APPENDIX C

U. S. NUCLEAR REGULATORY COMMISSION

OFFICE OF SPECIAL PROJECTS

NRC Inspection Report: 50-445/87-32
50-446/87-24

Permits: CPPR-126
CPPR-127

Dockets: 50-445
50-446

Category: A2

Construction Permit
Expiration Dates:
Unit 1: August 1, 1988
Unit 2: Extension request
submitted.

Applicant: TU Electric
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: Comanche Peak Site, Glen Rose, Texas

Inspection Conducted: December 2, 1987, through January 5, 1988

Inspector: C. J. Hale 1/25/88
C. J. Hale, Reactor Inspector Date

Consultants: EG&G - V. Wenczel (paragraph 4)
Parameter - J. Birmingham (paragraphs 2.a, 2.c-d,
5.a, and 6)

Reviewed by: H. H. Livermore 1/25/88
H. H. Livermore, Senior Lead Inspector Date

Inspection Summary:

Inspection Conducted: December 2, 1987, through January 5, 1988 (Report 50-445/87-32; 50-446/87-24)

Areas Inspected: Nonroutine, unannounced resident inspection of applicant actions on previous inspection findings, assessment of allegations, specification procedure and drawing update program, general plant areas (tours), and Comanche Peak Response Team (CPRT) issue-specific action plans (ISAPs) VII.a.7 and VII.a.9.

Results: Within the five areas inspected, one violation (deficiency reports being dispositioned without cause being established, paragraph 3) and one deviation (welds were omitted from reinspection attributes in one ISAP VII.a.9 document package, paragraph 5.a) were identified.

DETAILS

1. Persons Contacted

J. C. Aldridge, Engineering Assurance Engineer, Stone & Webster Engineering Corporation (SWEC)
R. N. Artwell, Specification, Procedure and Drawing Update Task Force Leader, TU Electric
*W. H. Benkert, Staff Assistant Manager, Operations Quality Assurance (QA), TU Electric
*R. D. Best, Nuclear Operations Inspection Report Item Coordinator, TU Electric
*D. N. Bize, Engineering Assurance (EA) Regulatory Compliance Supervisor, TU Electric
*M. R. Blevins, Manager, Technical Support, TU Electric
H. M. Carmichael, Quality Assurance Manager, SWEC
R. J. Fay, Specification Coordinator, SWEC
*M. D. Gaden, CPRT, IT Corporation
*P. E. Halstead, Manager, Quality Control (QC), TU Electric
*T. L. Heatherly, EA Regulatory Compliance Engineer, TU Electric
*O. W. Lowe, Director of Engineering, TU Electric
*L. D. Nace, Vice President, Engineering & Construction, TU Electric
*D. E. Noss, QA Issue Interface Coordinator, TU Electric
G. B. Purdy, Quality Assurance Manager, Brown & Root (B&R)
*D. M. Reynerson, Director of Construction, TU Electric
*M. J. Riggs, Plant Evaluation Manager, Operations, TU Electric
*A. B. Scott, Vice President, Nuclear Operations, TU Electric
*C. E. Scott, Manager, Startup, TU Electric
*C. R. Smaney, Unit 1 Assistant Project Manager, TU Electric
D. W. Snow, QA Supervisor, TU Electric
*M. R. Steelman, CPRT, TU Electric
*P. B. Stevens, Manager, Electrical Engineering, TU Electric
*B. B. Taylor, Nuclear Operations, Maintenance Manager, TU Electric

The NRC inspectors also interviewed other applicant employees during this inspection period.

*Denotes personnel present at the January 5, 1988, exit interview.

2. Applicant Action on Previous Inspection Findings (92701)

a. (Closed) Unresolved Item (446/8505-U-07): Documentation was not available to show that installation of the Unit 2 reactor pressure vessel (RPV) was audited. (This item

was also identified as ID Recommendation 47 in Enclosure 1 to the Stello memorandum, "Implementation of Recommendations of Comanche Peak Report Review Group," dated April 14, 1987.)

Criterion 18.0 of Appendix B to 10 CFR Part 50 requires that a comprehensive system of planned and periodic audits be performed to verify compliance with all aspects of the QA program. The criterion also requires that these audits be accomplished in acc rdance with written procedures. A review of the procedures governing the audit activities of B&R and TU Electric at the time of the RPV installation indicate that B&R was responsible for audits of site ASME activities. Section 18 of the B&R quality assurance manual (QAM) issued October 17, 1975, indicates that internal audits of B&R activities were to be performed to verify compliance with the B&R QA/QC program. Section 18.0 does not name the activities required to be audited.

The B&R program does require that safety-related work be controlled by use of a traveler. Construction Operation Traveler ME-79-248-5500 was issued to control the installation of the Unit 2 RPV. QC involvement with this traveler was demonstrated by (1) QC inspector sign-offs for the review of the travelers, (2) the assigning of QC witness and holdpoints, and (3) QC sign-offs for each of the QC witness and holdpoints. The traveler was also reviewed by the suppliers (Westinghouse) representative prior to the beginning of work and witnessed at specific points by the supplier.

A review of B&R Audit Reports CP-16, CP-17, and CP-18, which covered the years 1979 through 1981, indicated that the B&R audit policy was to select and audit a sufficient quantity of ongoing site activities to provide objective evidence that each of the 18 criteria of Appendix B to 10 CFR Part 50 were being properly implemented. These audits were reviewed by the NRC during a construction inspection conducted April 1 through May 31, 1986. The NRC inspector at that time reviewed these and other B&R audits and found the audits to be deficient in several areas. Notable among these deviations was (1) a lack of documentation to support implementation of audits for the areas of field design changes and special processes, and (2) the audits did not include the entire ASME/QA program. These departures were documented as violations (see NRC Inspection Report 50-445/86-08; 50-446/86-06 and Violations 445/8608-V-02, 446/8606-V-02; 445/8608-V-03, 446/8606-V-03; and 445/8608-V-01, 446/8606-V-01).

Based on the above review of the B&R QAM and the audits performed for the time in question, the NRC inspector determined that, of itself, the B&R failure to audit the activities surrounding installation of the Unit 2 RPV is not a violation of the B&R program commitments. Based on review of the violations identified by the NRC, the NRC inspector deems that the broader audit concerns normally had been considered and reported as violations: (1) B&R had not audited all applicable elements of the QA program, and (2) a sufficient quantity of objective evidence had not been reviewed and documented by the B&R auditors. Therefore, this item is considered to be closed.

b. (Closed) Unresolved Item (445/8514-U-04; 446/8511-U-04): TU Electric had not described the current QA record facilities and storage in Section 17.1.17 of the FSAR. (This item was also identified as ID Recommendation 24 in Enclosure 1 to the Stello memorandum, "Implementation of Recommendations of Comanche Peak Report Review Group," dated April 14, 1987.)

Section 17.1.17 of the FSAR has remained essentially unchanged from Amendment 55 of July 1985 through Amendment 65 of November 1987. Section 17.1 provides the QA program description and commitments to be implemented during the design and construction phase of the project. This unresolved item questioned the adequacy of the description of that program.

Because of broader concerns associated with the Comanche Peak QA program, on September 30, 1985, the NRC onsite staff requested the QA branch of the NRC Office of Inspection and Enforcement (IE) to perform a QA program review similar to that performed during the NRC's licensing process. In October 1985, IE sent two reviewers to the site to perform this review. The results of this review were documented in a memorandum from B. K. Grimes, "Quality Assurance Review, Comanche Peak," January 15, 1986. Following is a summary of the review approach and results.

The current Section 17.1 of the FSAR was reviewed against the guidance in effect at the time the PSAR was docketed. This review showed that the present QA program description complied with the NRC review guidance except for 18 items. These 18 items were subsequently found by the IE reviewers to be adequately covered in documents other than the FSAR, but none of the 18 items pertained to records or Section 17.1.17.

The IE reviewers then compared the Section 17.1 QA program description against the current guidance of the

NRC Standard Review Plan (SRP) (NUREG-0800, July 1981, Section 17.1, Revision 2). This review showed that the QA program description complied with the SRP except for 65 items. The majority of the 65 items dealt with guides and standards issued after the construction docket date. These 65 items were also found to be adequately addressed in documents other than the FSAR. Two of these 65 items concerned the general area of records: (1) the most current version of ANSI N45.2.9 was not adopted, but a review of procedures provided an acceptable alternative to the additional requirements imposed by the current version of this standard; and (2) the identification of the responsibilities of QA and other organizations for the definition and implementation of QA record activities was not given in the FSAR, but procedures also provide this information.

Based on the Section 17.1 review by the IE personnel, the QA program description provided in the FSAR complies with the applicable requirements, and with few exceptions, would meet current requirements as well. While more descriptive information in the FSAR may be desirable, it appears the information provided complies with requirements. On this basis the subject unresolved item is being closed.

c. (Closed) Open Item (445/8513-O-05): This open item concerned the potential that the CPRT evaluation of QC inspector performance, which was evaluated during Phase III of ISAP I.d.1, could omit deficiencies attributable to the original QC inspector because the deficiency had been corrected by nonconformance report (NCR) rework occurring after the QC inspector's original inspection.

This concern was discussed with the ISAP I.d.1 issue coordinator who stated that such deficiencies, found during the ISAP I.d.1 review, were included in the assessments of QC inspector performance. The NRC inspector also discussed this with the CPRT Level III electrical and mechanical discipline inspectors who stated that such deficiencies would have been included in the assessments of the inspector's performance. Upon issuance of the ISAP I.d.1 Results Report, the NRC inspector reviewed ten of the reports prepared for each inspector evaluated by the ISAP I.d.1 Phase III process. These reports showed that such deficiencies were included in the ISAP I.d.1 evaluations, when appropriate. This item is closed.

d. (Closed) Open Item (445/8729-O-02; 446/8721-O-01): CPRT identified that certain verification packages for

ISAP VII.a.9 omitted verification of certified performance test results and seismic qualification reports.

Subsequent inspection by the NRC inspector revealed that CPRT had reviewed the remaining ISAP VII.a.9 verification packages and identified that this attribute had been missed in 13 verification packages. The CPRT then issued a supplemental verification package to verify this attribute for each of the 13 packages in which it was originally omitted. The NRC inspector reviewed the completed supplemental verification package for each of the 13 packages and determined that it properly addressed the issue. This item is closed.

3. Assessment of Allegations (99014)

(Closed) Allegation (OSP-87-A-0102): Unauthorized changes being made to QC inspection reports and QC management is impeding the efforts of their personnel to contact the NRC onsite staff.

Concern Specifics

A QC inspector (QCI) was reviewing a document package containing an inspection report (IR) he had previously completed. The term "no ref. used" had been added to the IR, but there was no identification of the individual that made the addition. Since this was a procedure violation, the QCI initiated a construction deficiency report (CDR) documenting the problem, CDR 87-7815EC. This CDR was transferred to a deficiency report (DR), C87-2761, whose disposition was to have the QCI line out, initial, and date the unauthorized entry. The QCI refused the request since the DR disposition did not address the issue of when and by whom the late entry to the IR was made. Strengthening the position of the QCI was his knowledge of another QCI that had experienced an unauthorized late entry on one of his IRs. This matter was then escalated two levels of management, but the QCI maintained his position, refusing to take the action requested. At this impasse, on July 31, 1987, the QCI was escorted off site until the return of the QC manager to the site the following week. The QCI requested to see the NRC onsite staff, but his management denied this request until after the QCI met with the QC manager the following week.

On August 3, 1987, the QCI contacted NRC Region IV and was interviewed the same afternoon by an investigator from the Office of Investigation (OI), Region IV, and two site based NRC inspectors. The OI investigator took the lead in following up this matter. By August 6, 1987, the OI investigator had completed his follow up concluding no intentional wrongdoing had occurred, subject to completion by the QC manager of

the following committed actions: (1) determine who made the unauthorized entry in question; (2) review other IRs and documents to determine if unauthorized changes to inspection documentation were widespread; and (3) advise all personnel under his supervision of their right to go to the NRC at any time.

Assessment

The NRC inspector reviewed the actions taken by the QC manager related to the above commitments.

Revision 1 to DR C87-2761 was issued on August 11, 1987, which changed the DR disposition. The cause of the deficiency was that the QCI inadvertently omitted the "no ref. used" statement, and that it could not be ascertained who had added this statement to the IR. The NRC inspector interviewed the QC manager to determine the actions taken to identify the individual making the unauthorized entries. The QC manager stated that the in-process IR is a part of a document package controlled by the paper flow group and as such is accessible to almost any person on site. Therefore, an individual choosing to violate procedures by making an unauthorized change to an IR could do so and remain relatively anonymous. Not withstanding the ease with which unauthorized changes can be made, such changes are deterred, if not detected as in this case, by the QCIs repeatedly handling and reviewing IRs and by final reviews for accuracy and completeness by document review clerks before vaulting of these documents. While the QC manager was unable to determine where, when, or by whom the unauthorized change was made, he sent the complete package concerning this matter to corporate security for their consideration and action, if required. The NRC inspector contacted corporate security to assess their action on this matter. The corporate security manager stated that they had received several examples of handwriting from the QC manager and were asked to identify the individual making the entries. The corporate security manager stated that on previous occasions their handwriting analyst had been able to trace handwriting examples to the originator, but in this case they were unsuccessful for at least three reasons: (1) there were too few examples; (2) the examples available were very short; e.g., "no ref. used"; and (3) the examples were all printed. The actions taken by the QC manager and the corporate security manager appear proper and adequate in their attempts to identify the source of the unauthorized entries.

To determine if unauthorized entries was a widespread problem, the QC manager undertook a review of surveillance reports for the time period from October 1986 to October 1987, and DRs issued in 1987 to October 1987. Over 6,000 documents were included in this review and three additional unauthorized

entries were identified; one from the surveillance reports for which DR C87-3787 had been issued and two on existing DRs, C87-0949 and C87-3235. The QC manager concluded that the incidence of occurrence is so small that it does not constitute a significant problem. Based on a review of these documents, the NRC inspector concurs with the QC manager's conclusion and further notes that the errors identified did not affect hardware.

There are numerous policy memos that encourage employees to take concerns, safety or otherwise, to their supervisor, the SAFETEAM, or the NRC. This policy is widely publicized on site, including postings on bulletin boards. The NRC inspector asked the QC manager what other actions he took to emphasize this policy. The QC manager stated that he reemphasized the site policy at his staff meetings. The NRC inspector also spoke to the individual that allegedly denied the QCI access to the NRC onsite staff. The individual stated it was not his intent to deny the QCI access to the NRC, but only to permit the QCI some time to calm down. No further actions appear necessary to the NRC inspector.

During the NRC inspector's review of this allegation, an apparent violation of procedures was identified concerning the disposition of DRs. NEO 3.06, "Reporting and Control of Deficiencies," is the controlling procedure for all site organizations processing DRs. This procedure requires that for the disposition of each identified deficiency that (1) the cause or causes be established, (2) the deficiency corrected, and (3) action to prevent recurrence taken. Using the four DRs reviewed above as examples, the action to correct the deficiency in each case appears proper. In none of the examples was the cause or causes clearly established, and since preventive action is clearly dependent on properly establishing the cause, correct and effective preventive action was either not taken or was indeterminate. In each of the examples, the cause was little more than a restatement of the deficiency; e.g., QC documentation error (C87-3787); Inspector error, (C87-949); and inadvertent error (C87-2761). No cause for the errors were given and consequently the preventive actions were ineffective, such as the inspector was made aware of the error, or "this was an isolated occurrence. . . ." which it may have been but no basis or justification was given to support the error was isolated. This item has been identified as a violation (445/8732-V-01; 446/8724-V-01).

Conclusion

This allegation was substantiated. TU Electric has completed their investigation of this matter which included:

(1) attempts to identify the individual(s) making the unauthorized entries; (2) establishing how wide spread the problem was; and (3) reinforcing the site policy of free access to onsite NRC staff, and/or SAFETEAM for expression of concerns. While TU Electric was unable to identify the individual or individuals, making the unauthorized entries, they did find that the practice was not widespread. Based on our review of the related documents and interviews of the personnel involved, the NRC plans no further action on this item at this time and the allegation is considered to be closed.

4. Inspection of Specification, Procedure and Drawing Update (SPADU) Program Phase I (35061)

The purpose of this inspection was to verify that revisions pertaining to CPSES specifications, which contain construction and inspection requirements, were revised in accordance with procedures. The applicable procedures were ECE 5.02, Revision 0, "Design Verification and Interdiscipline Review," and ECE 5.09-I1, Revision 0, "Design Verification and Interdiscipline Review." The following is a summary of the SPADU program, the method used by the NRC to inspect Phase I of SPADU, and the inspection results.

a. SPADU Program

In the fall of 1986, the SPADU group was established by the applicant to produce consistency between construction specifications, construction and inspection procedures, operating procedures, and construction drawings. Seventeen construction/installation/erection specifications were reviewed and revised by the SPADU group under Phase I. The specifications addressing CPSES procurement activities will be reviewed and revised as necessary under SPADU Phase II, which began in November 1987.

Phase I of SPADU was completed on August 31, 1987. The objectives of Phase I were to:

- Establish construction/installation specifications as the prime document containing the necessary technical requirements and inspection attributes (criteria).

- Produce departmental (construction, operations, and QA/QC) procedures that incorporate the requirements of the specifications and contain the instructions for implementing the requirements.

- Develop implementing procedures that reference specific specification requirements and prescribe "how to" instructions.

- Minimize duplicate information being provided in both specifications and procedures.

- Assure related external and internal source issues have been addressed in the updated procedures and drawings.

- Identify required reinspection and rework actions.

- Provide the basis to demonstrate that the installed hardware conforms to design criteria and licensing commitments.

In July 1987, prior to the specifications being issued for construction and inspection, an administrative release of the specifications occurred. The purpose of this administrative release was to provide construction and QA/QC a period of time to make changes to construction and inspection procedures, drawings, and construction documentation work packages made necessary by the specification changes, and to train personnel in the revisions made.

b. NRC Inspection

For Phase I of SPADU, the NRC inspected the programmatic process for: (1) revision of specifications; (2) translation of specification requirements into effected construction and QA/QC procedures; and (3) training given to personnel implementing construction and QA/QC procedures revised under SPADU. To inspect the specification revision process, the NRC inspector developed an inspection plan and checklist, which detailed the requirements of ECE 5.02 and ECE 5.09-I1. Six of the seventeen Phase I specifications were compared to the checklist for compliance with requirements. As with the specification review, the inspection plan and checklists were developed by the NRC inspector to determine that implementing construction and QA/QC procedures were properly updated in all 33 construction and 15 QA/QC procedures that were updated. Seven of the implementing construction procedures, and five of the QA/QC procedures were inspected by the NRC inspector. The training records of personnel subject to these 12 procedures were reviewed also.

c. Inspection Results

The specifications inspected were:

CPES-I-1018, Revision 0, "Installation of Piping/Tubing and Instrumentation"
2323-ES-100, Revision 3, "Electrical Installation Class I, II and Non-safety"
2323-MS-46A, Revision 7, "Nuclear Safety Class Pipe Hangers and Supports"
2323-MS-85, Revision 5, "HVAC-Ducts, Louvers, and Accessories"
2323-MS-100, Revision 9, "Field Fabrication and Erection of Piping and Pipe Supports"
2323-SS-16B, Revision 1, "Structural Steel/Miscellaneous Steel (Categories 1 & 2)"

These specifications were representative of the safety-related mechanical, civil/structural, ASME, and non-ASME disciplines. The organizations involved were: EBASCO (MS-85), SWEC-PSE (MS-46A), and SWEC-CAP (ES-100, I-1018, MS-100, and SS-16B). These three organizations followed the applicant's procedures for the revision of the specifications. Documentation reviewed by the NRC inspector verified that consideration was given to: technical adequacy; design review and validation, as required; determination if backfit rework and repair were necessary; the impact on licensing commitments; the effect on external and internal source issues; consolidation of technical requirements into one document to reduce redundancy; and the effects on implementing construction and QA/QC procedures and drawings. Format, text, content, and documentation controls governing the revision process were found to have been accomplished in accordance with requirements. Revised specifications were subject to interdisciplinary review and approval/concurrence. Review comments were resolved prior to the specification being issued. Based on the inspection of the six specifications, the NRC determined that Phase I specifications were revised in conformance to requirements.

The procedures inspected were:

ICP-4, Revision 9, "Installation and Inspection of Instrumentation Associated Tubing/ Piping"
EEI-7, Revision 9, "Cable Pulling"
EEI-8, Revision 8, "Cable Termination"
CP-CPM-6.9E, Revision 10, "Pipe Fabrication and Installation"
ECP-10, Revision 10, "Cable Tray and Hanger Installation Unit I"
ECP-19, Revision 15, "Exposed Conduit/Junction Box and Hanger Fabrication and Installation"
NQA-3.09-5.01, Revision 1, "Inspection of Instrumentation Components"
NQA-3.09-3.01, Revision 1, "Class 1E Electrical Equipment/Cable Storage and Maintenance"
NQA-3.09-3.02, Revision 2, "Electrical/Raceway - Cable Tray"
AQP-11.3, Revisions 0, 1, and 2, "Fabrication and Installation Inspection of Components Supports"
AQP-11.2, Revision 1 and 2, "Fabrication and Installation Inspection of Pipe and Equipment"
NQA-3.09-6.01, Revision 0, "Quality Control Inspection of Safety Related HVAC Systems"

During the review of the 12 construction and QA/QC procedures, it was found by the NRC inspector that some procedures were made obsolete because of specification revision or consolidation of several specifications into one specification. The non-ASME procedures were updated or written to contain "how to" instructions. Technical and quality requirements were not included in the revised procedures, but were referenced back to the specification. The non-ASME procedures appeared to have been updated to achieve consistency between the specification and the implementing procedure. Historical files reviewed for the revised procedures disclosed that procedures were processed and controlled in accordance with prescribed methods.

The ASME procedures still contain technical and quality requirements based on reasons given in TU Electric Interoffice Memorandum NP-5446. These reasons were due to existing requirements in the B&R ASME QA manual, both technical and quality requirements were required to be in the ASME construction and QC procedures.

The results of the NRC inspector's review of the personnel training files disclosed that training was provided to personnel implementing specification requirements. Training records included attendance lists, subjects covered, dates and duration of training sessions, and lesson plans. These records were compared to procedural requirements and found to be in compliance.

In summary, the NRC inspected supporting documentation for activities conducted during Phase I of the SPADU Program. Activities reviewed by the NRC inspector included: specification revision, updating of effected procedures implementing specifications, and training of personnel to changes made to the effected procedures. These activities were determined to conform to prescribed requirements and instructions governing the SPADU program. Accordingly, the objectives of the SPADU program appear to be met for Phase I, as inspected. The NRC will inspect Phase II at a later date. The Phase I implementation for drawings will be included during the Phase II inspection.

No violations or deviations were identified.

5. CPRT ISAPs

a. Adequacy of Purchased Safety-Related Material and Equipment (ISAP VII.a.9) (35061)

During this report period, the following activities for ISAP VII.a.9 were reviewed by the NRC inspector.

1) Develop Reinspection Checklists for Material and Equipment Selected (NRC Reference 07.a.09.02) and Perform Field Inspection of Selected Material and Equipment (NRC Reference 07.a.09.03)

The CPRT prepared reinspection checklists and performed inspections of 81 items selected from purchased safety-related material or equipment. The NRC selected 9 of the 81 items for inspection to assess the effectiveness for CPRT reinspection activity for ISAP VII.a.9. The NRC inspector had completed the inspection of eight of these packages and reported the results of those inspections in previous inspection reports (50-445/87-29, 50-446/87-21; 50-445/87-11, 50-446/87-09; and 50-445/87-06, 50-446/87-05). NRC inspection of the remaining package follows:

Verification Package I-M-VII.a.09-050

This CPRT verification package was prepared for a documentation review and field inspection of HVAC water chiller CP1-CHCICE-05. The water chiller was procured under Purchase Order (PO) CP-0080B and was received under Receipt Inspection Report (RIR)-12050. The procurement requirements were defined in Gibbs & Hill (G&H) Specification 2323-MS-80B, "Nuclear Safety Related Centrifugal Water Chillers," dated May 17, 1976. To assess the adequacy of the CPRT checklist, the NRC inspector reviewed the G&H specification and compared the requirements of that specification to the CPRT checklist and to Memorandum QA/QC-RT-5936. Memorandum QA/QC-RT-5936 detailed those attributes of the G&H specification included in the CPRT checklist and the justification for excluding those attributes not included.

Based on the above review, the NRC inspector determined that the checklist properly contained those attributes required to be inspected and provided suitable justification for those attributes excluded. The checklist contained attributes, such as:

(a) Verification of all required documentation; e.g., Certificate of Conformance per the specification, seismic testing certification, ASME Section III Code data report, certified material test reports (CMTRs), and other test and performance reports.

(b) Verification of overall configuration and layout of the chiller unit.

(c) Verification that the physical dimensions of the chiller were as specified on vendor Drawing 376-08933E, sheets 1 and 2, and were within the tolerances allowed.

(d) Inspection of welds per applicable drawings.

(e) Verification that the wiring from the control panel to the chiller components was installed in rigid or flexible conduit.

(f) Verification that the configuration and layout dimensions of the control and starter panels were in accordance with the specification and the vendor drawings.

(g) Verification of the installed components per vendor Drawing 376-09095D, Revision B.

The verification checklist contained other attributes and was augmented by supplemental inspection checklists; such as, memorandum QA/QC-RT-6683 which issued I-M-VII.a.9-050-01 for the inspection of pressure boundary welds.

The CP1-CHCICE-05 water chiller is a complex unit consisting of compressor, motor drive, support skid, auxiliary systems, starter and control panels, float chamber, and provisions for connection to plant piping and electrical hookups. The NRC inspection of this unit was performed by NRC inspectors with backgrounds in the electrical and mechanical disciplines.

Mechanical Inspection of Verification Package I-M-VII.a.9-050

For the NRC inspection of the mechanical portion of HVAC water chiller, CP1-CHCICE-05, the following inspection process was performed.

(a) The verification packages and checklists were reviewed to determine if they properly included the inspectable mechanical attributes of the design specification and vendor drawings. The NRC inspector determined that the verification packages properly reflected the mechanical attributes of the design specification and the vendor drawings. One exception to the above conclusion was noted during review of supplemental Verification Package I-M-VII.a.9-050-01, which was issued to inspect the accessible pressure boundary welds of the chiller unit. The NRC inspector identified that one weld for attaching a pad to the shell of the float chamber and eight welds specified for the channel boxes were missing from the verification package checklist. The omission of the welds from the checklist was discussed with the responsible engineer. The engineer was unable to identify the reason for the omission and issued a supplemental Verification Package I-M-VII.a.9-050-07 to inspect the welds. The failure to include the welds on the original package is a deviation from CPRT Procedure CPP-27, "Reinspection/Documentation Review of Purchased Safety-Related Material and

Equipment," and supplemental Verification Package I-M-VII.a.9-050-01 (445/8732-D-02).

(b) RIR-12050 was reviewed to verify the mechanical attributes of the CPRT checklist related to required documentation. It was determined that documentation certifying the unit to the requirements of the specification and the PO, including applicable codes and standards, was included in RIR-12050. Documentation also required by the specification, but not contained within the package, included: (1) certification of the seismic design of the unit to meet requirements, (2) CMTRs for all structural members, (3) acceptance of performed tests, (4) radiography reports for the heat exchanger shell and head welds, (5) dye penetrant inspection results for the impeller following the spin test, and (6) a report of the vibration levels at the compressor bearings. Comparison of the NRC inspector's findings to the completed CPRT checklist revealed no discrepancies between the two results. The NRC inspector verified that the CPRT inspector had recorded the missing documentation on deviation reports.

(c) A field inspection was performed to verify that the overall configuration of the unit, vital dimensions, and welds were as depicted on Drawing 376-08933E, sheets 1 through 4, Revision F. The configuration inspection included, where possible, verification that material types and component ratings and size were as described on the vendor drawings. For example, based on review of markings on the flange, it was possible to verify that material Item 79 was a slip-on flange rated at 150 pounds, produced from SA-105 material. Additionally, it was possible to verify the configuration and dimensions of the starter panel and the control panel per Drawing SK-D-8821, Revision 2, and Drawing 376-08933E, sheets 1 and 2, Revision F, respectively.

Comparison of the NRC inspector's findings from the document review and field inspection to the CPRT findings revealed no discrepancies.

Electrical Inspection of Verification Package I-M-VII.a.9-050

For the NRC inspection of the electrical portion of HVAC water chiller, CP1-CHCICE-05, the following inspection process was performed.

(a) The verification packages and checklists were reviewed for proper inclusion of the inspectable electrical attributes of the design specification and vendor drawings. No discrepancies or omissions were noted.

(b) A document review of RIR-12050 was made to verify all electrical attributes related to required documentation. This review showed that documents such as records of motor test performance and insulation resistance were contained in the RIR package. Documents that were not contained in the RIR package, but were required by the G&H specification, were: (1) qualification of the compressor motor to IEEE Standards 323, 334, and 344 and to Regulatory Guide 1.40; (2) qualification of the auxiliary lube oil pump to IEEE Standards 323, 334, and 344 and to Regulatory Guide 1.40; (3) certification that wiring was in accordance with IEEE Standard 383; and (4) certification that the starter panel box was in accordance with IEEE Standard 420. The absence of these documents from the RIR package had been previously identified by the CPRT inspector and had been documented by the CPRT inspector on DR I-M-VII.a.9-050-DR29, 31, and 32.

(c) A field inspection of the chiller unit was performed to verify the remaining electrical attributes of the checklist. This field inspection included items such as verification that:

1) the control panel had gasketed doors with locking handles and a space heater.

2) components mounted on the panel doors were identified by nameplates having 1/4" white letters on a black background.

3) the control panel's overall dimensions were per Drawing 376-09088E, Revision E.

In addition to the above checklist items, the CPRT issued supplementary verification packages for inspection of terminations and to verify that the bend radii of the wiring inside the starter and control panels were acceptable. CPRT completed the supplementary checklists and issued out-of-scope Report No. 1311 to document that, in general, the wiring in these panels failed to comply with the bend radius criteria contained in Design Change Authorization (DCA) 47214 to G&H Specification ES-100.

The NRC inspector reviewed the panel wiring and concurs with the CPRT conclusion that the wiring does not meet the bend criteria provided by the DCA. Out-of-scope report No. 1311 was transmitted to TU Electric and has been transferred to NCR CE-87-9608X and CDR 87-9233-EC-X.

The results of the NRC inspection of the electrical attributes did not differ from the CPRT results.

During NRC inspection of Verification Package I-M-VII.a.9.050, one deviation was identified as discussed above. During a previous inspection, the NRC identified a deviation (445/8729-D-01) concerning the performance of one CPRT inspector. The substance of neither of these deviations, taken singly or collectively, represent a loss of effectiveness in this CPRT reinspection effort. No further inspection of these NRC reference numbers is planned.

(2) Document Discrepancies From Reinspection (NRC Reference 07.a.09.04)

During inspections and documentation reviews required for the VII.a.9 verification packages, the CPRT documented conditions which did not conform to the verification package checklists by initiating DRs. These DRs were subsequently reviewed by the ISAP QA/QC engineer to determine which of the following conditions was applicable to the DR:

- The identified deviation was the result of an authorized modification (NCR, DCA, etc.) that was not identified at the time the verification package was prepared; or

- The identified deviation could reasonably be attributed to onsite construction or testing activities; or

- The deviation most likely existed at the time of receipt and was not detected and corrected during manufacturing inspection, vendor surveillance, and receipt inspection.

Those DRs that were the result of authorized modifications were invalidated by the ISAP QA/QC engineer and the justification for the invalidation stated on the DR. DRs that documented deviations resulting from onsite construction or testing were invalidated and transferred to "Out-of-Scope" observations and processed in accordance with CPRT Procedure CPP-020, "Out-of-Scope Observations." Finally, those DRs that were determined to document a deviation likely to have existed at the time of receipt were processed in accordance with CPRT Procedure CPP-010, "Preparation of Deviation Reports."

The NRC inspector assessed the adequacy of the determinations made by the ISAP QA/QC engineer regarding the validity of the initiated DRs. This assessment was accomplished by the NRC inspector reviewing the DRs and supporting documentation found in nine verification packages inspected by the NRC. These nine packages were previously used by the NRC inspector to verify proper implementation (see this report and NRC Inspection Report 50-445/87-29; 50-446/87-21, NRC References 07.a.09.02 and 07.a.09.03).

The NRC inspector reviewed those DRs determined to be invalid and those transferred to out-of-scope observations. Items considered during this review were:

(a) Did the description of the deviating condition accurately describe the problem as noted during implementation of the verification package?

(b) If the DR was not valid, did the QA/QC engineer provide a reasonable justification; e.g., subsequent design changes authorizing the deviation from the original design or additional information obtained to verify the acceptability of an inspection attribute?

(c) Was the justification for invalidating a DR supported by sufficient documentation; e.g., a

DCA or appropriate certification documents from the vendor?

(d) Did the supporting documentation actually address the identified deviation and did it fully address the problem?

The NRC inspector determined from this review that the CPRT had:

(a) Properly described each nonconforming condition.

(b) Provided a reasonable justification for those DRs invalidated.

(c) Provided sufficient written documentation or references to support each invalidation.

(d) Fully addressed the deviation as identified by the verification package.

The NRC review of ISAP VII.a.9 verification packages found that the CPRT had initiated DRs for identified unsatisfactory attributes and that DR processing was proper; i.e., validation or invalidation. The NRC inspector considers that the CPRT documenting of discrepancies found during implementation of ISAP VII.a.9 was proper and in accordance with the governing CPRT procedures.

No violations or deviations were identified. No further NRC inspection of this reference number is planned.

(3) Evaluate the Current Program for Adequacy (NRC Reference 07.a.09.06) and Document Discrepancies Found During Program Evaluation (NRC Reference 07.a.09.07)

ISAP VII.a.9 required the CPRT to evaluate the current procurement program activities and to determine if the program is being effectively implemented. To accomplish this task, the CPRT prepared checklists to verify the requirements contained in the controlling and implementing procedures. The controlling and implementing procedures were previously reviewed during the CPRT evaluation of the written program (see NRC Inspection Report 50-445/87-29; 50-446/87-21, NRC Reference 07.a.09.05).

The NRC inspector inspected the checklists and determined that they addressed the following procurement activities: (1) preparation, review, and control of procurement documents; (2) evaluation and approval of suppliers; (3) review and approval of vendor supplied documents; (4) manufacturer or vendor surveillance; (5) receipt inspection; and (6) storage and maintenance. (Note: the site receipt inspection and the storage and maintenance activities are each performed separately by construction and by operations; therefore, the CPRT inspection included both with separate evaluations.) Discrepancies noted during performance of the evaluation were to be documented on QA/QC Program Deviation Reports (PDRs).

The NRC inspector selected completed checklists and duplicated the CPRT inspections in order to verify the CPRT implementation. The NRC inspector's sample included checklists of items under construction's and operation's control. Comparison of the NRC inspection results to the CPRT results revealed no discrepancies.

The NRC inspector reviewed the other CPRT checklists that were not used for duplicate inspections mentioned above. This review of the checklists indicated that the implementation of the current procurement program was proper. For example, the CPRT found that: (1) procurement documents were being reviewed and approved by Quality Engineering and Operations Support; (2) vendors had been evaluated and placed on the approved vendors list (AVL); (3) receipt inspections were performed by qualified personnel utilizing inspection checklists prepared by engineering; and (4) storage and maintenance activities for construction were in compliance with manufacturers' recommendations. During review of the storage and maintenance activities performed by operations, the CPRT was unable to obtain evidence that required maintenance for four of six sample items had been scheduled or performed. The CPRT reviewer documented these discrepancies in PDR-82. The NRC inspector determined from this review that the CPRT had properly documented the discrepancy and had appropriately recommended as corrective actions that the operations maintenance program be reviewed to verify:

(a) That the Materials Status and Control System listing is verified by procurement engineering

to be accurate; i.e., that there are no errors or omissions in the listing.

(b) That all items determined to have maintenance requirements have been entered into the maintenance schedule and are identified by a unique identifier.

(c) That for items on which required maintenance has not been performed, that an engineering evaluation be performed to determine any detrimental effect and to recommend appropriate corrective action.

(d) That maintenance records be reviewed for accuracy and completeness.

CPRT transmitted PDR-82 to TU Electric for corrective action. TU Electric then issued Corrective Action Report (CAR) 87-070 to address the concerns of PDR-82.

Based on the above inspection of CPRT checklists and review of PDR-82, the NRC inspector considers the CPRT to have performed the evaluation of the current procurement program in accordance with the ISAP requirements and to have properly documented the discrepancies identified during the evaluation.

No violations or deviations were identified. No further NRC inspection for these reference numbers is planned.

(4) Qualifications of Personnel (NRC Reference 07.a.09.08

During inspection of ISAP VII.a.9 activities, the NRC inspected nine verification packages. For these packages the NRC inspector verified the qualifications of the CPRT personnel that prepared the packages, performed the inspections, and who performed evaluations of the inspection results. This verification was performed to determine whether the qualifications of the ISAP personnel conformed to the requirements of the CPRT Program Plan. The verifications were accomplished by a review of the personnel files for the following: (1) a resume [illegible] appropriate background, (2) a CPRT objectivity [illegible]naire reviewed by supervision, and (3) a [illegible]ation that the CPRT inspectors were certified to the type of inspection required and at the [illegible]e inspection was actually performed.

Additionally, the NRC inspector reviewed the inspector certifications for compliance with ANSI N45.2.6 (1978), "Qualifications of Inspection, Examination, and Testing Personnel for Nuclear Power Plants," and NRC Regulatory Guide 1.58, Revision 1.

From the review of the files, the NRC inspector determined that:

(a) The objectivity questionnaire had been completed by each individual and had been reviewed by the QA/QC review team leader.

(b) The resumes showed appropriate background, which had been verified for related work experience and education.

(c) The inspector certifications were appropriate for the type of inspection required and were valid for the time period in which the inspection was performed.

(d) Education and related work experience were in compliance with the requirements of ANSI N45.2.6 (1978) and the NRC Regulatory Guide 1.58, Revision 1.

No violations or deviations were identified in this area of NRC inspection. No further NRC inspection of this reference number is planned.

b. Housekeeping and System Cleanliness (ISAP VII.a.7) (35743)

During this report period, the CPPD onsite staff was advised that Mr. Frank Witt, Chemical Engineer, NRC Office of Nuclear Reactor Regulation, had completed his review of the ISAP VII.a.7 Results Report. Mr. Witt's review was to assure that the TU Electric commitments concerning plant chemistry control discussed in the results report were consistent with NRC requirements. No deviations or violations were identified by Mr. Witt.

6. Plant Tours (92700)

The NRC inspectors made frequent tours of Unit 1, Unit 2, and common areas of the facility to observe items such as housekeeping, equipment protection, and in-process work activities.

During one of the tours conducted in the Unit 2 cable spread room, the NRC inspector identified that beveled washers were not used on certain four inch beams. The four inch beams are

part of the structural framework used to support overhead cable trays. CPSES Specification 2323-SS-16B requires that "When bolts are used on surfaces having slopes greater than 1-in-20 with a plane normal to the bolt axis, beveled washers shall be provided." The omission of the beveled washers is considered an unresolved item pending further information from TU Electric engineering as to the actual degree of slope of the beams surfaces (446/8724-U-02).

7. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations, or deviations. One unresolved item disclosed during the inspection is discussed in paragraph 6.

8. Exit Interview (30703)

An exit interview was conducted January 5, 1988, with the applicant's representatives identified in paragraph 1 of this report. During this interview, the NRC inspectors summarized the scope and findings of the inspection. The applicant acknowledged the findings.

DISTRIBUTION:

Docket Files (50-445/446)
NRC PDR
Local PDR
OSP Reading
CPPD-LA
CPPD Reading (HQ)
*Site Reading
*CPRT Group
*SRI-OPS
*SRI-CONST
AD for Projects
*MIS System, RIV
*RSTS Operator, RIV
RPB, RIV
RIV Docket File
*DWeiss, RM/ALF
JTaylor
SEbneter/JAxelrad
CGrimes
PMcKee
JLyons
AVietti-Cook
MMalloy
JMoore, OGC
JGilliland, RIV
FMiraglia
EJordan
JPartlow
BHayes

*w/766