APPENDIX E

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-445/85-11
50-446/85-06

Construction Permit: CPPR-126
CPPR-127

Dockets: 50-445
50-446

Applicant: Texas Utilities Electric Company (TUEC)
Skyway Tower
400 North Olive Street
Lock Box 81
Dallas, Texas 75201

Facility Name: Comanche Peak Steam Electric Station (CPSES), Units 1 and 2

Inspection At: Glen Rose, Texas

Inspection Conducted: August 1-31, 1985

Inspectors: E. E. Ellershaw 10-8-85

E. E. Ellershaw, Reactor Inspector, Region IV
CPSES Group
(pars. 1, 5d, 5f, 5g, 5i, 5j, 5k, 5l, and 5n)

Date

J. Barnes for 10-8-85

C. J. Hale, Reactor Inspector, Region IV CPSES
Group
(pars. 1, 2, 3, 4, and 5m)

Date

A. R. Johnson 10-8-85

A. R. Johnson, Reactor Inspector, Region IV CPSES
Group
(pars. 1, 5a, 5b, 5c, 5e, 5o, 5p, and 5q)

Date

W. F. Smith, Resident Reactor Inspector (RRI), Region IV CPSES Group (par. 5h) — 10/8/85

Consultants: EG&G - R. Bonnenberg, L. Jones, A. Maughan, W. Richins
Parameter - D. Brown, J. Gibson, D. Jew, T. Young

Reviewed By: I. Barnes, Group Leader, Region IV CPSES Group — 10-8-85 Date

Approved: T. F. Westerman, Chief, Region IV CPSES Group — 10/9/85 Date

Inspection Summary

Inspection Conducted August 1-31, 1985 (Report 50-445/85-11; 50-446/85-06)

Areas Inspected: Nonroutine, unannounced inspection of the Comanche Peak Response Team (CPRT) procedures and instructions, evaluation of Evaluation Research Corporation (ERC) inspector certification, and CPRT issue-specific action plans (ISAP). The inspection involved 1,585 inspector-hours onsite by five NRC inspectors and eight consultants.

Results: Within the three areas inspected, one violation (failure to report nonconforming conditions, paragraph 5.e) and two deviations (non-identification to NRC of the use and justification for a CPRT employee with some prior CPSES involvement in area of current review activity, paragraph 5m: failure to denote areas of revision in procedures, paragraph 3) were identified.

DETAILS

1. Persons Contacted

J. Arros, TERA Civil/Structural Issue Coordinator
W. Bailey, ERC Supervisor, QA/QC Reinspection Engineering
C. I. Browne, Project Manager, RL Cloud & Associates, Inc.
*R. E. Camp, Assistant Project General Manager, Unit 1 (Impell Corp.)
*J. D. Christensen, Deputy QA/QC Review Team Leader, ERC
E. Farino, ERC Electrical Discipline Engineer
J. Finneran, TUGCO Lead Pipe Support Engineer
*S. M. Franks, TUGCO Startup Engineer
J. L. Hansel, ERC QA/QC Review Team Leader
J. R. Honekamp, TRT Issues Manager, TERA
*C. R. Hooton, Project Civil Engineer
D. J. Hudson, Certification Administrator
M. B. Jones, CPRT Electrical Review Team Leader
*R. A. Jones, TUGCO Manager, Plant Operations
M. Keathley, ERC Level III Electrical Inspector
J. Keller, CPPE Engineer
*J. C. Kuykendall, TUGCO Manager, Nuclear Operations
H. A. Levin, CPRT Civil/Structural/Mechanical Team Review Leader
*D. M. McAfee, TUGCO Manager, QA
*S. Melancon, CPRT Issue Coordinator
*C. K. Moehlman, TUGCO Project Mechanical Engineer
M. Obert, TRT Issue Coordinator
A. Patterson, ERC Engineering Supervisor
H. Porter, Brown & Root Welding Engineer
J. Saltarelli, TUGCO Field Mechanical Engineer
B. Shair, ERC Lead Electrical Engineer
R. Shipp, ERC Issue Coordinator
D. W. Snow, Brown & Root QA/QC Coordinator
C. Spinks, ERC Inspection Supervisor
P. Streeter, TERA Sr. Mechanical Engineer
W. Stroupe, CPRT Electrical Team Consultant
K. Thompson, ERC Records Management & Documentation
*T. G. Tyler, CPRT Program Director (Energex)
*W. I. Vogelsang - TUGCO Electrical Coordinator
*A. H. Welch, TUGCO QC Supervisor
D. West, TUGCO Damage Study Supervisor
*M. J. Wise, CPRT Testing Review Team Leader
T. Wright, TUGCO Civil Engineer
J. E. Young, ERC Supervisor, Training Certification
J. Ziemian, ERC Level III Mechanical Inspector

*Denotes those persons who attended the exit interview.

2. CPRT Program

The NRC Region IV inspection of the CPRT program activities during this report period was based on the CPRT Program Plan, Revision 2. Overall comments on this plan were forwarded to the applicant by NRC letter of August 9, 1985. NRC staff comments on the plan details are in preparation. The applicant informed the NRC Region IV staff that an umbrella QA program addressing overall CPRT activities is currently in preparation.

3. Comanche Peak Response Team Procedures and Instructions

The CPRT consists of four basic groups reporting to the Senior Review Team (SRT). The groups and their scope are: (1) ERC - QA/QC program adequacy and quality of construction; (2) TERA Corporation - civil, structural, mechanical issue specific items and design adequacy evaluation; (3) electrical issues being evaluated by one principal individual; and (4) testing issues being evaluated by one principal individual.

The SRT has issued policies and guidelines to which the Review Team Leaders (RTLs) in each of the four groups are required to comply while implementing the CPRT Program Plan. This requires the development of procedures and instructions when necessary. The following is a description and NRC evaluation of the procedures that have been developed and the status of the implementation of the CPRT policies and guidelines.

A. ERC Procedures and Instructions

ERC has developed the following four manuals for controlling their effort:

1. ERC Quality Assurance Management Program Plan (MPP) - This manual describes the principal positions and the specific responsibilities, the functional organization, and the various interfaces.

2. ERC Quality Assurance Procedures (QAPs) - This manual, which is the second part of the MPP, includes those portions of the ERC Corporate Quality Manual that apply to the CPRT activities.

3. ERC Comanche Peak Procedures (CPPs) - This manual, presently consisting of 20 procedures, provides the guidance/direction of essentially all ERC activities, except the inspection function.

4. ERC Quality Instructions (QIs) - This manual, consisting of 56 identified procedures at this writing, provides the direction for the ERC reinspection effort with respect to quality of construction. These procedures define the inspection attributes in the specific area of inspection or documentation review.

A commitment position with respect to the requirements of 10 CFR Part 50, Appendix B, is, to date, only identified in the applicant's letter of August 16, 1985, to the NRC concerning overview of the CPRT program. The ERC manuals were reviewed, however, for compliance with the relevant criteria of 10 CFR Part 50, Appendix B, and, as applicable, ANSI N45.2.6; and Regulatory Guide 1.58.

The ERC MPP was reviewed to determine if it appropriately implemented the commitments of Appendix B of the CPRT Program Plan. No discrepancies were noted. This same process was repeated assuring that the ERC QAPs properly implemented the MPP, that the CPPs implemented the QAPs, and that the CPPs provided the necessary guidance for the development of the QIs. The following is the results of these reviews.

As of this writing 56 QIs have been identified, 19 have been issued, and several (mostly electrical) are being implemented. The ERC inspectors (electrical discipline) have encountered numerous difficulties with the implementation of QIs. The NRC believes these difficulties are due, in part, to a lack of QI clarity with respect to inspection requirements. Examples noted in NRC review were: (1) QI-008 - unclear requirements with respect to channel separation, fire stops and seals, and certain attachment criteria; and (2) QI-014 - unclear instructions with respect to inspection of cables not accessible for their full length. This matter is considered unresolved and will be evaluated further during the next reporting period (445/8511-U-01).

One deviation from commitment was identified in this area of inspection. CPP-001 states that revisions to CPPs will be indicated by a bar in the right hand margin. Of six revised CPPs reviewed, three did not have all revisions indicated and one had none of the revisions indicated as required (445/8511-D-01).

B. TERA Procedures and Instructions

The principal onsite activities being conducted by TERA are ISAPs in the civil, structural, and mechanical disciplines. At present these activities are being controlled by preliminary work instructions prepared by the assigned issues manager. This manager anticipates that the Design Adequacy Procedures (DAPs), scheduled for issuance by September 20, 1985, will provide the formalized procedural control for the activities currently covered by the preliminary work instructions. Utilization of DAPs and impact on work performed prior to their issue are considered an open item (445/8511-O-37).

The balance of TERA's responsibilities, design adequacy evaluations, are being performed offsite in Bethesda, Maryland and Berkley, California. The inspection of these design adequacy evaluations is being performed by the NRC Office of Inspection and Enforcement.

4. Evaluation of ERC Inspector Certification

Organizationally all CPRT inspectors are located in the QA/QC Review Team i.e., ERC. There is a single supervisor over the total inspection force and lead inspectors over each inspection discipline; e.g., electrical, mechanical, etc.

CPRT Procedure CPP-003, "Indoctrination, Training, and Certification of Personnel," has been established for control of the indicated activities. All inspection supervisors, leads, and personnel have been or are being certified as Level II or III in compliance with Regulatory Guide 1.58, Revision 1, which endorses ANSI N45.2.6-1978.

Before any onsite duties are assumed, each inspector is certified in accordance with CPP-003. This certification process includes: (1) verification of previous employment; (2) reconciliation of any previous employment conflicts and education; (3) review of previous certifications; (4) indoctrination in the CPRT scope of effort; (5) training and examination, where applicable, in the areas of general QA and specific discipline requirements; (6) review of all inspector records by the certifying agent (usually the lead discipline inspector), then a recommendation regarding certification; and (7) review and approval of all certifications by the RTL.

Every 2 weeks, a list of all certified inspectors onsite is distributed to various individuals of the CPRT. This list identifies the inspector's certification level, discipline, and any exceptions or limitations to their certifications.

A permanent file is maintained for each inspector. These files contain a resume, eye exams, CPRT certifications including any limitations or exceptions, CPRT indoctrination and training records, employment and education verifications, and records of prior training and certifications.

The files of all 51 inspectors onsite as of August 13, 1985, were reviewed. Each file was reviewed for the following: (1) potential conflicts from previous employment; (2) the validity of the eye exams; (3) the current CPRT certification level for compliance with ANSI N45.2.6; (4) CPRT indoctrination, discipline specific training and testing, and records of required reading accomplished; and (5) the appropriateness of the individual recommending and approving the inspector's level of certification.

Of the 51 files reviewed, 6 inspectors' files were not complete enough for certification nor were they listed on the bi-weekly list of certified inspectors. Of the remaining 45 files, no departures from ANSI N45.2.6 or CPP-003 were found and each inspector was identified on the bi-weekly list with the proper certification, discipline, and level.

While reviewing these certification files, three inspectors were identified that had previously worked for Brown and Root (B&R) at the South Texas Project. Based on the NRC review of their files, there is no

apparent loss of objectivity or conflict with their previous employment and their current areas of assignment. The ERC certifying agent stated that this prior employment was considered during certification review, but this effort was not documented nor was there a requirement that it be. No further NRC action is planned concerning this matter; however, NRC staff will continue to be alert to such potential conflicts.

5. CPRT ISAPs

a. Heat Shrinkable Cable Insulation Sleeves (ISAP No. I.a.1)

Status of CPRT Activity

TUGCO construction procedures and TUGCO quality inspection procedures, with associated inspection forms have been reissued to ensure that applications involving heat shrinkable cable insulation (HSCI) sleeves are properly documented during QC inspections.

TUGCO is currently training craft and QC inspectors to the reissued construction and inspection procedures, including certification of their QC inspectors.

The CPRT-Electrical have identified a total population of 1359 HSCI sleeves on: (1) electrical penetration assembly (EPA) pigtails; (2) cable reductions to 6.9 kV and 480V AC motors and heaters; (3) solenoid (125 VAC) valves; and (4) bolted type cable reductions at 125V distribution panels. Sixty safety-related samples of HSCI sleeve installation inspection reports (IRs) have been reviewed by the CPRT-Electrical. The sample size was increased by 35 more IRs due to a potentially defective sample which was later identified as not defective. One defective sample out of a total sample of 95 was identified. No further sampling was required per the program action plan Appendix D.

All cable locations where reduction splices could possibly be used were visually inspected by ERC to confirm that no other cable reduction splices, other than those identified above, were used at terminations. No other reduction splices were identified.

A nonconformance report (NCR) has been issued to disposition the above defective sample.

An evaluation by the CPRT-Electrical to: (1) provide reasonable assurance that sleeves are installed where required; and (2) to establish root causes of the one defective sample out of 95, is currently in process and will be reported in the CPRT-Electrical final results report for ISAP No. I.a.1.

Status of NRC Inspection Activity

The NRC inspector has reviewed the CPRT Action Plan I.a.1, Revision 3, and the implementing CPRT quality instruction (QI-003, Revision 0).

Craft construction procedure EEI-8, Revision 5, "Class 1E and non-Class 1E Cable Terminations," is currently being reviewed to verify that installation requirements for HSCI sleeves have been adequately addressed. TUGCO quality inspection procedure QI-QP-11.3-28, Revisions 24 and 25, "Class 1E Cable Terminations," is also being reviewed to verify where HSCI sleeves are required. Inspection forms (attachments to QI-QP-11.3-28) which have been revised are also being reviewed by the NRC.

No NRC violations or deviations were identified.

b. Agreement Between Drawings and Field Terminations (ISAP No. I.a.4)

Status of CPRT Activity

The sampling inspection plan, calling for reinspection of cable terminations in the Unit 1 control room and cable spreading room for the essential Class 1E circuits which interface with the alternate shutdown panel, has been completed. The total population of 3812 "safe shutdown" terminations was identified by TUGCO Engineering in October 1984. TUGCO Engineering prepared 335 cable verification packages to which ERC performed a reinspection to verify that the physical terminations were in agreement with as-built drawings, as modified by applicable design changes.

All terminations met the acceptance criteria outlined in the ISAP. One drawing error was identified and corrected involving cable identification. A cable tag was also noted to be marked in error and corrected. No deviations were identified.

CPRT-Electrical is currently in the process of verifying the 883 cable conductor configurations against the cable conductor sampling list. Stone & Webster is currently assisting CPRT-Electrical in checking the cable conductor sampling list against as-built drawings.

Status of NRC Inspection Activity

Inspection of this activity included review of CPRT Action Plan I.a.4, Revision 3, and the conformance of implementing CPRT quality instruction, QI-001, Revision 3, to the action plan.

No NRC violations or deviations were identified.

c. NCRs on Vendor Installed AMP Terminal Lugs (ISAP No. I.a.5)

Status of CPRT Activity

The CPRT-Electrical has received and is reviewing the AMP Incorporated Engineering Evaluation Report No. EER-136 results for acceptability. The accepted results will be addressed in the CPRT-Electrical Results Report now in draft form. The CPRT-Electrical has addressed whether the observed condition at the ring terminal tongue is a bend or a twist. The CPRT-Electrical concluded, after physical inspection, that the identified twist is actually an oblique bend, but to avoid misunderstanding the use of the word "twist" will remain to depict the condition observed.

The NCRs went through two separate redispositionings by TUGCO. The first provided a clarification of the physical condition of the terminal lugs and the basis for using the terminal lugs "As Is". The second redisposition addressed the use of twisted terminal lugs as based on the results of the AMP Incorporated Engineering Evaluation Report No. EER-136.

The CPRT-Electrical is currently in the process of deciding whether root cause determination is necessary. Final acceptance of the analysis could negate these items from a "nonconforming" classification.

Status of NRC Inspection Activity

Inspection of this activity included the review of the CPRT Action Plan I.a.5, Revision 3. No CPRT quality instruction governs this activity, other than the SRT Draft Policies and Guides, which were approved for use by the SRT on February 28, 1985. Assessment of the adequacy of this approach is an open item (445/8511-O-38).

The NRC inspectors are currently reviewing the AMP Incorporated Engineering Evaluation Report EER-136.

No NRC violations or deviations were identified.

d. Electrical Conduit Supports (ISAP No. I.c)

Status of CPRT Activity

The Unit 1 Damage Study program conducted by CPSES for conduits greater than 2" is currently being reviewed by TERA (Third Party). The Unit 1 and common 1 1/2" and 2" conduit population has been tabulated by run; random and engineering samples have been selected with as built drawings completed accordingly. Seismic analysis is complete for all runs in the random sample and is ongoing for the engineering sample runs, with the seismic analysis report presently scheduled for completion by early December 1985. Preliminary results indicate approximately 5% of all runs analyzed could interact with safety related items. CPRT is currently reevaluating the potential

conservatism of support failure criteria. The NRC inspector was informed that interactions will be evaluated as to safety significance in the ongoing damage analysis. Third party review is ongoing for sample selection, as-built documentation, and seismic analysis.

Status of NRC Inspection Activity

Sample selection adequacy and compliance with the FSAR, CPRT Action Plan, and SRT policy statements are currently being inspected. This inspection includes the following activities: review of the Damage Study for greater than 2" conduit, verification of populations, review of as-built drawings, review of dynamic analysis methods with related support failure criteria, and review of the Gibbs & Hill evaluation of greater than 2" Category II conduit for Unit 1.

No NRC violations or deviations were identified.

e. QC Inspector Qualifications (ISAP No. I.d.1)

Status of CPRT Activity

Six electrical QC inspectors have been identified by the Phase I and II stages of this plan to have qualifications which could not be substantiated as meeting project requirements. Phase III reinspections of sampled work accepted by four of the inspectors are complete. Reinspection was being performed of samples of work accepted by one of the two remaining inspectors during this time period. The inspections were being performed by an ERC inspector and an accompanying TUGCO QC inspector.

Status of NRC Activity

1. The following three ERC reinspections of work accepted by the inspector were witnessed by the NRC:

   - Conduit C13Ø30625
   - Pull Box JB1S-595G
   - Essential Lighting Circuit ESB1-42

2. During the above reinspections, ERC identified the following condition to the NRC inspectors as subject to evaluation as a potential deviation:

   - Pull Box JB1S-595G - Acceptance of box location on the apparent basis of a drawing which did not identify box location.

Disposition of this finding is an open item (445/8511-0-01)

3. During the ERC reinspection on August 6-7, 1985, of Circuit ESB1-12, the following deficiencies outside of the

defined ERC inspection scope (i.e., work not inspected by the inspector in question) were orally identified to the NRC inspector:

- One pull box (ESB1, above exit sign) was [illegible] shown on drawing 2323-E1-0909
- Exit sign above door 201 did not match details on drawing 2323-E1-1704
- The exit sign seismic cable was [illegible] allowable and plain washers were used on U-bo[illegible] or lockwashers.
- Drawing 2323-E1-1704 calls for 1/4 inch U-bolts on lighting fixtures, but some U-bolts were 5/16 inch.

The NRC inspector was informed that a TUGCO NCR would be issued for the out-of-scope findings. As of August 29, 1985, an NCR was ascertained by NRC followup to have not been initiated. It was additionally ascertained that the necessary information for NCR issue had not been maintained. The failure to promptly document nonconforming conditions is a violation (445/8511-V-01).

f. Reinforcing Steel in the Reactor Cavity (ISAP No. II.a)

Status of CPRT Activity

A detailed reanalysis of the as-built condition of the structural integrity of the Unit 1 reactor containment between elevations 812'0" and 819'1/2" was completed by Gibbs and Hill, Inc., (G&H) and subsequently reviewed by TERA personnel. Other instances of reinforcement omissions for Units 1 and 2, as documented in project NCRs, were researched. A random sample of 60 concrete pour cards was selected and reviewed. The final results report is in the course of preparation.

Status of NRC Inspection Activity

An analysis of the as-built condition of the Unit 1 reactor cavity by G&H (i.e., calculation number SRB-115C, Set 5, 26p) was reviewed by the NRC inspector. The methodology and assumptions used were compared against the design commitments contained in Section 3.8 of the FSAR. The reactor cavity design pressures were verified to be in agreement with Table 6.2.1-23 of the Comanche Peak FSAR. Numerical calculations were spot checked for arithmetic accuracy. Structural drawings showing reactor cavity dimensions and as-built reinforcing steel placement were checked during the review to verify the dimensions used in the calculations.

The G&H analysis of the as-built condition of the Unit 1 reactor cavity appeared to appropriately address the omitted reinforcing

steel. The methodology, assumptions, and load combinations appeared to be consistent with Comanche Peak FSAR. Spot checking of the numerical calculations substantiated the conclusions made by G&H with respect to omitted reinforcing steel not being required to maintain the structural integrity of the reactor cavity.

Plan items scheduled to be inspected by NRC personnel include: (1) a review of the circumstances and engineering evaluation that led to provisions for, and subsequent deletion of the subject reinforcing steel, (2) a review of all other instances of reinforcement omissions for Units 1 and 2 covering all safety related Class I building structures, (3) a review of 60 concrete pour cards, and (4) a review of procedures governing design changes including the flow of design changes to the field.

No NRC violations or deviations were identified.

g. Rebar in the Fuel Handling Building (ISAP No. II.e)

Status of CPRT Activity

An analysis of the effects of cutting two layers (1st and 3rd) of the east-west No. 18 reinforcing steel associated with the installation of the trolley process aisle rails in the Fuel Handling Building was completed by G&H and reviewed by TERA. Procedures for ultrasonic measurement of the length of the installed Hilti bolts were prepared and reviewed. Ultrasonic testing was carried out by Southwest Research Institute (SWRI) and the results report on the testing is currently being reviewed by TERA. The final results report is in the course of preparation.

Status of NRC Inspection Activity

G&H calculation number SRB-102c, Set 1, Revision 10, for TUGCO was reviewed by the NRC inspector. The analysis is designed to demonstrate that the structural integrity is maintained if No. 18 reinforcing steel on both the first and third layers was cut. The methodology and assumptions used were compared against the design commitments contained in Section 3.8 of the FSAR. Spot checks were made of the arithmetic accuracy of the numerical calculations. Structural drawings showing dimensions and reinforcing steel placement were checked during the review to verify the dimensions used in calculations. The analysis assumes that only two bars were cut along only one rail line based on the relative dimensional locations of the Hilti bolts and the embedded reinforcing steel.

The G&H analysis of the effects of cutting both (1st and 3rd) layers of the east-west No. 18 reinforcing steel in the top reinforcement of the concrete mat appears to adequately address the situation. The

methodology and assumptions used appeared to be consistent with the FSAR. The SFB-102C, Set 1, Revision 10, calculations by G&H used "the governing design bending moment and steel reinforcement required as given in the original calculations." The values used were verified to be accurate by reference to the original calculations. The analysis was found to be supportive of the conclusion that the mat is structurally sound inspite of the possible cutting of two No. 18 reinforcing bars along one rail line.

A review of the SWRI procedure NDT-800-103 for ultrasonic measurement of Hilti bolt lengths was completed which indicated the procedure is adequate. Inspection reports on Hilti bolt lengths generated using this procedure were also reviewed.

Additional plan items scheduled to be inspected by NRC personnel include: (1) a review of the adequacy or procedural controls governing rebar cutting, (2) a review of all cases for Units 1 and 2 where rebar cutting was requested for installation of Hilti bolts, (3) a review of the determination of the possibility of additional unauthorized rebar cutting, and (4) a review of Hilti bolt installation work performed by the construction crew that installed the subject Hilti bolts.

No NRC violations or deviations were identified.

h. Hot Functional Testing (HFT) Data Packages (ISAP No. III.a.1)

This ISAP deals with HFT completed data packages which were reviewed by the NRC Technical Review Team (TRT) during the 1984 inspection, as documented in NUREG-0797, Supplement No. 7, "Safety Evaluation Report," (SSER) dated January 1985.

The applicant has informed the NRC inspector that the actions committed to by ISAP No. III.a.1, Revision 3, have been essentially completed with the exception of the final results report. The NRC has therefore commenced a followup inspection to verify the completeness and adequacy of corrective action taken.

In order to maintain a correlation between areas inspected and the applicable sections of the ISAP, this inspection report will address each area using the ISAP section or paragraph number assigned by the applicant:

4.1.1. The applicant committed to develop guidelines for reevaluation of completed test data packages by the Joint Test Group (JTG) members, or their designee, qualified to review preoperational test results and who did not perform the original review, as stated in 4.2.1 of the ISAP. The guidelines were furnished as Attachment 1 of the ISAP. The NRC inspector reviewed the

guidelines and found them to be adequate. However, during a followup inspection of the reevaluation on 1CP-PT-49-05, "Boron Thermal Regeneration System" preoperational test data package, the NRC inspector found two test steps signed by the same individual who participated in the reevaluation. The impact this may have on objectivity was discussed with the applicant. The NRC inspector was provided with the explanation that if a System Test Engineer (STE) was responsible for the conduct of a given test, he would not be utilized for the reevaluation. However, there will be instances where STEs who may have assisted, such as in the above test, would be utilized due to qualified manpower limitations. Since there is an independent, multi-discipline reevaluation being conducted by all JTG members or their designees, the level of objectivity required by the NRC appears to have been achieved.

4.1.2. This section of the ISAP commits to issuance of Test Deficiency Reports (TDRs) to fully document the results of the reevaluation of HFT data packages for 1CP-PT-34-05 and 1CP-PT-55-05. The NRC inspector verified that TDR 3653 and TDR 3654, respectively, were issued and properly filed in the TUGCO Records Center. These TDRs and the associated tests are discussed in detail in paragraphs 4.1.4 through 4.1.6 below.

4.1.3. The completed test data package for 1CP-PT-02-12, "Bus Voltage and Load Survey" was verified by the NRC inspector to have been reevaluated in accordance with the ISAP. The disposition was consistent with the TRT findings reported in the SSER and thus the JTG directed that the test results be voided and the test repeated. Subsequently 1CP-PT-02-12, RT-1, Revision 0, "Bus Voltage and Load Survey, Retest 1" was performed during the second HFT conducted in November - December, 1984. The completed test data package was reviewed by the NRC RRI with satisfactory results as documented in NRC Inspection Report 50-445/85-06.

4.1.4. The completed test data package for 1CP-PT-34-05, "Steam Generator Narrow Range Level Verification" was reevaluated as documented in TDR 3653. The reevaluation summary report attached to the TDR addressed the fact that three temporary transmitters were used during the test, but the TRT's primary concern, the adequacy of the retest for the subsequently installed permanent transmitters, was not. In the SSER, the TRT reported a concern that replacement transmitters 1-LT-517, -518, and -529 were not adequately retested because they had been subjected to a cold calibration only, when in addition, they should have been operationally tested at hot, no load conditions. Regulatory Positions 2 and 3 of Regulatory Guide 1.68 require adequate retests to be performed which subject components to actual plant operating conditions to the

extent practical. The applicant explained in Section 3.1 of the ISAP, and during several discussions with NRC representatives, that all the transmitters will be verified to be operational at hot plant conditions as required by Technical Specifications. The applicant has not documented this as a specific retest requirement for the replaced transmitters. Region IV is evaluating the applicant's position regarding this issue. This matter and the similar subject material found in regard to test data packages 1CP-PT-55-05 and 1CP-PT-55-10 is an unresolved item (445/8511-U-02).

4.1.5. The completed test data package for 1CP-PT-55-05, "Pressurizer Level Control" was verified to have been reevaluated as documented in TDR 3564. Although the objectives of the test appear to have been met, level transmitter 1-LT-461 was found subsequently to have been out of calibration. Efforts to calibrate the instrument were unsuccessful, thus it was replaced. As in the case with 4.1.4 above, a cold calibration retest was specified in the TDR, again as discussed in Section 3.1 of the ISAP, on the apparent basis that the instrument will be functionally tested later. The same documentation problem for retesting applies as was the case in 4.1.4 above. This matter as discussed in 4.1.4 above is part of unresolved item (445/8511-U-02).

4.1.6. TDR 4015 was issued as a supplement to 1CP-PT-55-05 to track and document the reevaluation by the JTG of the apparent unauthorized change of chart speed on the pressurizer level recorder, as committed by the ISAP. Corrective action documented in the TDR states, " . . . since the procedure suggested the chart speed, it could have been misinterpreted not to require a test procedure deviation (TPD) report."

Paragraph 7.2.6.c of the test procedure directs the STE to "Select and record chart speed (1"/min or comparable)." The NRC inspector did not find any room in the procedure step for an interpretation that might allow the STE to select and record chart speed, sign off the step, and then while the test is in progress change the speed by a factor of 10 without changing the procedure (in accordance with administrative requirements). This issue is being considered for enforcement as a part of the followup to the TRT findings.

4.1.7. There were seven HFT preoperational test data packages that were not previously reviewed by the TRT. This section of the ISAP committed the applicant to a reevaluation of these packages in accordance with the guidelines established in Attachment 1 of the ISAP. The NRC followup inspector is reviewing the documentation associated with the reevaluation of each data package to determine the following:

- That the applicant's reevaluation appeared to follow the guidelines established by Attachment 1 of the ISAP,

- that documented questions raised by the reevaluation were properly dispositioned and approved by the JTG, and

- that the disposition approved by the JTG are not contrary to regulatory requirements.

The following test data package reevaluations were followup inspected during the reporting period:

a. 1CP-PT-49-02, "Sealwater and Letdown Flow Performance." The reevaluation appeared to meet the above inspection criteria with two exceptions. In the first case, the reevaluation questioned why the JTG failed to consider the impact on test results caused by replacement of the letdown orifices with a different size, specifically in the determination of letdown heat exchanger capacity, which is a function of flow through these orifices. The JTG - approved response was that the objectives of the test were not compromised because the FSAR does not require operational testing of these heat exchangers. The test method on sheet 11 of FSAR Table 14.2-2 states, "Verify . . . operability of heat exchangers . . . ." In the second case, the reevaluator questioned why TPD-4 did not state the reason for changing letdown flow from 120 to 75 GPM. The JTG - approved disposition provided the reason, which appeared to be technically correct, however, no reference was made to any corrective actions to ensure a proper reason is entered on TPDs. The above two cases were discussed with the applicant's representatives. At the time there was no satisfactory explanation available as to why the letdown heat exchangers did not need to be retested, but the applicant committed to provide one at a later date. Permanent corrective actions to ensure TPDs are properly justified are being taken by revisions to the Standard Administrative Procedures, as part of the programmatic improvements being made by the CPRT. These actions shall be tracked under Open Item (445/8511-0-02).

b. 1CP-PT-49-05, "Boron Thermal Regeneration System." This reevaluation met the above inspection criteria.

c. 1CP-PT-55-10, "Pressurizer Pressure Control System." The reevaluation summary report stated that the deficiency reported by TDR 1226 was not corrected by the specified corrective action. Pressurizer pressure bistable 1-PB-455A failed to trip at the required setpoint when the data appeared to indicate that it should have. The JTG -

approved disposition relates to a 2400 PSIG limit as having prevented the trip, yet the bistable subsequently tripped at 2385 PSIG. This was discussed with the applicant's representative, who indicated that a valid explanation exists and will be included in the data package. This is an open item (445/8511-0-03).

The reevaluation summary report stated that contrary to Regulatory Guide 1.68, a temporary instrument, different than the permanent plant component, was used during this test in lieu of pressurizer pressure transmitter PT-458. The JTG - approved disposition reflected the applicant's position that this is an acceptable practice, and noted that the replacement permanent transmitter will be exposed to operating plant conditions prior to reactor operation. The NRC followup inspector reviewed TDRs 738, 742, and 905 and noted that the retest of the permanent transmitter specified on TDR 738 was signed off as satisfactorily completed. The retest documentation did not refer to any functional test at operating plant conditions. As such, there is no apparent intent to identify this part of the retest as a pending retest at licensing. This matter is discussed in 4.1.4 and 4.1.5 above and is part of unresolved item (445/8511-U-02).

No NRC violations or deviations were identified during this part of the inspection.

i. Inspection for Certain Types of Skewed Welds in NF Supports (ISAP No.V.a)

Status of CPRT Activity

Reinspection of a minimum sample size of 60 type 2 skewed welds is currently in process. At this time, 12 type 2 skewed welds have been identified as deviating from drawing requirements; i.e., undersize.

Status of NRC Activity

NRC personnel have reviewed CPRT ISAP No. V.a and witnessed seven pipe support skewed weld inspections to assure compliance with inspection procedure requirements. Independent NRC inspection will be initiated. Review and assessment of the dispositions relating to the 12 deviating skewed welds is considered an open item (445/8511-0-04).

No NRC violations or deviations were identified.

j. Design Consideration for Piping Systems Between Seismic Category I and Non-Seismic Category I Buildings (ISAP No. V.c)

Status of CPRT Activity

A list identifying all Unit 1, 2 and common piping with seismic/nonseismic interface has been completed by Comanche Peak Project Engineering (CPPE). The committed review and discussion related to the events of the Auxiliary Steam Piping situation and recommendations to the Project Piping and Supports Program (PPSP) and/or Design Adequacy Program (DAP) are complete, pending final review. The final results report is in the course of preparation.

Status of NRC Inspection Activity

A review of the list identifying all Unit 1, 2, and common piping with seismic/nonseismic interface is currently being performed to assure both validity of the list and that no lines have been omitted. NRC inspection of available documentation relative to the Auxiliary Steam Line and the recommendations to the PPSP and/or DAP will be performed after issuance of the final results report.

No NRC violations or deviations were identified in this area of inspection.

k. Plug Welds (ISAP No. V.d)

Status of CPRT Activity

A reinspection was initiated on two random samples of ASME Section III component supports and base plates, with one sample representing Unit 1 and common, and the other sample representing Unit 2. Each sample consisted of 60 component supports and/or base plates.

Similarly, a reinspection of two random samples of cable tray supports, consisting of 60 from Unit 1 and 60 from Unit 2, was initiated.

Approximately 92% of the reinspection program has been completed.

Status of NRC Activity

Review of CPRT ISAP V.d has been completed. NRC personnel observed 22 pipe support base plate, and cable tray support reinspections. Two pipe supports and seven cable tray supports indicated the potential presence of plug welds and were therefore etched and visually examined Five cable tray supports were confirmed by etching to contain plug welds. Original inspection documentation was reviewed from which it was ascertained that the plug welds had been inspected and accepted.

Plug welds in one non-ASME pipe support and four cable tray supports were independently inspected by NRC personnel. Design Change

Authorization No. 5347 is currently being reviewed by the NRC inspector for appropriate applicability to identified plug welds.

No NRC violations or deviations were identified.

l. Installation of Main Steam Pipes ISAP No. V.e)

Status of CPRT Activity

The specific engineering investigation of the steam line adjustment is about 90% complete. Interviews with personnel involved with the steam line adjustment have been completed. An analytical report issued by R. L. Cloud Associates (RLCA) for TERA has been prepared. This report describes the analytical evaluation of stresses and support load changes which occurred during Unit 1, Loops 1 and 4, steam line movement. It also establishes engineering significance of stresses, reviews the existing ultrasonic examination and hydrostatic test results and determines the need for reinspections at highly stressed points on the main steam piping. Review of procedures for pipe erection and placement of temporary and permanent supports as well as engineering significance of these procedures is presently being done.

The generic study of possible damage in other piping is about 85% complete. Interviews with pipe installation personnel, review of NCRs and Piping Deviation Request Forms (PDRFs), and review of other sources of residual stress as well as engineering significance has been completed pending review.

Status of NRC Inspection Activity

The RLCA stress report is being reviewed for adequacy of the methods of analysis. The supporting computer output, calculations, and piping models will be reviewed upon receipt at site. Assessment of NCR and PDRF reviews is planned to be performed in the next inspection period, with review of revised procedures and specifications scheduled upon issuance of the final results report.

No NRC violations or deviations were identified in this area of inspection.

m. Material Traceability (ISAP No. VII.a.1)

The ERC's issue coordinator for this item has completed Phase I and issued a report documenting their position on material traceability of ASME items. The report states that an ASME survey in 1981 resulted in the withdrawal of Brown and Root's certification. After corrective action was initiated and a resurvey was conducted the certification was reinstated by the ASME. Subsequently, the ASME conducted an unannounced survey and in 1984 a certificate renewal survey was conducted. None of these subsequent surveys identified further problems with material traceability.

The ERC issue coordinator considers the present practices adequate and will refer the ASME survey findings to the issue coordinator for nonconformances and corrective actions (ISAP No. VII.a.2) to assess the possibility of a QA/QC breakdown. The remainder of the material traceability issue (Phase II) is dependent on the results of the ISAP No. VII.c reinspection effort. Therefore, this subject will be continued in a future report.

One deviation (445/8511-D-02) was identified during the NRC inspector review of this item. The CPRT Program Plan, Section VII, provides criteria for assuring the objectivity of CPRT personnel. One criterion states that any CPRT consultant who has had previous CPSES involvement in areas of current CPRT review responsibility will be identified to the NRC with the justification necessary to show continued objectivity. The issue coordinator for this item was a consultant to B&R in 1981 which included an audit at Comanche Peak; however, this was not identified to the NRC nor was the necessary justification provided.

n. Valve Disassembly (ISAP No. VII.b.2)

Status of CPRT Activity

Valves that required disassembly for construction, testing, or other reasons, have been identified and a reference data base established. The applicable construction and quality control procedures and drawings have been reviewed. In conjunction with the procedure/drawing review, an analysis was made to determine the safety consequences of improperly reassembled valves. The analysis includes potential failure modes resulting from improper reassembly of the identified valves. The selection of a random sample and an engineering sample was performed and the reinspection documentation packages prepared. Reinspection was initiated and is now approximately 95% complete. There is an approximate 2% deviation rate identified thus far, related to valve body and valve bonnet serial number mismatch. The deviations are being evaluated and the programmatic and generic implications are being reviewed. This is an open item (445/8511-0-05).

The estimated completion of this activity and issuance of a results report is currently scheduled for October 15, 1985.

Status of NRC Inspection Activity

Seven valve reinspections have been witnessed. The review of all pertinent activities associated with this action plan are continuing.

No NRC violations or deviations were identified.

o. Construction Reinspection/Documentation Review Plan - Cable Trays (ISAP No. VII.c)

Status of CPRT Activity:

ERC completed 32 reinspections of sampled cable trays as of August 23, 1985.

Status of NRC Activity:

1. The following seven ERC reinspections of sampled cable trays were witnessed by the NRC.

Verification Package No.	Cable Tray No.
I-E-CATY-004	TI4ØCDJ17
I-E-CATY-023	T12ØCBD68
I-E-CATY-036	T14ØSDA05
I-E-CATY-047	T13ØACP16
I-E-CATY-049	T13ØCCP70
I-E-CATY-055	T12ØFBU04
I-E-CATY-060	T12ØFBU05

2. During the above reinspections, ERC identified the following conditions to the NRC inspector as subject to evaluation as potential deviations:

   a. I-E-CATY-004: Cable Tray T14ØCDJ17 had a loose ground strap bolt near node 16.

   b. I-E-CATY-004: Cable Tray T14ØCDJ17 had two approximately one inch openings in the solid bottom cover. With these openings 3 feet vertical separation is required by the electrical erection specification. The distance to the tray below is only 2 feet 9 inches.

   c. I-E-CATY-004: Drawing showed that cable tray T14ØCDJ17 elevation to be 817' instead of 819' (actual).

   d. I-E-CATY-047: Sharp edges observed in tray T13ØACP16 at 1720' marker. Adjacent Rockbestos 7C AWG 600V cable jacket was slightly damaged.

   e. I-E-CATY-074: Bottom tray run was notched to allow a wrench to tighten a solid bottom cover bolt to the tray rung.

   f. I-E-CATY-036: Cable tray T14ØSDA05 had a loose bolt on a splice plate.

   Dispositions of the above findings are open items (50-445/8511-0-06 to 445/8511-0-11).

3. ERC also noted the following deficiencies outside of the defined inspection scope:

   a. I-E-CATY-047: A welded splice plate was observed as having two out of eight bolts missing.

   b. I-E-CATY-055 & 060: Pipe FD-1-880-21A was less than the required 6 inches from a tray.

   Dispositions of the above findings are open items (445/8511-0-12 and 445/8511-0-13).

4. Additional NRC observations were made during the electrical cable trays reinspections with respect to fire wrap damage and missing cable tray covers. The results of NRC evaluation of these subjects will be documented in a subsequent inspection report. These are open items (445/8511-0-14 and 445/8511-0-15).

   No NRC violations or deviations were identified.

p. Construction Reinspection/ Documentation Review Plan - Electrical Conduit (ISAP No. VII.c)

Status of CPRT Activity:

ERC completed 51 reinspections of sampled electrical conduit as of August 23, 1985.

Status of NRC Activity:

1. The following six ERC reinspections of sampled electrical conduit were witnessed by the NRC:

Verification Package No.	Conduit Tray No.
I-E-CDUT-007	C13Ø10190
I-E-CDUT-065	C13G08606
I-E-CDUT-070	C14R13047
I-E-CDUT-066	C12G04985
I-E-CDUT-051	EAB1-1
I-E-CDUT-064	C13Ø16037

2. During the above reinspections, ERC identified the following conditions to the NRC inspectors as subject to evaluation as potential deviations:

   a. I-E-CDUT-066: Conduit to tray separation was measured to be 6 1/2 inches rather than the required 12 inches.

b. I-E-CDUT-064:

(1) Tray T14KCCL23 is required to have 2 inches of separation from conduit. One inch separation was measured.

(2) Trays T13KCCT22, T13KCCV18 and T14KCCL23 do not meet separation requirements.

(3) No fire seal was installed in end of conduit in control room.

Dispositions of the above findings are open items (445/8511-0-16 to 445/8511-0-19).

3. ERC also noted the following deficiencies outside of the defined inspection scope:

Verification Package No. I-E-CDUT-066

At the Motor Control Center (MCC) 1EB4-1, the cables coming out of the conduit stove pipes into the cable tray above are partially covered with thermal lag. These cables do not meet the requirement for 2 inches of movement (slack) in all directions for conduit to cable tray transitions for free air cables.

Verification Package No. I-E-CDUT-064

a. In the bottom of Control Room Rack CPI-ECPRCR-15, rear section, five of the eight conduit stubs did not contain any fire stop sealing material. The sealing material is a requirement anytime a conduit penetrates a fire rated wall or floor.

b. Conduit C13Ø16035 runs from above tray T13ØCCQ64 and ends just under the tray. The cables from this conduit enter the tray from the bottom. Conduit requirements call for conduit to make cable transitions 10 inches above the tray.

Dispositions of the above findings are open items (445/8511-0-20 to 445/8511-0-22).

No NRC violations or deviations were identified in this area of inspection.

q. Construction Reinspection/Documentation Review Plan - Electrical Cable (ISAP No. VII.c)

Status of CPRT Activity

ERC completed 15 reinspections of sampled electrical cable as of August 23, 1985.

Status of NRC Activity

1. The following 11 ERC reinspections of sampled electrical cable were witnessed by the NRC:

Verification Package No.	Cable Tray No.
I-E-CABL-004	EG123625Z
I-E-CABL-037	EG015661
I-E-CABL-040	EØ106091
I-E-CABL-042	EG123834
I-E-CABL-045	EØ121890
I-E-CABL-054	EØ100440
I-E-CABL-035	EG112939
I-E-CABL-028	EØ015951D
I-E-CABL-058	EØ015944B
I-E-CABL-011	ESB2-13
I-E-CABL-036	EG126972X

During the above reinspections ERC identified the following conditions to the NRC inspectors as subject to evaluation as potential deviations:

a. I-E-CABL-037: A group of cables exiting tray T13GCCM13 and entering tray T13GCCM36 were bearing on a cable in the bottom of tray T13GCCM13. This cable, which could not be individually identified due to the numerous other cables in the tray, could possibly suffer conductor damage.

b. I-E-CABL-040: Cable EØ106091 was found to not have the required 2 inches of slack in free air as it exited tray T13SCC65 and entered conduit C13Ø15570.

c. I-E-CABL-045:

(1) Wall sleeve TWS-A-020 existed in the plant but was not shown on routing schedule 2323-E1-1700 as a designed raceway.

(2) Cable EØ121890 was found to not have the required 2 inches of slack in free air as it exited tray T13ØCCQ22 and entered conduit C13Ø11615.

(3) Cable EØ121890 was found to not have the required 2 inches of slack in free air as it exited tray T13ØCCQ45 and entered C13Ø03316.

(4) The electrical penetration assembly for cable EØ121890 was not identified on the outboard side.

d. I-E-CABL-028: Drawing 2323-E1-0035, Sheet 38, did not have termination points A through H listed for cable EØ015910 terminating at a limit switch.

e. I-E-CABL-058 - Drawing 2323-E1-0035, Sheet 37, did not have termination points A through H listed for cable EØ15944B which terminated at a limit switch.

Dispositions of the above findings are open items (445/8511-O-23 to 445/8511-O-30).

2. ERC also noted the following deficiencies outside of the defined inspection scope.

a. I-E-CABL-040: ERC discovered a two conductor - 12 AWG - 600V cable with a cut outer jacket. The cable (EØ122946) is located at the floor penetration of 480V MCC 1EB1-1. TUGCO QC applied a hold tag upon ERC identification.

b. I-E-CABL-040 - Cable tray T13ØSCC68 had less than the required 1 inch separation between a covered tray and a lighting conduit.

Dispositions of the above findings are open items (445/8511-O-31 and 445/8511-O-32).

3. Additional observations were made by the NRC inspectors during the ERC reinspections with respect to wall sleeve to conduit connection documentation and verification practices used for reinspection of cable to electrical penetrations. These subjects are considered open items (445/8511-O-33 and 445/8511-O-34) pending completion of NRC evaluation. During NRC independent inspection, it was noted that trays T13ØECG41 and T13ØCCP80 in the Unit 1 lower cable spreading room had 1 inch openings in the solid bottoms. This is an open item (445/8511-O-35) pending completion of NRC review in regard to the permissibility of this condition.

6. Unresolved Items

Unresolved items are matters for which more information is required in order to ascertain whether they are acceptable items, violations or deviations. Two unresolved items disclosed during the inspection are discussed in paragraphs 3 and 5.h.

7. Exit Interview

An exit interview was conducted on August 29, 1985, with the applicant representatives denoted in paragraph 1 of this report. During this interview, the NRC inspectors summarized the scope and findings of the inspection. The applicant acknowedged the findings.