

Inspection Summary:

Inspection Conducted: April 5 through May 2, 1989 (Report 50-445/89-25; 50-446/89-25)

Areas Inspected: Unannounced, resident safety inspection of applicant's actions on previous inspection findings; follow-up on violations/deviations; specification, procedure, and drawing update program; penetration seals; and water damaged calculations.

Results: Within the areas inspected, no violations, deviations or unresolved items were identified. One strength and one weakness were noted. The NRC inspector identified potential record and document control problems to QA management, who immediately took effective and comprehensive action to define the problem and initiate corrective action (paragraph 5). Instead of immediately involving QA when Stone & Webster Engineering Corporation calculations were found exposed to water damage, QA involvement did not occur until several weeks following the incident (paragraph 6).

DETAILS1. Persons Contacted

- *R. W. Ackley, Jr., Director, CECO
- *G. K. Afflerbach, ASM Startup, TU Electric
- *M. Axelrad, Newman and Holtzinger
- *J. L. Barker, Manager, Engineering Assurance, TU Electric
- *D. P. Barry, Senior Manager, Engineering, Stone and Webster Engineering Corporation (SWEC)
- F. W. Bauer, Quality Control, BISCO
- *J. W. Beck, Vice President, Nuclear Engineering, TU Electric
- *O. Bhatti, Issue Interface Coordinator, TU Electric
- *M. R. Blevins, Manager, Technical Support, TU Electric
- *H. D. Bruner, Senior Vice President, TU Electric
- *J. H. Buck, Senior Review Team, IAG
- *J. T. Conly, APE-Licensing, SWEC
- *R. J. Daly, Manager, Startup, TU Electric
- J. E. Derriey, Pipe Support Engineering, SWEC
- *J. W. Donahue, Operations Manager, TU Electric
- *D. E. Deviney, Deputy Director, Quality Assurance (QA), TU Electric
- *D. M. Ehat, Consultant, TU Electric
- *J. C. Finneran, Jr., Manager, Civil Engineering, TU Electric
- *C. A. Fonseca, Deputy Director, CECO
- D. L. Goodwin, Assistant Lead Administrator, Pipe Stress and Support Document Control, SWEC
- *W. G. Guldmond, Manager of Site Licensing, TU Electric
- *P. E. Halstead, QC Manager, TU Electric
- *T. L. Heatherly, Licensing Compliance Engineer, TU Electric
- *C. B. Hogg, Engineering Manager, TU Electric
- *T. A. Hope, Licensing, TU Electric
- *A. Husain, Director, Reactor Engineering, TU Electric
- *R. T. Jenkins, Manager, Mechanical Engineering, TU Electric
- *J. J. Kelley, Manager, Plant Operations, TU Electric
- W. G. Kennedy, Project Manager, BISCO
- *O. W. Lowe, Director of Engineering, TU Electric
- *F. W. Madden, Mechanical Engineering Manager, TU Electric
- *D. M. McAfee, Manager, QA, TU Electric
- *S. G. McBee, NRC Interface, TU Electric
- *J. W. Muffett, Manager of Engineering, TU Electric
- *E. F. Ottney, Program Manager, CASE
- *S. S. Palmer, Project Manager, TU Electric
- *P. W. Pellette, Operations, TU Electric
- *D. M. Reynerson, Director of Construction, TU Electric
- *A. H. Saunders, EA Evaluations Manager, TU Electric
- *A. B. Scott, Vice President, Nuclear Operations, TU Electric
- D. S. Selva, Records Management, SWEC
- *B. J. Sewell, TU Materials Coordinator Manager, TU Electric
- *J. C. Smith, Plant Operations Staff, TU Electric

*R. L. Spence, TU/QA Senior Advisor, TU Electric
 M. P. Sprygada, Quality Control, BISCO
 *M. D. Skaggs, CPE, Mechanical, TU Electric
 *P. B. Stevens, Manager, Electrical Engineering, TU Electric
 *J. F. Streeter, Director, QA, TU Electric
 *C. L. Terry, Unit 1 Project Manager, TU Electric
 *M. A. Thero, CASE Intern
 *O. L. Thero, QTC Consultant to CASE
 *T. G. Tyler, Director of Projects, TU Electric
 *R. D. Walker, Manager of Nuclear Licensing, TU Electric
 *R. G. Withrow, EA Systems Manager, TU Electric

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

*Denotes personnel present at the May 2, 1989, exit meeting.

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

(Closed) Open Item (445/8903-O-01): The controlling procedure for the ASME package closure group does not describe clearly the processing review for Unit 1 document packages.

Procedure AAP-18.3, "Code Completions and Certifications," was issued April 28, 1989. Sections 6.7 through 6.10 of this revised procedure describes the review process for the Unit 1 document packages that were the subject of this open item. The NRC inspector reviewed the revised AAP-18.3 procedure and found it provides the necessary instruction to assure document packages and activities are complete for ASME Section XI work. This item is closed.

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

(Closed) Violation (445/8903-V-04; 446/8903-V-03): The unsat inspection report was used to correct certain deficiencies; however, the required evaluation for reportability was not performed.

TU Electric responded to this violation by revising Procedure AAP-16.1, "Controlling Nonconforming Items," reviewing other site procedures to assure compliance with reportability evaluation requirements, and a review of all the subject deficiencies for potential reportability. All the above TU Electric actions were completed by the end of April and inspected by the NRC.

The NRC inspector reviewed AAP-16.1 (revised March 23, 1989) and found that Section 6.0 had been revised to require that any out-of-scope deficiency identified would be documented on a nonconformance report (NCR) even if it could have been reworked

or scrapped in accordance with site approved project procedures. Processing as an NCR assures the deficiency will be reviewed for reportability. The revised procedure also requires QA management to periodically review this process to assure continued compliance.

Deficiency Report C-89-00323 was initiated to identify deficiencies in other site procedures that would permit bypassing the reportability reviews.

A total of 62 site procedures, whose implementation could result in the identification of a potentially reportable item, was identified and reviewed for compliance with NEO 9.01, "Evaluation and Reporting of Adverse Conditions Under 10CFR21 and 10CFR50.55(e)." The results of this review (documented in Office Memorandum QQP-664, dated May 1, 1989) were inspected by the NRC inspector. Two procedures were identified that required revision and that revision was either completed or initiated by the end of this inspection period.

Sixty-four unsat inspection reports were identified that had documented deficiencies that were outside the scope of planned inspections. Engineering personnel reviewed each of these documents for reportability. Twenty-six were found to be reportable, but based on the engineering review the types of deficiencies were the same as those considered in SDAR CP-86-63. This SDAR included in its scope a number of construction deficiencies involving completed pipe support installations. The NRC inspector reviewed the 26 unsat inspection reports and verified that the identified problems were the type deficiencies included in the scope of SDAR CP-86-63. These actions close this item.

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

As reported in NRC Inspection Report 50-445/87-32; 50-446/87-24, the NRC inspector performed a review of the applicant's program initiated to assure consistency between specifications, procedures, and drawings. The NRC inspector reviewed the programmatic process for: (1) revision of specifications, (2) incorporation of specification requirements into affected procedures, and (3) appropriate training of applicable personnel. The NRC inspector concluded that the program was implemented in conformance with commitments.

During this inspection period, the NRC inspector reviewed the applicant's status for continued updating of specifications. The NRC inspector determined that the applicant's process for the updating of specifications, procedures, and drawings was unchanged from the previous NRC inspection. Engineering Procedure ECE 5.02, "Engineering Specification Review,"

continued to provide satisfactory requirements for the preparation, review, and approval of specification by engineering. In brief, ECE 5.02 provides for: (1) engineering review of applicable regulations, industry standards and codes, and other QA requirements or commitments; (2) a controlled format for specification contents; and (3) review and approval requirements including interdiscipline review, if applicable. Additionally, the procedure provides for the identification of affected procedures or drawings requiring revision.

The NRC inspector reviewed interoffice memorandum NE-25169 and Engineering Report ER-EP-003, Revision 0. These documents provide the current status of specification updates as well as a prioritization of the need to update the remaining specifications. The NRC inspector determined that the applicant's current status and schedule were appropriate in that, (1) revision of 17 installation/erection specifications and design fabrication specifications had been completed in August 1987, (2) to date, a total of 69 specifications have been revised, and (3) revision of the remaining specifications identified for revision is scheduled to be complete by August 1989. The NRC inspector recognizes that the applicant's review and revision of specifications is a self-initiated program; however, completion of the specification update program will provide a program enhancement by which engineering requirements are more clearly transmitted to material and equipment suppliers and to construction, QA/QC, maintenance, and operations personnel.

No violations or deviations were identified during this inspection.

5. Penetration Seals (50075, 99014)

The onsite contractor for the installation of penetration seals is Brand Industrial Services, Inc. (BISCO). Except for one brief interval in mid-1982, BISCO has had a continuous onsite presence since March 1982. During the years 1982-1984, BISCO essentially completed the seal requirements for Unit 1. Since 1984, however, the majority of the Unit 1 seals have either been reworked or placed. With the increased site-wide quality emphasis and awareness since 1984, the NRC inspector attempted to assess the quality of the seals that have remained undisturbed since their initial installation during the 1982-1984 time period. This assessment was based on a review of the installation records and a comparison of the BISCO QA program in place today and the program in use then.

The NRC inspector reviewed the following procedures, both the current revisions and those in effect in 1982.

QCP-102, Traceability Methods and Recording

QCP-113, Penetration Inspection

QCP-203, Damming Depth and Penetration Inspection

DC-2A, BISCO Records Management and Turnover of Records
to TU Electric

The total BISCO process has remained essentially unchanged since 1982. One notable change was observed. Until about April 1988 the Internal Work Release (IWR) was completed in the field, then the information was transferred to a permanent office copy that was destined to become the official record of the work performed and the QC inspection. This permanent office copy was prepared by the QC supervisor or designee. Based on a comparison by the NRC inspector of selected field IWRs to the associated permanent office copies several concerns were identified.

- a. The person making the permanent office copy was not documented and in most instances the person verifying the accuracy of the copy was not documented.
- b. There was no indication on the permanent office copy that it was a certified true copy of the field IWR.
- c. In some cases the field copy was no longer available for comparison
- d. Several differences were noted between the field copy and the permanent office copy, some obviously to improve the legibility and presentability of the document, but others were more subjective and could be such that the actual field conditions are no longer reflected on the permanent office copy.
- e. While the BISCO procedures permitted this copying of documents, the procedures did not provide any instructions or controls for this process.

These concerns were discussed with TU Electric QA management who immediately initiated a surveillance of the BISCO files of IWRs completed prior to April 1988. The surveillance team also reviewed those documents already turned over to records management in the project records vault, comparing those records to traceability logs for penetration material. The surveillance team found the same type of problems found by the NRC inspector, but the surveillance team inspected many more documents than the NRC inspector. Based on the surveillance team's scope of inspection and the problems identified, the number of total errors was a small percentage, and those errors

which could affect the functionality of the seal were even smaller. The NRC inspector was briefed on these results and was advised that the surveillance inspection was not yet complete. The NRC inspector will evaluate the surveillance team's conclusions and proposed corrective actions when the surveillance inspection is completed (445/8925-O-01; 446/8925-O-01). The prompt and comprehensive response by TU Electric QA to this problem area is indicative of a strong and reactive-ready commitment to quality.

6. Water Damaged Stone and Webster Calculation (35061, 42051C)

A water leak exposed approximately 500,000 pages of original Stone and Webster Engineering Corporation (SWEC) calculations to possible damage. The following is the NRC's inspection and assessment of this occurrence.

On the evening of February 4, 1989, security responded to a motion detector alarm inside the unmanned Satellite 311. The guards found water coming through the ceiling from a fire protection line, apparently broken due to freezing. Several inches of water had accumulated on the floor of the satellite. Within the next few hours the water flow was secured and the water on the floor was removed. Adjacent to Satellite 311 was a SWEC file room where piping calculations were stored. Water in this area was also removed. When the SWEC file room personnel returned to work on Monday, February 6, their supervisor was notified due to the foul air in the file room and some water still on the floor around the base of the file cabinets. Several boxes containing microfiche were sitting on the floor and had been damaged by water. The file cabinets were mostly one hour fire rated cabinets, but some standard file cabinets were also in use. The supervisor examined the documents in the bottom drawers of several file cabinets and did not observe any evidence of water damage. The microfiche in the boxes were removed to accelerate drying. The foul air in the file room was attributed to the high humidity that had existed in the closed area over the weekend. The odor dissipated over a period of time. The immediate assessment of damage to documents, while not in depth, did not detect any adverse problems, even to the microfiche, which in any event were presumed to be duplicates. It was not until about the middle of March that a concern resurfaced. The document control satellite was moved and the SWEC file room was expanded into that previously occupied area. While making this move, some Unit 2 calculations in the bottom file drawers were observed to have evidence of fungal growth. These documents were also damp to the touch. The SWEC records personnel were advised of the problem and a further inspection of the documents was made. During this further inspection, it was found that the documents in the bottom drawer of all file cabinets were affected to some degree. The Unit 1 and 2

calculations were filed in separate cabinets. The Unit 1 calculations did not exhibit any fungus, but slight dampness to the touch was noticeable. The Unit 2 calculations showed some fungal growth on the upper exposed edges of documents in the tightly packed file drawers and all were noticeably damp to the touch. Handling of all these documents was restricted to minimize further or possibly permanent damage to these documents. Photographs of some of the damaged documents were made by the SWEC personnel. A survey of document restoration vendors was made and a Fort Worth, Texas, vendor was selected because of their facilities, technical capabilities, and security controls. The two bottom drawers of all file cabinets exposed to the water and all of the boxes of microfiche were selected for treatment. This amounted to approximately 160 drawers of documents and about 50,000 pieces of microfiche still in their original boxes. While some drawers and some boxes of microfiche showed no effects of the water, they were included for treatment as an added precaution. The calculation folder numbers in each drawer selected for treatment were recorded by the SWEC personnel before transport. On March 31, 1989, SWEC personnel witnessed the loading of the documents still remaining in their file cabinet drawers or microfiche boxes. These documents were then transported by commercial carrier to the Fort Worth vendor's facility. SWEC personnel also witnessed the unloading of the file cabinet drawers and boxes directly into a drying cell at the vendor's facility. When this activity was completed, the cell was sealed and a cryogenic/vacuum process of drying the documents was initiated. This process continued undisturbed for 10 days. On April 10, 1989, the cell was opened in the presence of SWEC and TU Electric personnel and the documents were examined. The documents appeared completely restored. A fungicide was applied and efforts were made to remove the fungal residue, which was only partly successful. On April 11, the documents were loaded and transported back to the site and unloaded into a secure temporary location. All these activities were conducted in the presence of SWEC records personnel. The inventory of the records before they were shipped offsite was used to verify all the records had been returned. The file cabinets from which the drawers of documents were removed were inspected by records personnel to assure they were now dry. The drawers have now been returned to their original file cabinets at their original location. To prevent future occurrences of this type flooding, a facilities work request was prepared to provide insulation in the outside walls. The apparent cause of the previous flooding was a broken water main in the sprinkler system, a result of freezing. As a further precaution, the file cabinets were raised off the concrete floor and placed on dunnage.

The NRC inspector verified the above events and actions by interviews with involved personnel, review of the documented

record of this occurrence, inspection of the storage facilities, inspection of the photographs of the documents with the worst fungal growth, and inspection of the documents after they were dried and treated. The inventory before shipment and after return to site verified no documents were lost. None of the restored documents inspected show any sign of damage, except some edge discoloration on those documents that had fungal growth. The microfiche stored in boxes on the floor appeared to be the only documents exposed directly to the water. Only a portion of those microfiche appeared stuck in their protective envelopes after treatment, which when removed from those envelopes may cause some damage. By procedure, duplicates of all the hardcopy documents and microfiche are required to be held in the SWEC Boston office or at a separate onsite location. Using the inventory of documents prepared before shipment, SWEC personnel are verifying that duplicates do in fact exist at those other locations. As the microfiche are refiled, each will be examined for damage, and replaced if necessary. The verification of the remote and separate storage of these documents is more than 90% complete.

The actions taken by SWEC personnel appear to have prevented the loss of any of the original calculations. While some microfiche may need to be replaced, these should be readily available. SWEC personnel actions were lacking in several areas: (1) a proper assessment of damage and appropriate action to prevent further deterioration of documents was not initiated until about seven weeks after the event; (2) SWEC records management above the first level supervision was unaware of the problem for more than four weeks following the leak; (3) it was at least another week before SWEC records management advised SWEC QA of the problem; and (4) it was another week before SWEC QA advised project QA of the problem, almost eight weeks after the leak occurred. The NRC inspector views this lack of timely involvement of QA in a quality related problem as a weakness in both the SWEC QA and SWEC records management programs.

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

7. Applicant Meetings (92700)

The NRC inspector attended applicant meetings concerning site activities and implementation of various site programs. Meetings attended during this reporting period included the QA Overview Committee meeting. The attended meetings reflected management's involvement in day-to-day activities and attention to potential problems. No violations or deviations were identified.

8. Open Items

Open items are matters which have been discussed with the applicant, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or applicant or both. One open item disclosed during the inspection is discussed in paragraph 5.

9. Exit Meeting (30703)

An exit meeting was conducted May 2, 1989, 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 inspector during this inspection. During this meeting, the NRC inspector summarized the scope and findings of the inspection.