NRC PLAN FOR REVIEW AND AUDIT OF THE APPLICANT'S PROGRAM FOR ASSURING THE DESIGN AND CONSTRUCTION ADEQUACY OF THE COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)

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1. PURPOSE

The purpose of this plan is to define the role of the NRC staff and its consultants in reviewing the Applicant's Design and Construction Adequacy Review Program Plan*, and their role in evaluating the Applicant's implementation of this plan.

2. BACKGROUND

A number of reviews have been conducted at CPSES resulting from allegations, ASLB direction, Region IV inspections and staff concerns. Most of the issues identified are in the areas of piping, pipe supports and cable tray and conduit supports. The nature, however, of these issues suggest that deficiencies may also exist in other plant design and construction areas. Phase 4 of the Independent Assessment Program being conducted by CYGNA is addressing the adequacy of the design and construction

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*The Applicant's Design and Construction Adequacy Review Program Plan is subsequently referred to as the "Plan" or the "Applicant's Plan."

processes in other areas of the plant. A cursory assessment by the staff and its consultants of CYGNA Phase 4 preliminary results indicate that the scope of review in some areas is not of sufficient depth to provide the basis for reaching a conclusion concerning the overall design and construction adequacy of CPSES. Table 1 presents a summary of the staff assessment of the depth of past reviews.

Table 1

EXTENT OF REVIEW PER DISCIPLINE

DISCIPLINE	DEPTH OF REVIEW
° Mechanical Components	
Piping	Major
Supports (pipe, cable tray and conduit)	Major
Other Components & Supports (1)	Insufficient
° Civil and Structural (1)	Minor
° Mechanical Systems (2)	Average
° Electrical (1)	Insufficient
° Instrumentation and Control (1)	Insufficient
° QA/QC (3)	Major
° Installation (3)	Major

(1) Excludes evaluation of CYGNA Phase 4 scope and results
(2) Includes evaluation of CYGNA Phase 4 scope
(3) Reflects cumulative reviews and results in all disciplines

3.0 OBJECTIVES

The primary objective of the NRC's evaluation of the Applicant's Plan is to define the activities to be performed by the Staff to assure that the Applicant has demonstrated that:

(1) There is reasonable assurance that the design and construction of CPSES in all areas of the plant complies with the requirements embodied by the regulations and meets all licensing commitments,
(2) All design and construction issues have been satisfactorily resolved,
(3) All the 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 Phases 1 through 4, ASLB, Intervenors and Applicant have been satisfactorily resolved, and
(4) Root cause and generic implications of plant deficiencies have been investigated and satisfactorily resolved.

4. REVIEW CRITERIA

The Applicant's Plan for design and construction adequacy review must describe in-depth their approach for meeting the objectives set forth in Section 3.0 above.

The NRC staff and its consultants will be guided by the following elements to assess the adequacy of the Applicant's Plan for design and construction adequacy:

(1) Scope and objectives must clearly indicate that the approach selected will provide the required results to demonstrate overall design and construction adequacy of the plant.
(2) Scope and objectives as well as the acceptance criteria must generally remain fixed during the implementation of the design review.
(3) All elements of the design process are addressed by the Applicant's Plan.
(4) Provides for the evaluation of the safety significance of specific, generic and programmatic deficiencies.

(5) Provides for the determination of root causes and evaluation of generic implications to determine their collective significance.
(6) Specifies corrective action for deficiencies, and ensures their implementation throughout the plant.
(7) Demonstrates the independence of the reviewing organization.
(8) Provides justification of acceptability or exclusion of any systems, structures, components or organizations from samples identified in the plan.
(9) Provides for categorizing and trending of existing and new concerns; determines impact of given trends; and establishes a program to resolve the implication of trends.
(10) Specifies qualification and training requirements for the personnel involved in conducting the various design review activities, and
(11) Demonstrates the bases for the sampling methods.
(12) Provides documentation of program activities.

5. NRC STAFF ROLE

The role of the NRC staff and its consultants is to first evaluate the Applicant's Plan for demonstrating the design and construction adequacy of the Comanche Peak Steam Electric Station. Second, the staff will assess the Applicant's implementation of this Plan. This effort will include:

(a) Review and approval of the Applicant's Plan.
(b) Monitor all activities associated with Plan implementation.
(c) Prepare final summary supplemental safety evaluation report (SSER) describing the NRC staff assessment of the design and construction adequacy of the Comanche Peak Steam Electric Station.

NRC evaluation of Applicant's implementation of its Plan will, in essence, be a continuous activity during plan implementation and will include in-depth audits and inspections. Technical evaluation reports (TERs) will be prepared as appropriate and serve as the mechanism for documenting NRC staff reviews and evaluations of activities associated with Plan implementation. These TERs will also serve as the basis for the NRC's final and summary assessment of the design adequacy of the Comanche Peak Plant.

The Staff's review of the Applicant's Plan will accomplish the following items:

(a) Verify that the scope of the proposed review includes the depth and breadth necessary to supplement previous reviews and inspections and provides the basis for combining past and future reviews so that conclusions can be reached concerning the overall design and construction adequacy of the facility. The disciplines involved are Mechanical Systems, Electrical, Instrumentation and Control, Mechanical Components, Civil and Structural, QA/QC, and Plant Testing.

(b) Review Applicant's Design and Construction Adequacy Review Program organization, functional responsibilities, and staffing.

(c) Verify that all the concerns, findings, generic implications and matters related to design adequacy identified by the NRC staff (e.g., TRT, SIT, CAT, SRT, Region IV Inspections, and FSAR SERs), CYGNA Phases 1 through 4, ASLB, Intervenors, and Applicant are factored into the review scope of the Plan.

(d) Verify that a mechanism is provided for assessing the generic implications of issues within the same discipline and between disciplines.

(e) Issue staff evaluation of Applicant's Design and Construction Adequacy Review Program Plan.

The staff will prepare an SSER documenting its review and approval of the Applicant's Plan.

The following activities will be performed by the NRC staff and its consultants during implementation of the Applicant's Plan:

(a) Audit implementation of the design and construction review activities. This will include comparison of a sample of as-built installations with design configurations for all disciplines.

(b) Evaluate the applicant's resolution of existing issues as well as any new ones uncovered as a result of the Applicant's design and construction adequacy review. This will include an evaluation of the Applicant's determination of the root cause, generic implications and interdependence within the same discipline and between disciplines.

(c) Audit the disposition of deficiencies that require modification to designs, installations or both to determine whether the cause of the problem has been satisfactorily resolved and ensure that similar deficiencies will not reoccur in the future at CPSES, Units 1 and 2.

(d) Evaluate the Applicant's final design and construction adequacy review results.

(e) Issue staff evaluation of implementation results of Applicant's Design and Construction Adequacy Review.

TERs will be prepared as appropriate to document reviews, audits, and inspections. These TERs will document in detail the staff's activities, will contain the basis for staff judgement and conclusions, and will serve as reference material for the NRC's summary SSER to be issued upon completion of this activity.

Other design-related review activities which will require staff participation pertain to the Independent Assessment Program being conducted by CYGNA. The staff and consultants will review the results of Phases 1 through 4 of the Independent Assessment Program and prepare and issue a safety evaluation report.

6. NRC DESIGN AND CONSTRUCTION ADEQUACY REVIEW STAFFING

The organization chart presented in Figure 1 indicates the functions and interactions required to implement the NRC's review of Applicant's Design and Construction Adequacy Review Plan. As indicated in Figure 1, the NRC design and construction adequacy review effort will be managed by the existing Comanche Peak Task Force staff and will be accomplished primarily by consultants. Region IV will contribute extensively to this effort.

The review of the Applicant's Design and Construction Adequacy Review Program Plan and monitoring of its implementation as related to the areas of piping, supports (for all disciplines), other mechanical components, civil, structural and QA/QC will be directed and performed by consultants from Teledyne Engineering Services. The review of the Plan and monitoring of its implementation as related to the electrical, instrumentation and control, and mechanical systems disciplines will be performed by consultants from Westec Services under the direction of Teledyne, or the Systems/Operational Group of the Comanche Peak Task Force with assistance from IE. Teledyne will have the responsibility for overall technical coordination and for preparing composite Technical Evaluation Reports based on inputs from all disciplines, including those from Westec.

Region IV will participate in the review and approval of the Applicant's Program Plan. Further, they will contribute to the Comanche Peak Task Force evaluation of Plan implementation by:

(a) Inspecting corrective actions which may be implemented.
(b) Participating in walkdowns performed as part of the Design and Construction Adequacy Programs.
(c) Supporting QA/QC site audits, inspections, and reviews.
(d) Providing assessment of inspections and operational readiness.
(e) Participating in assessment of operator qualifications and training.

The review of the results of Phases 1 through 4 of the Independent Assessment Program conducted by CYGNA pertaining to the mechanical components, civil and structural and QA/QC disciplines will be directed and accomplished by Teledyne Engineering Services. The review of the remaining electrical, instrumentation and control, and mechanical systems will be accomplished by consultants from Westec Services under the direction of Teledyne or the Systems/Operational Group of the Comanche Peak Task Force with assistance from IE. The responsibility for overall technical coordination of the CYGNA results review will be with Teledyne.

FIGURE 1

COMANCHE PEAK TASK FORCE STAFF ORGANIZATION CHART FOR REVIEWING AND AUDITING THE APPLICANTS:

- CONSTRUCTION ADEQUACY PLAN (CAP)
- DESIGN ADEQUACY PLAN (DAP)
- PLANT TEST PLAN (PTP)
- CYGNA DESIGN REVIEW RESULTS (CYGNA)