

Inspection Summary:

Inspection Conducted: July 7 through August 2, 1988, (Report 50-445/88-51; 50-446/88-47)

Areas Inspected: Unannounced resident safety inspection of applicant's actions on previous inspection findings; follow-up on violations/deviations; follow-up on NRC Compliance Bulletin 88-06; allegation follow-up; Comanche Peak Response Team (CPRT) issue-specific action plans (ISAPs) VI.b, VII.b.3 and VII.b.4; Corrective Action Program (CAP) for piping and pipe supports, conduit supports Train A and Train B and Train C > 2", and instrumentation and controls; and general plant areas (tours).

Results: Within the areas inspected, the NRC inspectors identified no significant strengths or weaknesses during this inspection period. One violation (failure to adequately control documents affecting quality, paragraph 7.b) was identified.

DETAILS1. Persons Contacted

- *R. P. Baker, Licensing Compliance Manager, TU Electric
- *J. L. Barker, Manager, Engineering Assurance, TU Electric
- *M. R. Blevins, Manager, Technical Support, TU Electric
- *W. J. Cahill, Consultant, TU Electric
- *J. T. Conly, APE-Licensing, SWEC
- *W. G. Council, Executive Vice President, TU Electric
- *J. Crnich, Project General Manager, Ebasco
- *G. G. Davis, Nuclear Operations Inspection Report Item Coordinator, TU Electric
- *J. Donahue, Operations Manager, TU Electric
- *D. E. Deviney, Deputy Director, Quality Assurance (QA), TU Electric
- *S. Frantz, Attorney, Newman & Holtzinger, P.C.
- *M. D. Gaden, CPRT, IT Corporation
- *B. P. Garde, Attorney, CASE
- *W. G. Guldmond, Executive Assistant, TU Electric
- *P. E. Halstead, Manager, Quality Control (QC), TU Electric
- *T. L. Heatherly, Licensing Compliance Engineer, TU Electric
- *R. T. Jenkins, Manager, Mechanical Engineering, TU Electric
- *O. W. Lowe, Director of Engineering, TU Electric
- *J. R. Martin, Manager, Ebasco
- *S. M. Matthews, Chief Inspector, State of Texas
- *D. M. McAfee, Manager, QA, TU Electric
- *J. W. Muffett, Manager of Civil Engineering, TU Electric
- *E. Ottney, Representative, CASE
- *S. Palmer, Project Manager, TU Electric
- *D. M. Reynerson, Director of Construction, TU Electric
- *A. B. Scott, Vice President, Nuclear Operations, TU Electric
- *C. E. Scott, Manager, Startup, TU Electric
- *J. S. Smith, Plant Operations Staff, TU Electric
- *S. L. Stamm, Project Engineering Manager, SWEC
- *J. F. Streeter, Director, QA, TU Electric
- *C. L. Terry, Unit 1 Project Manager, TU Electric
- *T. G. Tyler, Director of Projects, TU Electric
- *B. Walker, Senior Inspection Specialist, Texas Department of Labor and Standards
- *K. C. Warapius, Project Director, Impell
- *J. R. Waters, Licensing Compliance Engineer, TU Electric
- *C. S. Weary, Engineering, E&C, TU Electric
- *D. R. Woodlan, Docket Licensing Manager, TU Electric

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

*Denotes personnel present at the August 2, 1988, exit meeting.

2. Applicant's Action on Previous Inspection Findings (92701)

- a. (Closed) Open Item (445/8513-0-11): During an NRC witnessed inspection, an ERC inspector identified the following conditions to the NRC inspector as subject to evaluation as potential deviations:

- . Pipe clamp parallelism out of tolerance.
- . Locking devices for bolting missing.

These findings were identified on Deviation Report (DR) I-S-PS7N-028-DR1 issued on September 11, 1985, and subsequently on Nonconformance Report (NCR) M86-23270N issued March 6, 1986, which was dispositioned as follows:

Craft to install cotter pins where required, rework pipe clamp parallelism, and stake threads of pipe clamp bolts to provide a locking device (work order required). NCR M86-23270N was signed off complete by TU Electric QC on December 18, 1986.

During a review of DR I-S-PS7N-028-DR1, NCR M86-23270N and a reinspection of the support in question, the NRC inspector found that the rework had been performed as required by the disposition of the NCR and the applicable procedures and was completed in an acceptable manner. This open item is closed.

- b. (Closed) Unresolved Item (445/8601-U-16; 446/8601-U-05): The NRC inspector questioned the homogeneity and validity of the small bore pipe support population. Paragraph 4.1 of the CPRT Action Plan for ISAP VII.c required that the results of the sampling for each population be evaluated and utilized to provide significant input into the overall evaluation of construction adequacy.

The NRC inspector noted that all attributes on the checklist for Verification Package I-S-SBPS-037 with the exception of (1) identification, (2) location and orientation, and (3) clearances had "NA" (not applicable) entered by the Evaluation Research Corporation (ERC) engineer. No material (structural steel, anchor bolts, U-bolts, snubbers, etc.) or welding was involved in the reinspection; therefore, only a few attributes on the checklist were applicable.

As such, the NRC inspector did not consider the population sample to be a valid statistical sample for generating conclusions about construction adequacy.

In response to the NRC inspector's concerns, the CPRT stated that although they did not deviate from program commitments related to sampling techniques, CPRT chose to

combine reinspection and documentation review results with those from the other pipe support populations on a proportional sampling basis to achieve the required sample size (60) for each attribute in order to assure that significant inputs concerning construction adequacy were utilized.

For the small bore pipe support (SBPS) population, attributes for large bore supports nonrigid (LBSN) and large bore supports rigid (LBSR) populations were utilized to achieve the required sample.

The NKC inspector has reviewed QA/QC-RT-6849, Revision 2, dated June 24, 1987, "Attribute Count Matrix for Small Bore Pipe Support Population," and CPRT letter CPRT-821 dated February 3, 1987, "Proportional Sampling." NRC review determined that CPRT actions discussed above have resolved this issue. This item is closed.

3. Follow-up on Violations/Deviations (92702)

- a. (Closed) Violation (445/8601-V-12; 446/8601-V-03):
Established procedures for handling of nonconforming materials, parts, or components were not effectively implemented as evidenced by the following conditions.
- (1) DRs generated by ERC to document nonconforming conditions did not, in all cases, result in the initiation of NCRs by the TU Electric QA/QC coordinator.
 - (2) The TU Electric QA/QC coordinator failed to initiate NCRs for numerous ERC identified out-of-scope observations.
 - (3) A large number of nonconforming items had not been physically identified with signs, barriers, or hold tags.
 - (4) Numerous instances had been identified where deficiency notifications have been used to improperly document nonconformances and effect the issuance of work requests and work orders.
 - (5) Failure to initiate required NCRs impacts on the validity of the monthly trend analysis report.

The applicant responded to the Notice of Violation (NOV) with the following information:

- (1) TU Electric reviewed all DRs written by ERC and found that the requirements of CP-QP-16.3 had not been implemented when the component identified fell

under the scope of the ASME Section XI program. At the completion of this review, TU Electric issued NCRs for all DRs not previously documented on NCRs.

- (2) CP-QP-16.3, Revision 3, now requires that all observations be documented on NCRs regardless of the described condition. All out-of-scope observations have been reviewed to determine if NCRs were issued for them. NCRs have now been issued for all out-of-scope observations.
- (3) TU Electric agreed that the tagging criteria in CP-QAP-16.1, Revision 25, requires the identification of all nonconforming items with signs, barriers, and/or hold tags. However, CP-QAP-16.1, Revision 27, dated August 13, 1986, was issued to require the placement of hold tags on nonconforming items, where practicable. Tagging criteria now contained in QI-QP-16.0-8, Revision 0, dated December 22, 1986, requires that "Hold Tags" be placed on deficient items if:
 - (a) The item is not installed, or
 - (b) Correction of the deficiency without QC witness would preclude proper reinspection.
- (4) Contrary to the requirements of N61.1, several DRs were received from ERC (that were associated with the N61.1 program) that were processed with deviation notices (DNs) in lieu of NCRs. However, per CP-QP-16.3, Revision 2, DN's may no longer be used to process DRs. A review was conducted of previous Dks/DNs and those identified were reissued as NCRs. NCRs are currently used to document deficiencies regardless of the stage of component processing.
- (5) NCR E86-200637 identified 53 out-of-scope three-part memos of which 30 were determined to be nonconforming. The nonconforming conditions described on the 30 three-part memos have been documented on individual NCRs and included in the monthly trend analysis report.

A revision to CP-QP-16.0 (nonconformances) and its daughter instructions provides nonconformance identification requirements which includes initial identification of nonconforming conditions on construction DRs.

The NRC inspector reviewed the DR/NCR log, the out-of-scope log, and the following TU Electric procedures:

CP-QAP-16.1	Revision 27
CP-QP-16.0	Revision 26
CP-QP-16.0-8	Revision 0
CP-QP-16.3	Revision 3

The NRC inspector feels that the revisions made to the above procedures clarify the intent of the procedures with respect to NCRs and will help prevent a recurrence of the identified problems. Part three of this violation was closed in NRC Inspection Report 50-445/87-11; 50-446/87-09, Section 2.e and 3.g. This violation is closed.

- b. (Closed) Violation (446/8602-V-10): Section CC-5521.1.1 of Code ACI-359, states, in part: "If the 12-inch radiograph in the 50-foot long increment of weld does not meet the acceptance standards, two 12-inch films shall be taken at other locations within the 50-foot long increment If either of the second radiographs does not meet the acceptance standards . . . the remaining portion of the 50-foot increment of this weld shall be radiographed."

Contrary to the above, NRC Office of Special Projects (OSP) inspectors determined that the required radiography of the remaining portion of a 50-foot increment of weld was not performed even though one of the two second 12-inch radiographs (No. 146T2) at seam P84 in the Unit 2 containment liner did not meet the acceptance standards.

TU Electric letter TXX-6285 documents the applicant's response to the NOV. TU Electric denies the violation based upon the following reasons:

- . The film (146T2) was determined to be acceptable during the construction phase of the containment liner by both Chicago Bridge and Iron (CB&I) and a Brown and Root (B&R) Level III examiner.
- . In addition, after issuance of the NOV, other personnel who were certified Level III radiographic examiners by their respective employers evaluated the linear indications which appear on film 146T2 and determined that the film grading was correct and acceptable.

The details section of NRC Inspection Report 50-445/86-03; 50-446/86-02 identifies an open item

involving the CBI practice of "pickup and reshoot" (i.e., depositing weld filler material on previously visual examination (VT) accepted weld surfaces to resolve discontinuities which appear on the RT film). While reviewing RT film and reports of RT examination, the NRC inspector noted that the term "pickup and reshoot" was entered in the remarks column for RT report line entries.

On April 29, 1988, NRC and TU Electric management discussed methodology to resolve the OSP NRC inspector's determination that film 146T2 was unacceptable in accordance with the ACI-359 RT film grading standards committed to in the FSAR. The NRC inspectors had previously concluded that film 146T2 did not meet ACI-359 requirements due to the excessive length of linear indications and the cumulative length of linear indications which were evaluated to appear on the RT film. As a result of this discussion with TU Electric, the NRC committed to have the NRC mobile NDE vehicle personnel independently evaluate the adequacy of CBI RT film grading and the practice of "pickup and reshoot."

On July 27, 1988, the NRC NDE inspector evaluated the linear indications to be less than 1/4" in length and that the group of inclusions which appear on film 146T2 meet aggregate length criteria for acceptance. Furthermore, the CBI practice of "pickup and reshoot" was deemed to be acceptable. NRC Inspection Report 50-445/88-48; 50-446/88-43 will document inspection activities performed by the NRC mobile NDE van inspectors.

This violation is closed based upon inspections performed by NRC mobile NDE van inspectors.

- c. (Closed) Violation (445/8422-V-05): The NRC inspector had identified nine dimensions on the baseplate of pipe support SI-1-071-002-S32K which were out-of-tolerance after final inspection by QC.

The NRC inspector reviewed the current installation status of the subject support and found that the support was voided. Pipe support engineering letter PSE-3599 dated September 3, 1987, provides instruction to project personnel to void the support due to the Stone and Webster Engineering Corporation (SWEC) stress requalification program which determined that the support was no longer required.

Actions to preclude recurrence of the violation are contained in the applicant's CAP for pipe supports. All pipe support base plate dimensions are an attribute for

QC reinspection under the CAP. NRC inspection of the CAP, documented in 50-445/87-16; 50-446/87-13 and in 50-445/87-18; 50-446/87-14 did not reveal any violations similar to this NOV. This violation is closed.

- d. (Closed) Deviation (445/8718-D-10): This deviation identified five examples of instances where the NRC inspection data differed from the data collected during Impell's engineering walkdown phase of the post construction validation program (PCHVP) for Train C conduit less than or equal to 2". The applicant agreed with the deviation in letter TXX-6939 dated December 7, 1987, and issued DR C-87-4800. This DR stated that the cause of the deficiency was inaccurate recording and checking of walkdown data. The applicable walkdown forms and calculations were corrected and the qualification status of the conduit supports did not change as a result of the identified discrepancies. The engineers still on site involved in the walkdowns, as well as all other personnel involved in the structural integrity group, have been retrained on the importance of documenting walkdown data accurately. Also, Impell Train C project instructions have been reviewed for areas that could be misinterpreted which could potentially affect the accuracy of field measurements, and revised accordingly. Further, to assess the generic implications of walkdown discrepancies, Impell conducted a study and issued a report on the accuracy and adequacy of Train C walkdown data. In this study, 5271 attributes were reinspected with a discrepancy rate of 1.9% of which 0.7% were unconservative. However, none of the discrepancies resulted in disqualification of the Train C conduit systems.

In this inspection period, the NRC inspector reviewed DR-C-87-4800 and found that it adequately addressed the deviation. The revised walkdown forms and calculations were reviewed to ensure that the qualification status of the conduit supports was not affected. Training records were reviewed as well as PICN-009 which provides clarification to improve measurement consistency when measuring spans with bends as required by Project Instruction PI-0210-052-004.

The conclusions of Impell report 01-0210-1671 which assesses the generic implications of the identified walkdown discrepancies were presented to the NRC inspection staff on January 28, 1988, and are discussed in NRC Inspection Report 50-445/88-05; 50-446/88-04. Based on the above actions, this item is closed.

- e. (Closed) Deviation (445/8731-D-03): This deviation identified five examples of discrepancies between NRC inspection data and that collected by Impell's walkdown engineers. The applicant's response to this deviation and the NRC inspectors review of the actions taken were essentially the same as those for deviation 445/8718-D-10 discussed earlier in this report in paragraph 3.d. The NRC inspector reviewed the revised walkdown forms and calculations associated with this deviation to ensure that the correct data had been incorporated and also to ensure that the qualification status had not changed. This deviation is closed.
- f. (Closed) Deviation (445/8735-D-01): This deviation identified one instance where a checker dated a calculation, indicating completion of his review, the day before the engineer performing the calculation dated it. Moreover, a calculation summary sheet appeared to have been prepared before some of the calculations summarized on it were performed.

The applicant issued DR-C88-01174 to document these discrepancies. The NRC inspector reviewed this DR and is satisfied that it fully addresses the deviation. As corrective steps the calculations in question were rereviewed and a comprehensive administrative checklist was implemented to ensure consistency in documentation of the dates work is performed. The NRC inspector reviewed the calculations in question to ensure that this review had been accomplished, as well as Impell's administrative quality assurance checklist, and concurs that the committed actions have been completed and that they adequately address the deviation. This deviation is closed.

- g. (Closed) Deviation (445/8735-D-03): This deviation identified four errors in walkdown data collected by Impell. In response to this deviation, the applicant issued DR-C-88-01191. The corrective actions, other than correcting the specific walkdown forms and calculations, are the same as those reported for deviation 445/8718-D-10 discussed earlier in this report and are considered acceptable. The NRC inspector reviewed the revised walkdown forms and calculations associated with the deviation to ensure that the correct data had been incorporated and that the qualification status had not changed. This deviation is closed.
4. Follow-up on NRC Compliance Bulletin 88-06 (92703)

(Closed) NRC Compliance Bulletin 88-06, "Actions to Be Taken for the Transportation of Model No. SPEC 2-T Radiographic

Exposure Devices": This bulletin is a follow-up to NRC Information Notice 88-33, "Recent Problems Involving the Model SPEC 2-T Radiographic Exposure Device." Certain problems have been identified in the manufacture of this radiographic device which include:

- a. The "as built" configuration of some of the devices does not conform to the design approved by NRC, and
- b. Source Production and Equipment Company failed to implement the quality assurance program requirements specified in Subpart H of 10 CFR Part 71 and in QA program approval 71-0102.

The NRC inspector reviewed the applicant's response to the NRC bulletin dated July 11, 1988, and considers this bulletin to be nonapplicable due to the fact that all RT examinations performed on site by B&R and the designated NDE contractor, are performed with RT exposure devices supplied by other manufacturers. This bulletin is closed.

5. Allegation Follow-up (99014)

(Closed) OSP-88-A-0051: Subsequent to a Monday morning layoff of QC inspectors, an allegation was received that stated that there were no in-plant civil structural QC inspectors available for the inspection of construction activities. The applicant was contacted and replied that there was a one day temporary shortage of personnel due to layoffs, personal time off, and sick leave, but that the lead Level III QC inspector was available all day for construction calls for inspection. The inspector verified that the in-plant QC call board did have a notice to call the Level III QC if inspections were requested. Since an inspector was available and ample instruction was present to reach him if necessary, this allegation (OSP-88-A-0051) is considered closed.

6. CPRT ISAPs (48063)

a. Polar Crane Shimming (ISAP VI.b)

- (1) Inspection of Seat-to-Bracket Connections (NRC Reference 06.b.01.01)

Third-Party Review of Inspection and Any Corrective Action (NRC Reference 06.b.01.03)

The technical review team (TRT), during an inspection of the Polar Crane runway system in August 1984 found that several of the girder seat connections had gaps that extended into the projection of the bottom flange of the girder.

These gaps exceeded the acceptance criteria originally established by Gibbs and Hill (G&H) in November 1977. A further evaluation performed by a craft team identified what they perceived as the four worst cases. However, SWEC calculation 16345-EM(S)-008-CZC, Revision 1, concluded that the bearing between the girder and the support bracket seat is not an area of concern. The third party agreed with this conclusion. NRC evaluation of this calculation is documented in NRC Inspection Report 50-445/88-37; 50-446/88-35). NRC inspection of these items is complete. No violations or deviations were identified.

- (2) Develop Measurement Program, Execute, and Evaluate (NRC Reference 06.b.02.01)

Determine Cause of Rail Movement, Assess Safety Significance, and Recommend Modifications (NRC Reference 06.b.02.02)

In February 1985, representatives from TU Electric, G&H, and the third party performed a walkdown and review of the Unit 1 polar crane that included an inspection of the rail during operation of the crane. From this walkdown/inspection, a report was prepared by G&H (see "Polar Crane Study" by G&H dated May 14, 1986) that detailed findings and observations. For a detailed NRC review of the calculations and recommendations, see NRC Inspection Report 50-445/88-37; 50-446/88-35. Inspection of these items is complete. No violations or deviations were identified.

- (3) Inspect Rail and Rail Support System to Identify Any Safety Significant Deviations (NRC Reference 06.b.03.01)

Prescribe Corrective Action on Any Found Deficiencies (NRC Reference 06.b.03.02)

Third-Party Verification of Inspection and Review of Corrective Action (NRC Reference 06.b.03.03)

A general inspection was performed by TU Electric in November 1985 under Traveler CE-85-2876-8902. During this inspection, four findings were documented:

- . Spalling on all 14 rail segments.
- . Gaps in the upper bracket connections.

- . Ground cables either completely or partially broken.
- . Some rail leveling shims loose or damaged.

The general inspection did not identify any unsatisfactory conditions that would not have been corrected by the proposed design modifications and/or normal repair activities.

The general inspection of the crane rail support system (initiated in November 1985) was overviewed by the third party who also reviewed and concurred with the recommended corrective actions. The NRC inspector has inspected the ISAP VI.b files, inspection results, third-party files and reports, VI.b Results Report, and TERA's history of the polar crane and concurs with the conclusions reached in the Results Report. Further review of this ISAP and related reference items is documented in NRC Inspection Report 50-445/88-37; 50-446/88-35. Inspection of these items is complete. No violations or deviations were identified.

(4) Review Existing Maintenance and Surveillance Program (NRC Reference 06.b.04.01)

Third Party to Recommend Any Required Design Changes (NRC Reference 06.b.04.02)

The maintenance and surveillance program reviewed by the third party was presented in the Comanche Peak Steam Electric Station Mechanical Maintenance Manual, "Containment Polar Crane Inspection," Instruction MMI-317, Revision 1. The review concentrated on the then existing procedures for the maintenance and surveillance of the runway system. It was found that this instruction addressed only the crane structure and its mechanical/electrical components. It was determined by the third party that it would be prudent to conduct an inspection of the runway system and that the existing Instruction MMI-317 should be revised to include requirements for this inspection.

The changes to the acceptance criteria recommended by the third party were incorporated in Revision 2 to Instruction MMI-317 which was issued in July of 1986. The third party has reviewed and concurred with Instruction MMI-317, Revision 2. TU Electric revised Instruction MMI-317, reissued it as Procedure MMP-317 in April 1988, and included the runway system. Procedure MMP-317 was issued in

conjunction with Electrical Procedure EMP-343 (which documents electrical maintenance of the polar crane). The NRC inspector has reviewed the Polar Crane Results Report, TERA letter TERA-213, Procedure MMP-317 and Procedure EMP-343 and concurs that both the review and procedural implementation will assure that an adequate maintenance and surveillance program are in place. A further review of the recommended design changes can be found in NRC Inspection Report 50-445/88-37; 50-446/88-35. Inspection of these NRC items is complete. No violations or deviations were identified.

(5) Review History of Crane Support System Construction and Performance (NRC Reference 06.b.05.01)

The review of the history of the crane support system was performed by the third party with assistance from the project and documents the design and installation requirements for the crane support system, load testing of the crane, and the installation and inspection history related to the shim gap and rail motion problems. The results of this review were documented in the ISAP VI.b Results Report and TERA letter TERA-213. The NRC inspector reviewed the referenced background documents related to the history of the crane support system construction and performance and feels that the history, as outlined, is well detailed and accurate. Inspection of this item is complete. No violations or deviations were identified.

(6) Identify and Categorize Design Requirements in Terms of Performance of Structural Function (NRC Reference 06.b.05.02)

A review of the design requirements of the crane support system was performed by the third party, with assistance from the project. This review resulted in the generation of documentation for the design and installation requirements for the runway system, load testing of the crane, and installation and inspection history related to shim gap and rail motion problems. The design requirements were identified in the following TU Electric documents:

2323-SS-10	Reinforcing Steel
2323-SS-11	Cadwelding Rebar
2323-SS-14	Containment Liner Steel
2323-SS-17	Miscellaneous Steel
2323-SS-39	Containment Polar Cranes

(TU Electric documents continued)

KRANCO	7523-CL-1	Clearance Drawing
KRANCO	7523-3	Bridge Assembly
KRANCO	7523-6	Bridge Wheel Assembly
Bostrom-Bergen	2386-7	Polar Crane Girders
Gibbs & Hill	2323-S1-0515	Polar Crane Support Details

The engineering design of the runway system prior to the TRT investigation is documented in G&H Calculation SRB-109C, Set 3, Revisions 0 through 3. The interface wheel loads for the various load combinations, including seismic, used in the G&H analysis were provided by KRANCO, the crane manufacturer. Those items that were found not to be addressed by SRB-109C, Set 3, Revisions 0 through 3 were identified in DIRs and resolved by SWEC. In addition, G&H completed analyses of the structural members and connection details in Calculation SRB-109C, Set 3, Revisions 4 through 10. The NRC inspector has reviewed the various project specifications, KRANCO drawings, and G&H/SWEC calculations pertaining to the polar crane design requirements. Based on this review, the NRC inspector is satisfied that the methods used adequately cover the design requirements in terms of performance and structural function. NRC inspection of this item is complete. No violations or deviations were identified.

b. Hilti Anchor Bolt Installation (ISAP VII.b.4)

Determine Programmatic Implications (NRC Reference 07.b.04.08)

The three primary areas of concern that were identified during the CPRT reinspection of ISAP VII.b.4 were identified as spacing violations, bottomed-out nuts, and torque violations.

A review of the spacing violations determined that spacing violations have occurred in all applications that included installed Hilti bolts. Spacing violations do not have implications beyond Hilti bolt installations in that they involve multiple installations; i.e., distance of one installation to another. Therefore, there are no programmatic implications to other activities.

Root causes for bottomed-out nuts and torque violations were not determined. However, these

violations occurred when setting the bolt, an operation which is unique to Hilti bolt installations. Therefore, implications beyond Hilti bolt installations are unlikely to exist.

The NRC inspector has reviewed the ISAP VII.b.4 Results Report, the ISAP VII.b.4 files, related DRs, and NCRs, and concurs with the CPRT that no programmatic implications outside the Hilti bolt arena exist. This ISAP is closed. Specific inspection activity on Hilti bolt spacing is addressed in detail in NRC Inspection Report 50-445/88-50; 50-446/88-46. No violations or deviations were identified.

c. Pipe Support Inspections (ISAP VII.b.3)

(1) Reinspect Random Sample in Accordance with ISAP VII.c (NRC Reference 07.b.03.06)

A decision was made by TU Electric to conduct a separate and broader investigation of the adequacy of construction of CPSES in accordance with ISAP VII.c, "Construction Reinspection/Documentation Review Plan." Included within the scope of ISAP VII.c was a statistically based reinspection of pipe supports selected from Unit 1, Unit 2, and common areas. As a result, the scope of ISAP VII.b.3 was changed to cover only the validation of NRC TRT findings. However, the results of the reinspections conducted by ISAP VII.c and ISAP VII.b.3 were combined during the collective evaluation phase of the quality of construction program.

The NRC inspector reviewed the quality instructions related to the pipe supports covered by ISAP VII.c and determined that all attributes covered by ISAP VII.b.3 were included in the quality instructions for the inspection of pipe supports in ISAP VII.c. The NRC inspector identified one attribute, "Hilti Kwik" bolt embedment length that was not included in the VII.b.3 attributes; however, this attribute was included as an attribute in ISAP VII.b.4 and the cable tray design adequacy verification program. The NRC inspector concludes that this item has been satisfactorily completed. The inspection of this item is complete. No violations or deviations were identified.

(2) Review ISAP VII.c Inspection Results for Pipe Supports and Identify Valid Discrepancies (NRC Reference 07.b.03.09)

The NRC inspector has reviewed the Results Reports and the files for the following ISAP VII.c pipe supports:

<u>Appendix</u>	<u>Population</u>	<u>Major No. of Attri- butes</u>
25	Large Bore Pipe Supports - Rigid	14
26	Large Bore Pipe Support - Nonrigid	14
27	Small Bore Pipe Supports	14

During this review, the NRC inspector identified that a total of 946 valid deviations had been written by ERC of which 671 were determined to be insignificant by ERC. These deviations covered all identified attributes with the exception of QC inspector certifications. Based on the inspection findings identified by ERC, recommended actions were made in the following areas: Components, gaps, locking devices, pipe clamp spacers, jam nuts, fasteners, and angularity.

The NRC inspector also found that the dispositions of deficient conditions were addressed and that the rework and repair is being performed in accordance with the CAP program. Inspection of this item is closed. No violations or deviations were identified.

(3) Evaluate Valid Discrepancies for Safety Significance in Accordance with Appendix E of the CPRT Program Plan. (NRC Reference 07.b.03.10)

ERC inspected 42 supports in Unit 1 and common areas and 92 snubber and strut type supports in Room 77N. This inspection/verification identified a total of 338 deviations which were evaluated for safety significance in accordance with Appendix E of the program plan. During this safety significance evaluation, no adverse trends and a total of six construction deficiencies were identified which consisted of the following:

- . No locking devices for threaded fasteners.
- . Pipe clearances with support out-of-tolerance.
- . Pipe clamp locknut loose.
- . Strut misalignment.

- . Load pin locking device (cotter pin) missing.
- . Broken and missing lockwire on snubber adapter plate bolting.

One unclassified deviation was also identified which consisted of:

- . Loose jam nut on barrel of strut.

The NRC inspector reviewed the methods and procedures for determining safety-significant items and the DRs/NCRs initiated as a result of this ISAP. The NRC inspector also reviewed the ERC inspection packages and concurs with the methods utilized and results of safety-significance evaluations. NRC inspection of this item is complete. No violations or deviations were identified.

(4) Perform Trend Analysis for all Valid Deviations (NRC Reference 07.b.03.11)

CPRT reinspected a total of 220 supports for the purpose of substantiating the TRT findings and assessing the impacts of the TRT findings on construction quality. Additionally, more than 300 supports were reinspected under ISAP VII.c for the purpose of assessing construction quality. Corrective actions were recommended for construction deficiencies, program deviation reports, and unclassified deviations. As a result of this inspection, a total of 946 valid deviations were identified with 671 determined to be insignificant. An analysis by CPRT of the 946 deviations resulted in no adverse or unclassified trends being identified for ISAP VII.b.3.

The NRC inspector reviewed the ISAP VII.b.3 files, Trend Analysis and Results Report and found them to be consistent with previous inspection results. Inspection of this item is complete. No violations or deviations were identified.

(5) Determine Root Cause, Generic Implications and Programmatic Concerns for any Construction Deficiencies and Adverse Trends. (NRC Reference 07.b.03.14)

CPRT performed reinspections on 220 supports for ISAP VII.b.3, during this inspection, 946 deviations were identified of which 275 were determined to be significant. An analysis was performed on the 946 deviations to determine root cause, generic implication, and programmatic concern for any identified construction deficiencies and adverse

trends. During this analysis, no adverse trends were identified; however, six construction deficiencies were identified which consisted of the following:

- . No locking devices for threaded fasteners.
- . Pipe clearance with support out-of-tolerance.
- . Pipe clamp locknut loose.
- . Strut misalignment.
- . Load pin locking device (cotter pin) missing.
- . Broken and missing lockwire on snubber adapter plate bolting.

With the exception of "strut misalignment," the "root cause, generic implications and programmatic concerns" are being addressed by the same findings and concerns in the following ISAP VII.c populations Results Reports:

- . Large bore pipe supports - rigid.
- . Large bore pipe supports - nonrigid.
- . Small bore pipe supports.

With respect to the "strut misalignment," it was determined that because of the long period of time (early 1983 to late 1985) between the last documented inspection and the CPRT inspection that it was not possible to determine a specific root cause for this deficiency. However, a QA/QC program deviation report (PDR-061) was initiated to address the preservation of pipe supports in their QC-accepted configuration.

The NRC inspector reviewed the ISAP VII.b.3 and VII.c files, Results Reports, and the methodology used in reading the aforementioned conclusions and feels that ISAP VII.b.3 has been adequately addressed and that the facts support conclusions reached. Inspection of this item and ISAP is complete. No violations or deviations were identified.

7. Corrective Action Plan (CAP)

a. Piping and Pipe Supports (50090)

The applicant is currently in the process of issuing vendor certified drawings (VCDs) for pipe supports with respect to the completion of stress reconciliation activities related to SWEC's program and procedures which were established to meet the requirements of IEB 79-14.

To date, the following six VCDs have been issued by SWEC:

<u>Pipe Support MK. No.</u>	<u>Revision</u>
RH-1-014-003-S32S	CP-1
RH-1-014-004-S32R	CP-3
RH-1-014-005-S32R	CP-1
RH-1-014-006-S32K	CP-2
RH-1-014-007-S32S	CP-2
RH-1-014-010-S32K	CP-2

The NRC inspector examined SWEC and TU Electric design control procedures to ascertain that they are consistent with QA program commitments. The NRC inspector performed a detailed review of SWEC site Procedure CPSP-11, Revision 6, "Technical Services Drafting (TSD) Drawing Preparation Unit 1." Interviews were conducted with the TSD supervisor and one of the SWEC project engineers responsible for engineering review of drawing revisions.

The purpose of the NRC inspection was to determine if:

- . SWEC engineering and drafting personnel were knowledgeable of procedural requirements.
- . Responsibilities were assigned in writing and properly and effectively performed for these documents.
- . Reproduction of design documents are clearly legible and in a condition suitable for their intended purpose.

NRC inspection of the drawings listed above revealed that means have been established to assure, through implementation of approved procedures, that design drawings, including changes thereto, are reviewed for adequacy and approved for release by authorized personnel. No violations or deviations were identified.

b. Conduit Supports Train A and B and Train C > 2" (48053)

During a review of tolerances for conduit support members which are contained in Specification 2323-SS-16B, Revision 2, "Structural Steel/Miscellaneous Steel (Category I & II)," it was noted that this specification has been revised by design change authorization (DCA) 79249, Revision 2. Procedure ECE 5.02, paragraph 6.6, allows the use of a DCA to make changes to specifications. While reviewing this DCA, the NRC inspector noted the same engineer originated and approved the reason for change; however, paragraph 6.2.2b of Procedure ECE 5.01-03, Revision 1, requires that the reason for change be approved by the responsible

supervising engineer. Further, this specification is a multidiscipline document and as such was reviewed by the three engineering contractors on site; however, the DCA was prepared by Impell and SWEC and was not reviewed by Ebasco. This did not appear to be in accordance with the requirements in Procedure ECE 5.01, design control program and Procedure ECE 5.02, engineering specification review. This was discussed with applicant personnel who agreed that the engineer who prepared the DCA should not have approved the reason for change and that paragraph 6.6.2.j of Procedure ECE 5.02 which gives the review and approval requirements for DCAs issued against specifications is not consistent with paragraph 6.1 of the same procedure. In response to the questions by the NRC inspector, the applicant issued DR P-88-03618 in regard to the originator and approval blocks being signed by the same individual and DR P-88-03617 to correct the inconsistency in Procedure ECE 5.02. The two items detailed above are a violation of Criterion VI and project procedures (445/8851-V-01).

c. Instrumentation and Controls (52053)

In this inspection period, the NRC inspector witnessed a flexible metal hose assembly inspection by SWEC Quality Control. The purpose of this effort was to evaluate the methods used to inspect items such as:

- . Spatial orientation.
- . Twist or torsion within hoses.
- . Location of 3-D clamps on tubing stubs.
- . Crimping.
- . Crushing.
- . Separation of the braid.

The inspectors performed an inspection on a 90° orientation - Configuration II as depicted on Drawing ECE-I-002-R-10, Revision CP-1. A fixture consisting of tubing clamps and sections of thick wall tubing were attached to the hose assembly being inspected establishing baselines from which critical dimensions were measured. The information collected was then compared to acceptance criteria provided on Drawing ECE-I-002-R-13, Revision CP-1. The NRC inspector concurred that the inspection technique utilized is adequate to evaluate the necessary attributes. No deviations or violations were identified.

8. 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. No violations or deviations were identified and no items of significance were observed.

9. Management Meetings (30702)

- a. On July 15, 1988, R. F. Warnick and J. S. Wiebe met with L. F. Nace and A. B. Scott in a routine monthly meeting to discuss current activities and items of concern. Significant subjects discussed included:
- (1) The joint stipulation signed by TU Electric, CASE, and NRC.
 - (2) Postponement of the meeting with Region IV and TU Electric to allow CASE to attend.
 - (3) Results of recent operating licensing examinations (six passed and seven did not pass).
 - (4) Service water system pipe coating removal
 - (5) The need to keep the NRC informed of changes (reductions) in the CAP and PCHVP commitments.
- b. On July 21, 1988, R. F. Warnick, H. H. Livermore, C. J. Hale, and P. Stanish met with L. F. Nace to discuss NRC concerns with the large number (8000) of DCAs requiring confirmation, the large number of outstanding NCRs and DRs, the need to be kept informed of changes to the CAP and PCHVP, and the recent Impell identified question regarding the completeness of certain QC inspections. Mr. Nace agreed to provide the NRC with additional details regarding all three concerns.

10. Exit Meeting (30703)

An exit meeting was conducted August 2, 1988, with the applicant's representatives identified in paragraph 1 of this report. No written material was provided to the applicant by the inspectors during this reporting period. The applicant did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection. During this meeting, the NRC inspectors summarized the scope and findings of the inspection.