instrumentation and control discipline. Justify these omissions.
2. Section 3.1.1.2 states that site initiated and procured components, which have not been environmentally qualified for their service condition, are to be subjected to a sampling program if the number of such items exceeds five. This figure is inconsistent with the sampling program presented in Appendix D. Resolve this inconsistency.
3. Section 3.1.1.6 states that the scope of the Program may be expanded to other disciplines if a sufficient number of components are found to be functionally inadequate. Rather than expand the program scope to include other disciplines, it appears more logical to first expand the number of systems being reviewed. If the procurement of unqualified equipment by the site is indeed a pervasive problem, the use of these unqualified components in various system applications should be a first-order priority before the examination of generic aspects involving other engineering groups is begun. Justify the logic of your approach.

4. In regard to Section 3.1.1.6, confirm that at least one component representative of each identified component type will be included in the review.
5. Section 3.1.2.1 states that plant fluid systems where design changes or reevaluation of system operating conditions may have resulted in higher pressure or temperature ratings will be identified through a review of plant flow diagrams system descriptions or other documents. Rather than review flow diagrams, system description or other documents, a more effective approach would be to compare currently required conditions for process temperature and pressure against permissible operating environmental limits stated in instrument procurement specifications. Justify the logic of your approach.
6. Section 3.1.2.2 proposes the use of an inspection sampling program to evaluate those instruments whose pressure or temperature ratings may no longer be adequate for the intended service conditions. This approach does not allow for the possibility that each affected instrument needs to be identified and then individually assessed for overall adequacy in its unique application in the plant. Provide technical justification for the sampling.
7. Section 3.1.2.3 implies that each instrument (in the population where temperature or pressure ratings may not meet current process conditions) may be found acceptable if interlocks or active isolation devices exist. The test should be expanded to indicate that the acceptability of the instrument will take into consideration the consequences of failure of such interlocks or active isolation devices at the same time as the instrument is subjected to the extremes of process temperature and pressure conditions.
8. Section 3.2 indicates that only the balance-of-plant (BOP) uninterruptible power supply has been identified for review. Experience has shown that both the BOP and the NSSS uninterruptible power supply loads are not well

defined; therefore, the conclusions drawn from the review of the BOP power supply may not be extrapolated to the design of the NSSS power supply. Justify not reviewing the NSSS uninterruptable power supply.

9. Justify the following omissions from the initial scope presented in Section 3.2.1:

(1) the offsite power supply review of system voltage swings and fault current contributions.

(2) the 480 volt unit substations review of transformer impedances and sizing and the connection of the larger Non-Class 1E motors and Non-Class 1E MCCs to the Class 1E system.

(3) the diesel generator room HVAC supporting system.

(4) the diesel generator fuel oil transfer and storage system.

10. It appears from Section 3.2 that the review of single-failure and failure mode and effects analyses are limited to the Class 1E power system and its single line diagrams. Justify the omission of equivalent analyses for instrumentation and control systems.

11. Justify the omission from Section 3.2.5.3 of short circuit analysis for the 480 volt motor control centers and the containment electrical penetrations.

12. Section 3.2.5.7 indicates that the AFW setpoint bases and calculations will be checked for at least two such calculations. This sample size is considered to be too small. In addition, the calculation methodology used for balance-of-plant safety-related setpoints is not shown. Provide justification for the sample size and for the omission of balance-of-plant setpoints calculation methodology.

13. Section 3.2.5.7 indicates that the review of the bases for protective relaying will be limited to the 6.9-kv bus. The basis for undervoltage protection should extend down through the 480 volt bus to the 120 volt level. Provide justification for this omission.
14. Section 3.2.5.7 indicates that the review of the bases for protective relay coordination is limited to two loads on the 6.9 kv bus. Because of the different application criteria, and often different design personnel, equipment protective relaying and coordination should also include motors on the 480-volt bus and 480-volt MCC and motor operated valve protection philosophy. Provide justification for these omissions.
15. Review of DC system indication and alarms has been omitted from Section 3.2.5.7. Provide justification for this omission.
16. The following components have been omitted from the initial list of components presented in Section 3.2.5.8:
  - D/G Load Sequencer
  - 600-Volt Cable
  - 480-Volt Bus Unit Substation
17. Section 3.2.5.10 does not define the breadth of the review of the HVAC supporting systems. Justify the omission from this section of such HVAC systems supporting the DG, switchgear, batteries, and electrical penetrations.
18. Confirm that the FEMA studies referred to in Section 3.2.5.9 include both the electrical and AFW systems or justify their omission.
19. Confirm that Section 3.2.5.1 includes the review of:
  - (1) Analysis of Post-Accident Flooding Inside Containment.
  - (2) AFW System cable in the Fire Protection Safe Shutdown Analysis.



20. Section 3.2.5.11 indicates that the review will be limited to five components for environmental qualification and an unspecified number of components for seismic qualification. Justify the size of the sample to be reviewed. In addition to Westinghouse supplied instrumentation and control components, confirm that the sample includes balance-of-plant safety-related components specified by Gibbs and Hill or Texas Utilities Electric Company.
21. In section 4.1 clarify who has the following responsibilities
- (1) Classification of design discrepancies, deviations and deficiencies,
  - (2) Determination of safety significance,
  - (3) Development of Discipline Specific Action Plans,
  - (4) Providing technical guidance for implementation of the Discipline Specific Action Plans,
  - (5) Preparation of the component criteria list (It appears that the criteria verification engineers are just reviewing a list prepared by "others"),
  - (6) Preparation of the system criteria list, and
  - (7) Preparation of the document criteria checklist.
22. Section 4.2 implies that the design verification engineers will prepare the document criteria checklist but does not describe how they will use these checklists to identify discrepancies, deviations and deficiencies.
23. Justify the following omission in Figures XI-1 and XI-2:
- (1) Page 23, voltage operating limits should be in design output procurement specifications to vendors;
  - (2) Page 23, frequency operating limits should be in design output procurement specifications to vendors;
  - (3) Page 23, normal/startup/shutdown operating modes should be presented on design output process flow diagrams;
  - (4) Page 23, LOCA/Loss of Offsite Power details should be presented on design output schematic diagrams;



- (5) Page 25, redundancy should be shown on design output schematic diagrams and in procurement specifications;
  - (6) Page 26, diesel-generator fuel oil transfer should be shown on design output flow and schematic diagrams;
  - (7) Page 26, diesel-generator cooling water should be shown on design output flow and schematic diagrams;
  - (8) Page 27, voltage operating limits should be in design output procurement specifications to vendors;
  - (9) Page 27, frequency operating limits should be in design output procurement specifications to vendors;
  - (10) Page 27, LOCA/Loss of Offsite Power details should be presented on design output schematic diagrams;
  - (11) Page 28, process control should be shown on design output schematic diagrams and in procurement specifications;
  - (12) Page 28, status indication should be provided in design input documents, such as Westinghouse criteria documents, and in design output such as schematic diagrams;
  - (13) Page 29, redundancy should be shown on design output schematic diagrams and in procurement specifications; and
25. Figure XI-2, Page 29, "Support Systems Review Area," makes reference to the initial scope review matrix for information regarding support systems. Confirm that the following support systems for the AFW identified in FSAR Chapter 7.31 will be included in the review:
- ° ESF Ventilation System
  - ° Safety Chilled Water System
  - ° Component Cooling Water System
  - ° Station Service Water System
  - ° SSWS Intake Structure Ventilation System
  - ° Station Air System
26. Justify the following omissions in Figure XI, Page 29, Multi-Discipline Consideration: HELB Line Break, Missile Protection, Fire Protection, Cold Shutdown, including the Remote Shutdown Panel Interface.

27. Justify the omission of the following items not shown in Figure XI-3 from the review scope of Train "A."

- ° Alternate offsite power source
- ° 6.9 kv bus tie breaker
- ° Non-Class 1E motor on Class 1E 480-volt switchgear
- ° Non-Class 1E MCCs on Class 1E 480-volt switchgear
- ° Motor operated valves on 480-volt MCC
- ° NSSS inverters on the 125 VDC switchboard

28. This action Plan does not set forth the objectives and procedures that must be followed to accomplish an engineering walkdown of as-built conditions. Justify these omissions.

29. The division of responsibility shown in the Design Adequacy Program Organization Chart for Electrical/I&E Systems and Components indicates two distinct groups: one for electrical and one for I&C. However, this division or responsibility was not clearly defined in this Action Plan. Justify the structural adequacy of the Action Plan as related to the proposed organization for implementing it. The justification should discuss the reasons for not having two separate Action Plans, one for each discipline.

### 3.5 CPRT SAMPLING APPROACH, APPLICATIONS, AND GUIDELINES (APPENDIX D)

INTRODUCTION The approach presented in this Appendix to the program plan will be used to extract a statistical sample for exploratory evaluations in the design and construction adequacy of CPSES Units 1 and 2.

#### COMMENTS/CONCERNS

1. Appendix D does not contain specific plans; rather it provides only general guidelines. The guidelines do not provide firm minimums and/or maximums for confidence levels, percentage detected, and tolerance limits. The implementation of this approach could lead to inconsistencies in the aggregate results for both the construction and design processes. These parameters should be specified in the Program Plan. Further, each should be justified. For example, if a 95/5 criterion is used to evaluate a sample, justification should be provided for the acceptability of this criterion.
2. All findings regardless of their categorization-discrepancy, deviation, etc. - should be included in reports involving sampling activities.
3. As noted by comments on specific ISAPs and DSAPs, the issue of sample homogeneity is of concern to the staff. Since a summary of those areas and activities where sampling will be used is not provided in the Program Plan, the staff is also concerned about the consistent application of the sampling process by different organizational entities within the CPRT. A summary of all areas and activities should be provided with the objective for sampling and the attributes to be examined in support of the sampling objective. Each ISAP, DSAP, or other report where the sampling process has been applied should discuss the sampling criteria such as confidence level, sample size, percent detection, and tolerance limits. The bases for these criteria should also be presented.

4. The applicant should reflect the influence of the human element in their sampling process. Human reliability, inspection qualification and training and sampling and evaluation by one versus more than one individual are examples of issues which must be addressed.

For example, the sample size will be affected by human reliability assumptions. Assumptions should be noted and justified for each application of the sampling process.

5. The second paragraph in Attachment 2, page 6, does not make clear how tolerance limits will be used in conjunction with the sampling plan. The distinction is not made about whether the tolerance limits are to be "stand-alone" criteria or "accept/reject" criteria for the sampling plan. Provide clarification.
6. The fourth paragraph in Attachment 2, page 6, indicates that statistical tests should determine whether the population distribution can be assumed normal or log-normal. Clarify the procedure to determine the distribution. In addition, clarify whether the minimum sample size of 60 is a guideline or a requirement of the program.
7. In reference to Table 2, the title implies two-sided limits ( $\bar{x} \pm KS$ ) while the table values appear to be one-sided limits ( $\bar{X} + KS$  or  $\bar{X} - KS$ ). Nor is it clear whether the use of the table is a requirement or guideline). Clarify these points in the Program Plan.
8. Attachment 3 is entitled Guidelines for Generating Random Samples but does not make clear whether this attachment is a guideline or mandatory. Provide this clarification.

### 3.6 PROCEDURE FOR THE CLASSIFICATION, EVALUATION, AND TRACKING OF SPECIFIC DESIGN OR CONSTRUCTION DISCREPANCIES IDENTIFIED BY THE CPRT (APPENDIX E)

INTRODUCTION This Appendix defines criteria for classifying discrepancies and establishes a process for evaluating, documenting and tracking discrepancies.

#### COMMENTS AND CONCERNS

The Appendix separates the design and construction evaluation and tracking process unless discrepancies are identified. Because this separation will not cover the interface activities between design and construction, programmatic root cause or generic implications at the interface level may not be adequately addressed during the implementation of the Appendix. Provide additional detail in the Appendix to clearly define the interfaces.

### 3.7 CPRT INTERFACES (APPENDIX F)

INTRODUCTION This Appendix deals with compiling the descriptions of all interfaces established among the parties participating in the CPRT Program. Attachment 7 of Appendix A was reviewed along with this Appendix to determine if this appendix is consistent with the interfaces described in Appendix A. Appendices B and C were reviewed for detailed descriptions of interfacing requirements. The CPRT Plan indicates that this Appendix is under development with an anticipated date of completion of August 1, 1985.

#### COMMENTS/CONCERNS

1. The final version of this Appendix should provide:
  - (1) Comprehensive description of interfaces among the parties involved in the Plan.
  - (2) Description of how the interface requirements between DSAPs or ISAPs are established.
  - (3) Details describing what action should be taken for items indicated "Information Only," "Review and Comment," "Action By" and "Coordination of Results."
2. On Page 4 of 5, the third item indicates that the item "Selection of design related attributes" requires review and comment by DAP, while page 57 of Appendix A requires Action by DAP. Resolve this inconsistency.

#### 4.0 CONCLUSION

The NRC staff has completed its review of the CPRT Program Plan, Revision 2. Our detailed comments on this Plan are presented in this document. The report with the staff transmittal of August 9, 1985 form the NRC's complete evaluation of the CPRT Program Plan.