

APPENDIX C

COMANCHE PEAK RESPONSE TEAM ACTIVITIES INSPECTION REPORT

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-445/86-15
50-446/86-12

Permits: CPPR-126
CPPR-127

Dockets: 50-445
50-446

Category: A2

Construction Permit
Expiration Dates:
Unit 1: August 1, 1988
Unit 2: August 1, 1987

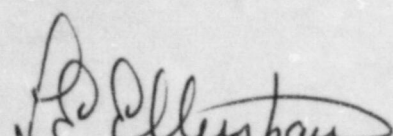
Applicant: Texas Utilities Electric Company
Skyway Tower
400 North Olive Street
Lock Box 81
Dallas, Texas 75201

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

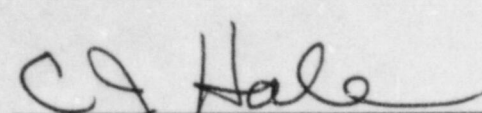
Inspection At: Glen Rose, Texas

Inspection Conducted: June 1-30, 1986

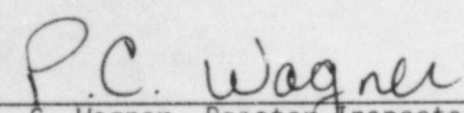
Inspectors:


L. E. Ellershaw, Reactor Inspector, Region IV
CPSES Group
(paragraphs 3.a, 5.a-c, 6.c, and 7.b-e)

12/10/86
Date


C. J. Hale, Reactor Inspector, Region IV
CPSES Group
(paragraphs 2.b-d, 4, 6.b, 6.d, and 8)

12/10/86
Date


P. C. Wagner, Reactor Inspector, Region IV
CPSES Group
(paragraphs 2.a, 6.a and 7.a)

12/4/86
Date

I. Barnes
for

P. Michaud, Reactor Inspector, Region IV
(paragraph 3.b)

12/10/86
Date

Consultants: EG&G - J. Dale (paragraph 5.c)
A. Maughan (paragraphs 2.a, 6.a, and 7.a)
W. Richins (paragraph 6.c)
V. Wenczel (paragraph 4)

Parameter - J. Birmingham (paragraphs 2.b-c, 6.b and 6.d)
K. Graham (paragraphs 3.a, 5.a, 7.b, and 7.c)
D. Jew (paragraphs 5.b, 7.d, and 7.e)

Reviewed By:

R. L. Spessard
R. L. Spessard, Deputy Director, Division of
Inspection Programs, Office of Inspection
and Enforcement

11/19/86
Date

Approved:

I. Barnes
I. Barnes, Chief, Region IV CPSES Group

12/10/86
Date

Inspection Summary

Inspection Conducted: June 1-30, 1986 (Report 50-445/86-15; 50-446/86-12)

Areas Inspected: Nonroutine, unannounced inspection of applicant actions on previous inspection findings, assessment of overview inspector qualifications, assessment of overview inspection program, Comanche Peak Response Team (CPRT) issue - specific action plans (ISAPs), overview quality team (OQT) review, and assessment of allegations.

Results: Within the six areas inspected, six violations (absence of procedural requirements relative to control of material identification of identical parts made in the onsite fabrication shop, Unit 1 paper flow group issuance of control documents for extended periods, and designation of information to be included on written work requests for items from the onsite fabrication shop, paragraph 6.d; operations travelers were not being completed as required by procedures, paragraph 3.b(1); Hilti bolts were not being installed with a torque wrench, paragraph 3.b(2); modifications were made to NEMA Type 4 enclosures without proper design control measures, paragraph 3.b(6); stainless

steel cutting tools were contaminated with other materials, paragraph 3.b(7); and construction made modifications without prior engineering approval, paragraph 3.b(11)) and four deviations (Evaluation Research Corporation (ERC) failed to identify electrical inspector certification errors during the Phase i review required in ISAP No. I.d.1, paragraph 6.b; ERC inspectors did not identify errors during independent inspection of Unit 1 diesel generator control panel, paragraph 7.a; an ERC overview inspector's experience was not verified as meeting requirements, paragraph 4.b; ERC overview inspectors failed to identify errors made in an ERC deviation report (DR) concerning parallelism of pipe clamp halves, paragraph 5.c, and concerning a pipe clearance violation, paragraph 5.b) were identified.

DETAILS

1. Persons Contacted

- *J. W. Beck, Vice President, Texas Utilities Generating Company (TUGCo)
- R. Bizzak, Issue Coordinator, Comanche Peak Response Team (CPRT)
- D. Boydston, Issue Coordinator, ERC
- *C. T. Brandt, Quality Engineering (QE) Supervisor, TUGCo
- *R. E. Camp, Project Manager, Unit 1, TUGCo
- P. Clark, Overview Inspection Supervisor, ERC
- J. R. Gelzer, Issue Coordinator, ERC
- P. Halstead, Site Quality Control (QC) Manager, TUGCo
- J. L. Hansel, Quality Assurance (QA)/QC Review Team Leader, ERC
- D. J. Hudson, Certification Administrator, ERC
- *O. Lowe, Manager, Mechanical Engineering, TUGCo
- J. Mallanda, Electrical Review Team Leader, CPRT
- *D. M. McAfee, Manager, QA, TUGCo
- *J. T. Merritt, Director of Construction, TUGCo
- *L. D. Nace, Vice President, Engineering & Construction, TUGCo
- R. Pearson, Issue Coordinator, CPRT
- G. Ross, Issue Coordinator, ERC
- W. Stone, Maintenance Foreman, TUGCo
- F. Turi, Issue Coordinator, TERA
- *T. G. Tyler, CPRT Program Director, TUGCo
- C. Vincent, Issue Coordinator, ERC
- M. Wells, Civil/Structural Engineer, TUGCo
- R. Wright, Warehouse Supervisor, TUGCo
- J. E. Young, Issue Coordinator, ERC
- R. Zill, Onsite QA Manager, ERC

*Denotes those persons who attended the exit interview.

The NRC inspectors also contacted other CPRT and applicant employees during this inspection period.

2. Applicant Actions on Previous Inspection Findings

- a. (Closed) Open Item (445/8511-0-28): Missing penetration assembly identification. The ERC inspection of Verification Package I-E-CABL-045, which was witnessed by the NRC inspector, identified a potential deviation related to cable routing. Because a penetration assembly for electrical cable EØ121890 was not labeled on both sides of a wall, the ERC inspector was unable to verify that the cable was routed through the proper assembly. NRC inspector followup review of the verification package found that subsequent ERC inspector review of Drawing 2323-E1-0507, Revision 2, verified that the cable was routed through the proper penetration. Therefore, no deviation was identified.

- b. (Closed) Open Item (445/8513-0-03): ERC review of non-ASME certifications held by ASME inspectors.

The issue coordinator for ISAP No. I.d.1 directed that non-ASME certifications held by ASME inspectors be reviewed to the same criteria developed for review of non-ASME inspectors' certifications. The review of these certifications is complete and has been verified by the NRC inspector. Clarification of this requirement and subsequent action taken closes this item.

- c. (Closed) Open Item (445/8513-0-04): No clear position concerning acceptability of a TUGCo inspector with a record of passing General Education Development (GED) test scores, but without a record of a GED certificate being issued.

The special evaluation team (SET) has indicated that issuance of a GED certificate is the formal acknowledgement that test scores achieved on a GED test are acceptable proof of high school equivalency. Therefore, the SET will accept GED test scores as meeting the requirements of Regulatory Guide 1.58, if it is established that the scores are in fact passing. Passing test scores should be shown by subsequent issuance of the GED certificate or a letter from the appropriate authority indicating the test scores are passing. Since the inspector in question subsequently received a GED certificate for these test scores, the SET evaluated his certification as valid. This clarification of the SET's position closes this item.

- d. (Closed) Deviation (445/8514-D-01): The ERC records administrator did not receive or provide control of requests for equipment/services from TUGCo. Further, unique numbers were not being used in tracking such requests.

On March 11, 1986, Revision 1 to ERC Procedure CPP-012 was issued to correct the error that placed control of equipment/service requests (ESRs) under the QA/QC records administrator. The control and tracking of ESRs was and continues to be the responsibility of the inspection supervisor. The NRC inspector reviewed the system for tracking ESRs and found that the principal control was provided from the individual certification package files and the unique numbers and tracking logs were used as an aid not required by the primary control. Accordingly, Revision 1 to CPP-012 deleted the description of tracking logs and the unique number requirement; however, both continue to be used. Currently, Procedure CPP-012 is being implemented as revised and provides the required control of ESRs.

3. Assessment of Allegations

- a. 4-86-A-038 (ASME Pipe Hanger Design): It was alleged that the ASME pipe support design configuration shown on Pipe Support Drawing CT-1-014-426-C52R could allow the sharp edge of a structural member to contact piping, which would result in damage to the piping system.

The NRC assessment of the allegation revealed that the maximum horizontal movement of the piping, in accordance with the latest design drawing, was 0.141 inch in the direction of the structural member and that the existing field clearance between the piping and the structural member, Item 9 of Pipe Support CT-1-014-426-C52R, was 0.250 inch. The existing clearance is adequate and does not impair the operational function of the pipe support or piping system. The subject allegation was not substantiated.

- b. 4-86-A-015 (Electrical Design and Installation): An inspection was performed by the NRC staff in response to an allegation involving 13 areas of concern. These concerns were addressed by an examination of records, drawings, procedures and specifications, personnel interviews, and direct physical inspection. A copy of this inspection report will be provided to the allegor.

(1) Operation Travelers

It was alleged that operation travelers for conduit and junction box supports were not signed as work was performed.

An operation traveler provides instructions on how to perform a task, identifies required inspection points, and specifies the documentation required. Section 3.2 of Revision 11 to Brown & Root (B&R) Procedure CP-CPM 6.3, "Preparation, Approval, and Control of Operation Travelers," requires the initials or signature of the person completing each operation at the completion of each operation and prior to moving parts or assemblies to the next scheduled operation. The allegor stated that travelers were routinely not signed as operations were completed but were instead signed during a "final walkdown" performed by craft prior to QC inspection. This "final walkdown" could allegedly occur months after the initial installation and in many cases the person signing the traveler was allegedly not the same person who performed the original operation.

The NRC inspector reviewed more than 50 class 1E conduit travelers to determine if the operations were signed in a manner consistent with the requirements of the procedure. A number of the selected travelers had the supports for an entire conduit run signed by one person on a single day. With eight or more supports on some of these conduit runs, it seemed unlikely one person could complete the entire installation in one day. Examples of this included conduit runs C23G03594, C23G12372, C22G03862, and C22G03719.

The NRC inspector interviewed six individuals involved in the installation of safety-related conduit and junction box supports, including one foreman. Each individual confirmed that travelers were routinely left unsigned until a final walkdown of an entire conduit run was made and that the person signing the traveler during the final walkdown may not be the same person who did the original installation. None of these individuals could recall any specific instructions given to them to not sign travelers as work was performed. Additionally, each individual stated that sometimes travelers were signed as work was completed and sometimes they were left blank until a final walkdown was performed.

Installation activities were witnessed in the Unit 2 reactor building and safeguards building. The NRC inspector witnessed travelers being signed both as work was performed and during a final walkdown on an installed conduit run, which confirmed a definite lack of consistency as to when travelers were being signed. The practice of signing for work only after a final walkdown may also interfere with the identification or trending of problems with fabrication or construction. The root cause of a problem may not be identified if the symptoms are being repaired.

In defense of the current practice, QC management pointed out that in Section 2.1 of CP-CPM 6.3, the signature authority of an operation traveler lies with the construction superintendents or their designees. According to QC, the words "or their designees" were added specifically to allow signing of the travelers by someone other than the person performing an operation. Also pointed out was the exception paragraph in Section 3.2 of the procedure, which allows operations on a traveler to be performed out of sequence, which would allow a traveler to be signed any time after an operation is performed.

It does not appear, however, that the intent of this procedure, as written, was to allow the signature of someone other than the person who actually performs an operation to be affixed at any time after it has been performed, because paragraph 2 of Section 3.2 does not permit these actions. The statement in paragraph 2 of Section 3.2 is explicit with respect to requiring the signature or initials of the person completing each operation at the completion of each operation and prior to moving parts or assemblies to the next scheduled operation. Changing the signature authority is not relevant to when a step on a traveler is signed, and the "exception," allowing operations to be performed out of sequence, does not affect the requirement for signing each operation at its completion.

In conclusion, the allegation was substantiated by the NRC inspector and a violation issued (446/8612-V-01).

(2) Torque Wrenches

It was alleged that torque wrenches were not always used to set Hilti bolts as required by procedure, and often, an ordinary ratchet wrench was used which possibly resulted in exceeding the specified torque values. It was also alleged that the issue record cards which accompany each torque wrench were signed "did not use" when torque wrenches were actually used and that instructions were given to craft persons to sign "did not use."

Paragraph 3.1.4.1 of B&R Procedure CEI-20, "Installation of HILTI Drilled-in Bolts," Revision 9, requires the use of a torque wrench to set the bolt at the time of installation. The NRC inspector witnessed Hilti bolts being installed for a conduit support using a 6-inch ratchet wrench with the bolts tightened enough to hold the supports in place but without actually setting the bolts by torquing them. No torque wrench was in the possession of the craft persons installing the supports of this conduit run. Interviews conducted with six electrical craft persons confirmed that torque wrenches were seldom used on the initial installation of Hilti bolts because torquing was performed during the final walkdown of a conduit run.

Procedure CEI-20 specifies only minimum torque values which must be achieved in order to properly set the wedges on the Hilti bolt. These values are based on testing done by Hilti and TUSI specifically for construction at CPSES. The NRC inspector reviewed these test results which demonstrated that with applied torque values nearly twice those minimums specified in CEI-20, the bolts were still able to withstand loads 150 percent of the specified value. Based on these test results, exceeding the minimum torque values specified in CEI-20 would not likely have any effect on the bolt's ability to function as designed. Additionally, although a torque wrench may not have been used to install Hilti bolts, the wrench that was used has a shorter handle (6-inch ratchet vs. 14-inch torque wrench) resulting in a shorter lever arm which would make overtightening difficult. The consequences of extreme overtightening would be breaking off the bolt or pulling it out of the hole.

With regard to the second concern dealing with issue record cards, B&R Procedure CP-CPM 13.1, "General Calibration Procedure," Revision 8, paragraph 3.4.6, provides instructions that if a torque wrench is checked out and not used, the only entry required is to record that it was not used. The NRC inspector reviewed nearly 500 issue/record cards for torque wrenches used by electrical craft personnel. Each of these record cards appeared to be completed and maintained properly. Approximately one-third of the issue/record cards reviewed had a "did not use" entry. The NRC inspector interviewed four

individuals to determine if instructions were ever given to sign issue/record cards "did not use" when, in fact, they had used the wrenches. None of these individuals recalled such instructions. All of the persons interviewed did remark that occasionally a torque wrench was checked out and not used, but the proper notation was entered on the issue/record card. The supervisor of the calibration department indicated less than one percent of all torque wrenches were ever found to be out of calibration. Since an out of calibration torque wrench is such an unlikely occurrence, an unreported use of an out-of-calibration torque wrench would be more unlikely.

In summary, the NRC substantiated the allegation that torque wrenches were not always used to install and at times set Hilti bolts as required by B&R Procedure CEI-20. This failure to comply with procedural requirements is a violation (446/8612-V-02). The use of ordinary ratchet wrenches to set the bolts does not appear to present a concern with respect to over-torque of bolts, since the specified torque values are minimum values and a significant margin exists above these values. The alleged concern of improper maintenance of torque wrench issue/record cards could not be substantiated.

(3) Hilti Bolts

It was alleged that Hilti bolts were installed in contact with rebar in approximately 25% of the installations. During drilling of holes into concrete for Hilti bolt installation, rebar was occasionally exposed in the hole and subsequently the Hilti bolt was installed in contact with the rebar.

B&R Procedure CEI-20, Revision 9, covers the installation of Hilti bolts, and specifies that holes shall not be drilled into rebar unless approved by the engineers; however, the procedure does not address the case of rebar being exposed in a hole, and the subsequent installation of a bolt in contact with the exposed rebar.

Since the manufacturer's catalogs did not contain any guidance on this subject, Hilti, Inc., was contacted by the NRC to determine the acceptability of such a configuration. A response received from Hilti, Inc., on June 25, 1986, stated that rebar does not create installation problems. If the embedment, skew, and minimum torquing requirements are met, all of which are verified by QC, there is no problem with Hilti bolts installed in contact with rebar.

While the allegation was neither specifically substantiated nor refuted, it was concluded that the installation of Hilti bolts in contact with rebar does not represent an unacceptable installation.

(4) Material Traceability

It was alleged that terminal block mounting material in the Unit 2 reactor building was not necessarily of traceable material as required. Heat numbers were allegedly not transferred when this material was cut up and this material was allegedly salvaged from other areas of the plant when supplies ran short.

The NRC inspector examined purchase orders (POs) and specifications to determine what this material was and any requirements to which it must conform. The material in question was Weidmuller Assembly Rail, Type TS-32, Catalog No. 1228.0, procured under POs CPF-12897-5 and 35-1195-30092. These POs referenced the B&R specification for Class 1E terminal blocks dated October 19, 1978, and Revision 1 dated August 22, 1979.

The allegor believed that all material placed in the reactor building must be traceable with heat number, etc. This belief is not, however, supported by regulatory requirements. This material was procured as a catalog item and no requirements for traceability were imposed or required by the B&R specification. If the material in question was furnished with heat numbers on it, the identification markings were beyond the requirements of the specification. All of this material was purchased under the same requirements per the above POs and specification. Therefore, salvaging this material from one area of the plant for use in another area was of no consequence.

In summary, the allegation was not substantiated since there exists no traceability requirement for the material in question.

(5) Protective Coatings

It was alleged that Nelson studs, which were reworked or relocated in the Unit 2 reactor building, were not painted prior to attachment of supports.

Gibbs & Hill (G&H) Specification 2323-AS-31, Revision 4, addresses protective coatings in the reactor building. Section 1.16 of this specification states that exposed surfaces rendered inaccessible during construction shall not require field protective coating application. When Nelson studs are reworked or relocated, it is necessary to remove protective coatings in the area of the studs. If an attachment is then installed, the portion covered by the attachment becomes inaccessible (i.e., no longer an exposed surface) and does not require the application of a protective coating; however, protective coatings are applied to the remaining exposed areas.

Based on reviews of records and interviews with field personnel, the NRC inspector found that the rework or relocation of Nelson studs is not a common occurrence. It was also noted that when such modifications were necessary, protective coatings were not applied before attachments were made in some instances, but in every instance protective coatings were applied to exposed areas after completion of construction activity.

While the allegation was substantiated, it is concluded that the lack of protective coatings on the inaccessible areas described above present no discrepancies or departures from procedural commitments and requirements.

(6) NEMA Type 4 Enclosures in Unit 2 Reactor Building

It was alleged that National Electrical Manufacturers Association (NEMA) Type 4 enclosures (i.e., junction boxes, cable pull boxes) had been installed without covers attached and subsequently the covers were lost. Covers from NEMA Type 12 enclosures were then allegedly modified and installed on the NEMA Type 4 enclosures.

Both G&H Electrical Erection Specification 2323-ES-100, Revision 2, Appendix B, Section 1.6, and B&R Procedure ECP-19A, "Installation of Class 1E Conduit Raceway Systems," Revision 2, Section 3.6.1, require NEMA Type 4 enclosures in the reactor building. According to NEMA standards, a Type 4 enclosure is intended for indoor or outdoor use to provide a degree of protection against windblown dust and rain, splashing water, and hose-directed water. A Type 12 enclosure is intended for indoor use to provide a degree of protection against dust, falling dirt, and dripping noncorrosive liquids. Type 4 enclosures must be tested and evaluated by an external icing test, hosedown test, and rust resistance test per NEMA standards. Type 12 enclosures must be tested and evaluated by a drip test, dust test, and rust resistance test per NEMA standards.

NEMA Type 4 enclosures were procured under various POs with each requiring, among other things, a Certificate of Compliance from the vendor certifying the materials conform to the specifications. These certificates were furnished with the equipment.

Field inspection by the NRC verified that some NEMA Type 12 covers had been modified to fit NEMA Type 4 boxes. This modification apparently occurred in an uncontrolled manner, without a procedure for the modification and with no test or certification that the modified enclosures met the requirements for NEMA Type 4.

The allegation was therefore substantiated and constitutes a violation (446/3612-V-03).

(7) Control of Stainless Steel Conduit

It was alleged that stainless steel flexible conduit was cut with the same blade that was used on galvanized or carbon steel, thus impregnating the stainless steel with impurities.

Section 2.20.5 of G&H Electrical Erection Specification 2323-ES-100, Revision 2, states, "Any tool used on stainless steel materials shall not be contaminated with particles from other materials." Section 3.6.1 of B&R Procedure CP-CPM-7.3, Revision 1, "General Fabrication Procedures," requires tools used on stainless steel materials to be designated for such usage and not to be used on carbon steel materials.

The NRC inspector interviewed six individuals involved in conduit installation who confirmed that the same saw was used on stainless steel flex conduit as on other materials. An inspection of electrical fabrication areas confirmed that no saw existed for use on stainless steel exclusively.

The allegers concern was substantiated and constitutes a violation (446/8612-V-04).

(8) Construction Drawings

It was alleged that conduit routing (E2) drawings were not always used for installation of conduit, but rather conduit numbering (FSE) prints were used. Foremen allegedly instructed crews to install conduit using FSE prints kept by the foremen rather than obtaining the appropriate E2 drawing from the document control center.

The NRC inspector examined several E2 and FSE drawings. These drawings are similar, in that the FSE drawings show the general location of the conduit and provide numbers for conduit and junction boxes, but no dimensions. The E2 drawings show a minimum number of dimensions and provide the route a conduit run should take. The E2 drawings are revised when a change in routing is made and are for construction use. The consequence of using an FSE drawing for construction could be improper routing of conduit. This is checked for by QC utilizing the current E2 drawing as well as during design verification by engineering when a conduit run is complete. These measures are sufficient to discover improperly routed conduit.

The allegor had stated that the problem was promptly corrected after it was brought to the attention of the project manager.

The NRC was not able to contact this individual, but six other persons, including one manager, were interviewed. None could recall ever either using FSE drawings for construction or being instructed to do so. The NRC inspector found no FSE drawings being used for construction.

In summary, the NRC could not substantiate the allegation. The NRC inspector findings indicate that this practice, if it ever occurred in the past, is no longer in use.

(9) Training

It was alleged that training record sheets for newly hired electrical personnel were signed without verification that training had actually occurred. New hires were allegedly given copies of procedures to read without supervision, then the foreman would allegedly sign the "instructor" block on the training record sheet when the employee reported to him, with no verification that the new employee had actually read the procedures. The allegor was concerned that this may be a falsification of training records.

Section 2.3.1 of B&R Procedure CP-CPM-2.2, Revision 4, "Training of Personnel in Procedural Requirements," allows training to be presented by any of three methods; orally by the supervisor, copies provided each person to read, or formal classroom instruction. Section 2.5.2 of the same procedure states, in part, "The form shall be signed by the person administering the training" The fact that persons reading copies of procedures have no "instructor" is not addressed.

The NRC inspector examined training records from 1985 for ten individuals in the electrical department. Several training record sheets had a foreman's signature entered as instructor when an individual had read copies of procedures as alleged. Each record also contained a test for the general area an individual was to work; i.e., electrical raceway installation, cable pulling, etc. Formal classroom training in a given subject area followed the initial reading of procedures by an individual.

Two electrical department instructors and six electrical craft persons were interviewed. It was determined that the current training program includes reading of procedures for familiarity and then formal classroom presentations on each required subject for newly hired personnel. Each of the individuals recalled reading copies of procedures as new hires before reporting to their foreman, but none were aware of, or suspected, any falsification of training records. The NRC inspector observed that reading of procedures is now proctored, and foremen no longer sign training record forms.

A specific concern of the allegor was that an individual who allegedly could not read or write English had been certified to have read the procedures for his job classification. Records for this individual show he failed the initial written test in two areas and was subsequently given an oral examination in those same areas, which he passed. Approximately one year later, this individual passed two additional written examinations, which suggests that some comprehension of English was achieved.

Another concern was that newly hired personnel were not being trained in the use of 2323-S2-0910, which is a series of drawings of generic and specific conduit and junction box supports and accompanying notes. Section 2.2.6 of B&R Procedure ECP-19A states the general notes found on these drawings are for engineering purposes only and are not applicable to construction. Therefore, there was no need to train craft personnel on the contents of the general notes. The NRC inspector found the electrical training program to include a number of 2323-S2-0910 drawings and instructions on how to read information on these drawings.

In summary, this allegation was not entirely substantiated. Though not specifically prescribed by procedure, the practice of unproctored reading and signing of training records by foremen is regarded as weak. However, the current electrical department training program in effect since mid-1985, includes both proctored reading of procedures by individuals and classroom instruction. Although some training records with foremen's signatures as instructor were found, this did not constitute a falsification. If the foreman had any doubts about an individuals training, it was the responsibility of the foreman, in accordance with Section 2.6.1 of B&R Procedure CP-CPM-2.2, Revision 4, to ensure compliance with training requirements.

(10) QC Inspection of Conduit Runs

It was alleged that QC inspectors would sometimes use a craft "helper" to perform inspections in hard to reach areas. It was also alleged that craft persons performed rework during QC inspections rather than QC noting a nonconforming condition on an inspection report.

The NRC inspector, during review of operation travelers in Section (1) above, noted a number of inspection reports which identified nonconforming items. There appeared to be no obvious lack of QC identifying and documenting nonconformances during inspections.

Six individuals from the electrical department were interviewed to determine the extent of their involvement during QC

inspections and their perceptions and knowledge of QC activities and responsibilities. A craft "helper" usually accompanies a QC inspector to assist in locating specific items to be inspected. Each of these individuals stated that QC inspectors always personally verify items on inspections, regardless of where or what it is. Additionally, no person interviewed recalled ever performing rework during QC inspections. All persons interviewed were aware of basic QC responsibilities and generally perceived the QC organization to perform independently and as required.

In conclusion, nothing was discovered by the NRC inspector which suggested improper conduct by QC or craft during inspections, and the allegation therefore, was not substantiated.

(11) Departure from Design Drawings

It was alleged that craft personnel changed conduit support types and locations without prior approval from engineering. Engineering was allegedly notified after the fact via a Request For Information/Clarification (RFIC). The alleged further stated these changes would then be incorporated on a revised isometric drawing without an engineering evaluation. Specific areas of concern were:

- (a) Junction Box JB-244G support base plate was allegedly changed from 3/4" to 1" thickness without engineering authorization and not in accordance with the support drawing. Additionally, welding was allegedly performed on this support while cables were pulled inside the junction box. The cables were allegedly pulled out of the box after the work had been performed.
- (b) Conduit C24K12074, a 3-inch diameter conduit, was to have been reduced to a 2-inch diameter at panel CP2-PSMEPS-04 per an engineering answer to an RFIC. A foreman allegedly ignored this engineering decision and ran 3" conduit into the panel which resulted in a modification to a piece of vendor supplied equipment and a violation of electrical separation criteria.

Departures from design drawings are addressed in B&R Procedure CP-CPM 4.1, Revision 0, "Construction Requests for Engineering Design Changes," which states that work activities must be suspended when design documents cannot be complied with. A design change must then be requested from engineering (an RFIC form is commonly used for this) and work may resume after receipt of the approved design change document.

The NRC inspector examined approximately 50 RFIC files from 1985 to determine the type of requests made to engineering from

craft. A number of these contained statements which indicate craft had made changes before initiating an RFIC to request a design change from engineering. Examples are:

- . RFIC No. 963 (February 7, 1985): "Need iso revised; supports no. 1 & 3 are CSM-6C and No. 6 has 3/8 inch HKB's."
- . RFIC No. 970 (February 8, 1985): "Support No. 4 is a CSM-7J on the iso, actual is CSM-12C."
- . RFIC No. 1415 (March 13, 1985): "Craft requests iso revision to show changes in support materials and dimensions."
- . RFIC No. 1509 (March 19, 1985): "Conduit had to be re-routed. Iso needs to be revised to show changes made in the field."

The operation traveler and support drawings were obtained for Junction Box JB-244G. From these documents and a physical inspection of the arrangement, the NRC inspector determined the baseplate thickness had been changed with no apparent engineering involvement. The installed baseplate is 1" thick, which was shown on Revision 3 of the support drawing dated January 6, 1986. However, the 1" thick baseplate was welded on November 6 and 7, 1985, and the support drawing in effect at that time (Revision 2 dated November 1, 1985) called for a 3/4" thick plate.

A review of QC inspection reports showed approximately half the cables were removed from Junction Box JB-244G on October 29, 1985, and the remainder removed on November 6, 1985. Welding was performed on the baseplate, which is located approximately 12" above the junction box, on November 6 and 7, 1985. All cables were replaced on November 7, 1985. Because of the overlap of cable pulling and welding on the same day, it is not possible to conclusively prove that the operations occurred in the order assumed by using sound engineering and construction practices. However, a physical inspection by the NRC inspector showed no indication of any type of damage to the cables and provided no reason to assume that cables were in the junction box during welding.

In summary, sufficient evidence was found to substantiate the allegation that changes have been made to conduit and junction box support types and locations without prior engineering approval and without the appropriate design documents. This failure to comply with B&R Procedure CP-CPM 4.1, Revision 0, is a violation (446/8612-V-05).

Although not a safety-related item, the NRC inspector followed up on the allegation concerning conduit C24K12074 termination. The NRC inspector learned that a 2" hole had been cut into panel CP2-PSMEPS-04 and when craft attempted to run the 3" conduit, engineering was contacted for a resolution. The engineer initially specified reducing the conduit to 2" at the panel; however, the number of cables involved required a 3" conduit and craft supervision was informed verbally to disregard the initial engineering resolution and install the 3" conduit as originally specified. This did not constitute a violation of engineering or design documents, since the initial recommendation was wrong and engineering remained involved in its resolution. The NRC inspector checked the separation requirements of the actual installation and found no separation problems on this conduit.

The alleged concern as to whether changes requested by craft are evaluated by engineering, was based on the perception that changes made in the field were simply accepted without any engineering evaluation and incorporated onto the isometric drawings. Section 2.3 of TUGCo Procedure TNE-FVM-CS-002, Revision 1, "Design Control of Electrical Conduit Raceways," requires any revision of these isometric drawings to be design verified. Design verification, per Section 2.7 of the above procedure, occurs after QC has satisfactorily inspected the installation and consists of calculation preparation and checking and approving of drawings. The formal evaluation thus occurs after all changes affecting a conduit run are complete, including incorporation of the changes on isometric drawings. The allegation was therefore not substantiated.

(12) RCP Motor Junction Boxes

It was alleged that covers had been left off the junction boxes on the Unit 2 reactor coolant pump motors which allowed dust and moisture inside the pumps and may have damaged some electrical insulation.

The NRC inspector found all four of the Unit 2 covers in question to be in place. Covers were removed from two of the junction boxes for inspection. The interior had dust throughout, but no damage to any electrical insulation was observed. The bus bars going into the motor were sealed at the rear of the junction box, so there is no path for dust or moisture into the motor. The cables carrying power into the junction box have not been terminated, so more work is to be performed inside the junction box before cleaning and closing the box.

In conclusion, while the covers may have been left off at some point, such an action did not violate any requirements and caused no apparent degradation of the equipment.

(13) Electrical Separation

Three specific areas of concern were alleged to have electrical separation violations. Separation criteria are defined in Section 4.11 of G&H Electrical Erection Specification 2323-ES-100, Revision 2.

Conduit C24Ø12521 was alleged to have been routed such that it violated separation requirements. This conduit is located in the Unit 2 reactor building at elevations 830 feet and 860 feet. The NRC inspector walked down this conduit run and found no electrical separation problems.

Conduit C24K12074 was alleged to have been routed such that it violated separation requirements. This conduit is a Unit 2 instrumentation conduit and is nonsafety-related. However, the NRC inspector walked down this conduit and found no electrical separation problems.

Conduit C23Ø10279, located in the Unit 2 safeguards building was alleged to violate separation requirements. The safety-related Train A conduit was in fact located less than three feet above a safety-related Train B cable tray and, therefore, violated separation requirements. This fact had been identified and documented by QC on Inspection Report (IR) 2-0075337 dated October 19, 1985, and both the conduit and cable tray had been tagged by QC.

In summary, one of the examples provided by the alleged did present a violation of electrical separation requirements; however, this had been identified by QC. No violation of NRC requirements was found.

4. Assessment of ERC's Overview Inspector Qualifications and Verifications

The purpose of this NRC inspection was to determine whether ERC overview inspectors were qualified and certified in accordance with the procedure governing the certification of inspectors, CPP-003, Revision 3, dated December 10, 1985, "Indoctrination Training and Certification of Personnel." Ten overview inspector training, qualification, and certification files were reviewed for conformance to CPP-003 and the referenced requirements. Of the ten files reviewed, two were inactive. Elements covered in this review were certification policy and applicability, determination of inspector capability, certification, and records.

a. Certification Policy and Applicability

QA/QC review team personnel conducting inspections, examinations, and/or tests shall, as required; (1) be certified in accordance with the applicable requirements of NRC Regulatory Guide 1.58, Revision 1, 1980, which endorses ANSI N45.2.6, 1978, "Qualifications of Inspection, Examination, and Testing Personnel for Nuclear Power Plants"; (2) complete prescribed training and testing; and (3) provide evidence of demonstrated proficiency as required by CPP-003.

No violations or deviations were identified.

b. Determination of Inspector Capability

The capabilities of a candidate for certification are required to be initially determined by evaluation and verification of the candidate's education, experience, indoctrination, training, and confirmation of objectivity.

Procedurally, the education and applicable experience of QA/QC review team personnel implementing QA/QC ISAPs is to be verified in a timely manner. For ERC direct hires, either letters are prepared or telephone interviews conducted to verify education and experience. Returned letters and memoranda of telephone interviews are used to document verification results. In the case of individuals obtained from suppliers of contract support personnel, rather than direct hire, the supplier is required to verify education and experience and furnish supporting documentation of verification results. Both ERC and vendor supplied verification results are transferred to an ERC Education/Experience Verification Summary form. Of the ten files evaluated, three contained verifications by Stone & Webster (S&W), an approved supplier. The ERC audit used to approve S&W was reviewed and found to be acceptable.

The review team leader reviews and approves the Education/Experience Verification Summaries as final assurance that the candidates meet the applicable requirements of Attachment 6.4 of CPP-003. NRC review of these files disclosed that one inspector's verified experience did not conform to the prescribed requirements of Attachment 6.4. This failure to properly verify the experience of an inspector is a deviation (445/8615-D-01).

The QA/QC review team personnel implementing QA/QC ISAPs are required to be given timely indoctrination in the responsibilities and objectives of the CPRT. All ten files contained documented evidence of timely indoctrination.

The type and scope of training provided to inspectors are determined by the individual's supervisor. Additional training to pass

certification testing is also determined by the QC supervisor. Training is comprised of assigned reading, class room training, and/or on-the-job training (OJT).

Each inspector is assigned a list of required reading material. Depending on job assignment, the supervisor determines what additional reading material is required; e.g., plans, procedures, instructions, and reports. Completed assigned reading lists were contained in the files reviewed.

Each inspector, including other members of the QA/QC team, is required to complete a CPRT Objectivity Questionnaire. This questionnaire is used to identify any conflicts of interest which could affect the inspector's objectivity in the performance of work assignments. All reviewed questionnaires were completed and no conflicts were noted.

c. Certification

Level II inspectors are certified by ERC Level III inspectors or the QA/QC inspection supervisor. Level III inspectors are certified by the ERC QA manager. Prerequisites to certification are successful completion of required training and testing and the assessment of personnel capabilities (education and experience). It should be noted that the OQT raised a concern to the senior review team (SRT) regarding ERC's practice of certifying inspection personnel prior to completion of personnel education/experience verification. The NRC will follow the SRT's resolution of this issue as an open item (445/8615-0-02).

d. Records

The indoctrination, training, and certification files reviewed were found to contain, as applicable, the records and documentation required by CPP-003. Records were stored in a secured file cabinet with limited access, and were readily retrievable.

No violations or deviations were identified.

Summary

Records and documents reviewed for the indoctrination, training, testing, and certification of overview inspectors were found to be developed, processed, and completed in accordance with requirements. The exception noted was a deviation regarding the one occurrence of using unrelated experience to certify an overview inspector. The practice of certifying inspectors prior to verification of previous education/experience has been presented by the OQT to the SRT for resolution. This issue will be tracked as an open item. No other violations or deviations were identified in this area of inspection.

5. Overview Inspection

NRC inspectors have inspected a total of 22 overview verification packages. The following 11 packages were inspected during this report period:

27-I-M-LBCO-129
 33-I-M-MEIN-003
 33-I-M-MEIN-034
 *44-I-M-MEIN-035
 34-I-M-MEIN-065
 29-I-M-MEIN-073
 34-I-M-SBCO-004
 12-I-M-SBCO-078
 25-I-S-PS7N-079
 20-I-S-PS7N-095
 23-I-S-PS7N-149

*The initial ERC reinspection was identified as unacceptable by the ERC overview inspector.

NRC inspectors identified the following conditions:

- a. 44-I-M-MEIN-035: The NRC inspector identified an anchor bolt with a 1/4" gap between the nut and the bearing surface. Subsequent NRC review of the overview inspection package revealed that the ERC overview inspector had issued a DR for this condition.
- b. 12-I-M-SBCO-078: During an NRC inspection, one instance of a pipe to pipe clearance violation of Section 5.2.G.2 of QI-026, Revision 3, was identified. However, the initial ERC reinspection as well as the overview inspection failed to identify this condition. The details of the NRC inspector findings and the separation violation are discussed in paragraph 7.d. This inspection performance is considered a deviation (445/8615-D-03).
- c. 20-I-S-PS7N-095: A DR was issued by the initial ERC inspector for unsatisfactory pipe clamp halves' parallelism. Attachment 6.1 of QI-037, Revision 1, specifies acceptance criteria and states, in part, "S dimensions on the same side of the clamp at points 1, 2, and 3 shall be within 1/16" of each other" Measurements are recorded for each side of the clamp (S1 and S2) on Attachment 6.1 of the verification package.

Measurements for S1 recorded by the initial ERC inspector showed a difference between points 1 and 3 of 1/8", which is 1/16" out of tolerance. Similarly, measurements recorded for S2 showed a difference between points 1 and 3 of 5/32", which is 3/32" out of tolerance. However, the out-of-tolerance values recorded on DR No. I-S-PS7N-095-DR1 were 1/32" and 1/16", respectively. The DR incorrectly identified the degree of the out-of-tolerance values, and

the overview inspection failed to identify and resolve these discrepancies. This inspection performance is considered a deviation (445/8615-D-04).

6. CPRT ISAPs (Excluding ISAP No. VII.c)

a. Inspection Reports on Butt Splices (ISAP No. I.a.2)

(1) Inspection of Cabinets which contain No Butt Splices (NRC Reference No. 01.a.02.07)

The NRC performed inspections of five of the 38 cabinets, previously inspected by ERC, that were not supposed to contain butt splices. The following Unit 1 control room and cable spreading room cabinets were inspected:

<u>Cabinet No.</u>	<u>Drawing No. & Revision</u>
CP1-ECPRCR-11	2323-E1-0179, Revision 3
CP1-ECPRCR-16	2323-E1-0080-07, Revision CP-1
	2323-E1-0080-08, Revision CP-1
CP1-ECPRCR-18	2323-E1-0166, Revision CP-7
CP1-ECPRTC-11	2323-E1-0172-11, Revision CP-2
CPX-ECPRTC-02	2323-E1-0172-52, Revision CP-5

Cable bundles were opened for these inspections and no butt splices were found. This inspection completes NRC review of ISAP activity number RT-01.a.02.07.

No violations or deviations were identified.

b. QC Inspector Qualifications (ISAP I.d.1)

(1) SET Evaluation of ASME and non-ASME Inspector Qualifications (NRC Reference No. 01.d.01.03)

During this report period, the NRC inspector reviewed 10% of the non-ASME inspector qualification files against the ERC Phase II summary sheets and attached information from TUGCo. The files were selected to include inspectors who had been identified during previous NRC inspections to have had deficient documentation. Also selected, were files identified in Phase I of the ISAP to have had a large number of deficiencies in documentation.

The files were reviewed for level of verified education and experience, sufficient OJT hours or justified waiver, acceptable examination results, completion of required reading and training, completed training outlines, acceptable eye examinations, timeliness of recertifications, and overall quality of documentation including appropriate signature

authority. Agreement with the determinations of the ERC QA/QC review team was found for all of the above attributes except for two items. The NRC inspector noted that some of the electrical inspectors certifications had lapsed before being reissued. This lapse varied in length from a few days to over a week. In all cases noted, subsequent recertification was made. The ERC review had not evaluated the lapses in certification for these inspectors. The NRC inspector additionally found that an electrical inspector's recertification to CP-QP-11.3 had failed to identify the specific activities or restrictions included in the recertification. ERC's failure to identify these administrative errors is a deviation (445/8615-D-05; 446/8612-D-06).

These administrative errors were brought to the attention of the quality training supervisor and have been corrected. The quality training supervisor stated he had previously initiated a review of the TUGCo non-ASME file for certification lapses and that the review was ongoing.

c. Maintenance of Air Gap Between Concrete Structures (ISAP No. II.c)

The following activities for ISAP No. II.c were reviewed by the NRC inspector during this report period:

(1) Reinspect and Assess As-Built Condition (NRC Reference No. 02.c.01.00)

Nonconforming conditions have been identified by TUGCo during reinspection and removal of debris from the seismic air gaps. TUGCo Nonconformance Report (NCR) C-85-101778S addresses cracks in the exterior east wall of the fuel building at the intersection of line CF and the Unit 1 reactor building near 860' elevation. The cracks were discovered during removal of concrete in the air gap and were subsequently examined by the NRC inspector. An evaluation by TUGCo including "Interviews Associated with NCR C-85-101778S," indicates that the cracks may have occurred during pressure testing of the Unit 1 containment due to relative displacement between the two buildings. The air gap was bridged at this location by concrete approximately 6" in depth resulting in stresses in the fuel building wall. The exterior wall at this location was repaired and TUGCo performed inspections of other locations where the combination of pressure testing for the Unit 1 containment and concrete bridging in the air gaps could have resulted in wall damage. No additional damage was identified.

Additional nonconforming conditions identified by TUGCo during gap inspection and debris removal included: (1) small voids and honeycombing in the concrete; (2) irregular concrete surfaces; (3) metal flashing, wood and other debris in construction

joints; (4) localized areas with exposed rebar; and (5) improperly installed water stops. The NRC inspector physically examined several of the nonconforming conditions addressed by TUGCo NCRs C-86-102432, C-86-101455, C-86-101767 and C-86-201602. In addition, the following TUGCo NCRs related to the above conditions were reviewed by the NRC inspector:

C-85-100458	C-85-101778
C-85-100459	C-86-101455
C-85-100460	C-86-101767
C-85-100461	C-86-102432
C-85-100462	C-86-201600
M-85-100463	C-86-201601
C-85-100467	C-86-201602
C-85-100520	

The significance of these nonconforming conditions will be evaluated and documented by TUGCo in the NCR dispositions.

(2) Removal of Debris or Rotofoam (NRC Reference No. 02.c.02.00)

The NRC inspector witnessed ongoing cleaning and repair activities for the seismic air gap during this report period. The NRC inspector also observed the use of a new high pressure water jet system recently purchased by TUGCo.

(3) Analyze Final As-Built Condition (NRC Reference No. 02.c.03.00)

The NRC inspector reviewed the following G&H calculation, during this report period:

- . LIS-100C, Set 3, Revision 0, Effect of Elastic Joint Filler Between Containment and Safeguards Building, Unit-1, During a Seismic Event.
- . LIS-100C, Set 17, Revision 3, Minimum Required Gap Between the Secondary Walls and Floors Above Them.

The methodology and assumptions used were compared against the design commitments contained in Section 3.8 of the Comanche Peak FSAR. Numerical calculations were spot checked.

NRC inspections were not performed on other activities during this report period.

No NRC violations or deviations were identified.

d. Onsite Fabrication (ISAP No. VII.b.1)

During this report period, an unannounced inspection of activities of the onsite fabrication shop was conducted to assess compliance with

site procedures and commitments. Areas of inspection were document control, fabrication, QC inspection, and specific NRC Technical Review Team (TRT) concerns on thread verification.

NRC inspection of document control was limited to use of controlled drawings and material requisitions (MR). The NRC inspection of 50 Unit 1 controlled drawings, issued on an extended basis to the fabrication shop, found them to be current to the latest revision and complete with all applicable design changes. The Unit 1 paper flow group (PFG), responsible for maintaining these drawings, did not have a procedure detailing how this activity was being accomplished. The failure to have procedural controls for this activity is a violation (445/8615-V-06).

Review of Unit 2 procedures showed that the Unit 2 PFG had procedures to control the Unit 2 drawings issued on an extended basis.

During inspection of the fabrication process, the shop foreman was interviewed and found knowledgeable of the shop procedures and the activities they controlled. He was also familiar with the applicable QC procedures and required QC inspections. He was not familiar with the procedures which provided document control. While shop foremen are not responsible for this activity, knowledge of document control procedures appears desirable in this area of supervision.

Drawings for both units were inspected for notations added to the drawings in pencil or ink. In all cases, these notations were found to have been added by the craft or the foreman as reminders to facilitate fabrication rather than as design modifications.

The NRC inspector witnessed a QC inspector properly transferring heat numbers and material identity for a steel bar being cut into sections. The absence of thread verification activity precluded NRC witness during this inspection. Based on interviews of personnel, both craft and QC were found to be aware of thread verification requirements.

The fabrication shop identifies fabricated components by stamping them with a "Mark Number." QC inspections of each item are documented on an IR. To provide traceability to the specific item inspected, the inspection report number is stamped on the item when inspection is complete. However, no procedural requirement exists to control this activity. This lack of procedural controls is considered a violation (445/8615-V-07; 446/8612-V-07).

NRC review of field generated written requests for fabricated items found that written requests did not always indicate: whether the item to be fabricated is Q or non-Q; ASME or non-ASME; its location; its intended use; or if temporary or permanent status. This information is required to assure that proper QC inspections are performed and material traceability is maintained. Additionally, the

written requests were often accompanied by sketches or instructions without indicating the applicable drawing. The applicable procedure for this activity does not describe what information is required. This lack of procedural controls is considered a violation (445/8615-V-08; 446/8612-V-08).

7. ISAP No. VII.c

a. Electrical Equipment

Status of ERC Activity

ERC has completed 83 reinspections and 83 documentation review packages of sampled electrical equipment as of June 30, 1986.

Status of NRC Inspection Activity

NRC inspectors have, as of June 30, 1986, witnessed 11 reinspections, performed independent reviews of 10 documentation packages and performed 6 independent reinspections of sampled electrical equipment. The following three independent reinspections of sampled Unit 1 electrical equipment were performed in this report period:

<u>Verification Package No.</u>	<u>System</u>	<u>Equipment No.</u>
I-E-EEIN-051	Train A Termination Rack	CP1-ECPRTC-41
I-E-EEIN-075	Train A Emergency Diesel Generator	1DG-01A
I-E-EEIN-083	Residual Heat Removal	1LCS-5668

During the above independent inspections, the following conditions were identified:

I-E-EEIN-051: The location of this rack was not as shown on the drawings. This condition had been identified by ERC and DR I-E-EEIN-051-01 was written.

Disposition of the above finding is an open item (445/8615-0-09).

I-E-EEIN-075: The following three items were observed during this inspection:

- (1) The wiring to the interior cabinet light had two PIES splices installed;
- (2) A jam nut was loose on one of the six, in floor, mounting bolts; and
- (3) Relays R12A and R12B were installed, but not shown on Component Layout Drawing 52383, sheet 2.

Items (2) and (3) were not identified by the ERC inspectors and were within the scope of QI-010. Failure to identify these conditions is a deviation (445/8615-D-10).

No other violations or deviations were identified.

b. Inspection of Non-Pressure Boundary Welds for a Supplementary Evaluation of Visual Welding Inspection Techniques

Status of CPRT Activity

CPRT inspection is now complete for this activity. Sixty-two randomly selected samples of weld joints obtained from ISAP Nos. VII.b.3 and VII.c populations have been inspected. The following two samples were inspected before removal of coatings during this report period:

<u>Verification Package No.</u>	<u>Equipment Tag No.</u>	<u>System *</u>	<u>Unit No.</u>
I-S-NPBW-103	2323-MI-0760	HVAC	Common (1)
I-S-NPBW-122	RC-2-078-901-C47W	RC	2

The following 17 second phase inspections, after removal of coating, were performed during this report period:

<u>Verification Package No.</u>	<u>Equipment Tag No.</u>	<u>System *</u>	<u>Unit No.</u>
I-S-NPBW-045	1-TE-S400	N/A	1
I-S-NPBW-110	CT-1-047-007-C92R	CT	1
I-S-NPBW-120	CP-X-VAFNCB-06	HVAC	Common (1)
I-S-NPBW-083	CC-1-EC-007-013-3	CC	1
I-S-NPBW-115	FW-1-019-902-C57W	FW	1
I-S-NPBW-101	CC-1-228-007-C53R	CC	1
I-S-NPBW-049	FW-1-015-901-S57W	FW	1
I-S-NPBW-116	SF-X-034-020-F43K	SF	Common (1)
I-S-NPBW-107	CT-1-008-001-S22S	CT	1
I-S-NPBW-112	CT-1-097-402-C52R	CT	1
I-S-NPBW-119	CS-1-078-013-C42S	CS	1
I-S-NPBW-104	CC-1-RB-033-007-3	CC	1

I-S-NPBW-122	RC-2-078-901-C47W	RC	2
I-S-NPBW-087	CC-1-EC-006-005-3	CC	1
I-S-NPBW-103	2323-MI-0760	HVAC	Common (1)
I-S-NPBW-113	MS-002-903/905-C77W	MS	Common (1)
I-S-NPBW-043	CP2-MEFT1F-01	structural	2

*CT - Containment Spray; HVAC - Heating, Ventilation, Air-Conditioning; CC - Component Cooling Water; FW - Steam Generator Feedwater; SF - Fuel Pool, Cooling and Clean-up; MS - Main Steam; RC - Reactor Coolant; CS - Chemical and Volume Control

Status of NRC Inspection Activity

The NRC inspector has witnessed 100% of the inspections performed on welding in the coated and uncoated condition.

No NRC violations or deviations were identified during this report period.

c. Mechanical Equipment Installation

Status of CPRT Activity

Reinspection of 125 mechanical equipment installation items from the combined random and engineered sample has been completed. A total of 193 deviations have been identified. Of these, 96 have been evaluated and 70 have been determined to be valid.

Documentation review has been completed for 83 of the 86 combined random and engineered sample verification packages. A total of 26 deviations have been identified. Of these, nine have been evaluated and none were found to be valid.

Status of NRC Inspection Activity

The NRC inspector has, to date, independently inspected six mechanical equipment installation items including the following five packages during this report period:

<u>Verification Package No.</u>	<u>Equipment Tag No.</u>	<u>System *</u>	<u>Unit</u>
I-M-MEIN-003	CPI-CCVBST	CC	1
I-M-MEIN-034	TCX-TRDMTH	DD	Common (1)
I-M-MEIN-065	CPI-DOATDT-02	DG	1
I-M-MEIN-073	CPI-MEATAR-03	DG	1
I-M-MEIN-035	CPI-CHCICE-06	HVAC	1

*CC - Component Cooling Water; DD - Demineralized and Reactor Make-up Water; DG - Diesel Generator and Auxiliary; HVAC-Heating, Ventilation, Air Conditioning

During the independent inspection of Verification Package I-M-MEIN-035, the NRC inspector identified that an equipment foundation anchor bolt nut was not bearing load and that a 1/4" gap existed between the anchor nut and the load bearing mating surface. Subsequent NRC review of ERC overview inspection documentation revealed that an ERC overview inspector identified the deviating condition and that a DR had been issued. The disposition of this finding is an open item (445/8615-0-11).

No NRC violations or deviations were identified.

d. Small Bore Piping Configuration

Status of CPRT Activity

ERC has completed 98 reinspections of small bore piping configurations out of the planned random and engineered sample size of 99. The combined sample size, previously 88, was increased in order to: (1) include piping configurations from the diesel generator assembly which were inadvertently left out of the initial population, (2) include some Unit 2 piping which ERC initially thought did not have N-5 certification, and (3) add packages to ensure that the attribute dealing with orientation met the sampling criteria of Appendix D of the CPRT Program Plan.

Sixty-seven valid DRs have been identified and issued.

Status of NRC Inspection Activity

To date, the NRC inspector has witnessed seven ERC reinspections and performed four independent inspections. The following NRC independent inspections occurred during this reporting period:

<u>Verification Package No.</u>	<u>Drawing No.</u>	<u>System*</u>	<u>Unit No.</u>
I-M-SBCO-004	BRP-CH-1-AB-023	CH	1
I-M-SBCO-078	BRP-CH-1-SB-014	CH	1

*CH - Ventilated chilled water system.

During the independent inspection of Verification Package I-M-SBCO-078, the NRC inspector identified an instance where the separation criteria of paragraph 5.2.6.2 of QI-026 was not met and documentation justifying this condition could not be located. A minimum clearance of 1" must exist between two pipes, including insulation, when the operating temperature of both lines is below 200°F. Inadequate pipe clearance occurred just east of wall C-S and involved two 1 1/2" lines; one just above and one just below the inspected line. Attribute 1.f on the checklist for this verification package regarding separation was accepted and did not identify this

condition as a deviation. The failure of the ERC inspector (and the overview inspector as discussed in paragraph 5.b.) to identify this condition is a deviation (445/8615-D-03).

e. Large Bore Piping Configuration

Status of CPRT Activity

ERC has completed 90 reinspections of large bore piping configurations out of the planned random and engineered sample of 97. The combined sample size, previously 85, was increased in order to: (1) include piping configurations from the diesel generator assembly which were inadvertently left out of the initial population, (2) include some Unit 2 piping which ERC initially thought did not have N-5 certification, and (3) add packages to ensure that the attribute dealing with orientation met the sampling criteria of Appendix D of the CPRT Program Plan.

Fifty-five valid DRs have been identified and issued.

Status of NRC Inspection Activity

To date, the NRC inspector has witnessed seven ERC reinspections and performed five independent inspections. The following independent inspection occurred during this reporting period:

<u>Verification Package No.</u>	<u>Drawing No.</u>	<u>System *</u>	<u>Unit No.</u>
I-M-LBCO-129	BRP-FW-1-RB-008A	FW	1

*FW - Feedwater System

No NRC violations or deviations were identified.

8. Overview Quality Team (OQT) Review

During this reporting period, Region IV personnel, assisted by personnel from IE Quality Assurance Branch and NRR, inspected the relationship of the OQT with the SRT and the current status of the OQT program. The SRT and OQT personnel described this program and the interfaces and advised that a documented response to NRR's request for information dated June 9, 1986, was in preparation. This response, as described, would include an OQT schedule, a revision to the OQT program, and a more detailed description of the OQT scope. Further inspections in this area will occur after the additional information is submitted.

9. Exit Interview

An exit interview was conducted on July 9, 1986, with the applicant representatives denoted in paragraph 1 of this appendix. During this interview, the NRC inspectors summarized the scope and findings of the inspection. The applicant acknowledged the findings.