UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report Nos: 50-438/83-07 and 50-439/83-07

Licensee: Tennessee Valley Authority
500A Chestnut Street
Chattanooga, TN 37401

Docket Nos: 50-438 and 50-439

License Nos: CPPR-122 and CPPR-123

Facility Name: Bellefonte 1 and 2

Inspection at Bellefonte site near Scottsboro, Alabama

Inspector: R. W. Wright — 4-13-83
R. W. Wright — Date Signed

Approved by: C M Upright — 4/13/83
C. M. Upright, Section Chief — Date Signed
Engineering Program Branch
Division of Engineering and Operational Programs

SUMMARY

Inspection on March 7 - 11, 1983

Areas Inspected

This special, announced inspection involved forty-nine inspector-hours on site to evaluate potential enforcement matters identified by the Office of Inspection and Enforcement (IE) Construction Appraisal Team in the areas of quality assurance, design change controls, and corrective action systems.

Results

Of the three areas inspected, no violations or deviations were identified in two areas; three violations were found in the QA area (failure to control and calibrate measuring and test equipment, Paragraph 5.a; failure to audit several site construction activities on an annual frequency, Paragraph 5.b; and failure to reaudit ITT-Grinnell design activities on a three-year cycle, Paragraph 5.c).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*L. S. Cox, Project Manager
*F. E. Gilbert, Construction Engineer
*B. J. Thomas, Construction Quality Manager
*W. T. Whittle, QA Evaluator, OQA-CQAB
*W. L. Sammons, Administrative Officer, QMS
T. M. Brothers, Supervisor, Hanger Engineering Unit (HEU)
R. G. Delay, Supervisor, Hanger Engineering QC Unit (HQC)
W. G. Guffey, Engineering Aid, HQC
V. L. Parde, Engineering Aid, Instrumentation QC Unit (IQC)
W. L. Storch, Supervisor, IQC
B. G. Smith, Engineering Aid, IQC
W. L. McCollum, Supervisor, Instrumentation Engineer Unit (IEU)
J. F. Barnes, Supervisor, QA Unit (QAU)
R. V. Anderson, Lead Auditor, QAU
J. W. Mabee, Engineering Design QA Audit Section Supervisor
P. C. Mann, Supervisor, Nuclear-Licensing Unit, Quality Managers Organization
F. J. Huffman, Supervisor, Electrical/Instrumentation Engineering Unit (E/I EU)
D. A. Freeman, Supervisor, Electrical Engineering Unit (EEU)

Other Organizations

D. Moreau, Site Supervisor, ITT-Grinnell Hanger Design Group

NRC Resident Inspector

J. D. Wilcox

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on March 11, 1983, with those persons indicated in Paragraph 1 above. The licensee acknowledged the inspection findings listed below:

Violation 438, 439/83-07-01, Measuring and Test Equipment
Violation 438, 439/83-07-02, Annual Construction Audits
Violation 438, 439/83-07-03, Audit of ITT-Grinnell

3. Licensee Action on Previous Enforcement Matters

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. The following unresolved items were identified by the IE Construction Appraisal Team (CAT) as potential enforcement items. Evaluation and resolution of these items are as follows:

a. Unresolved Item 438, 439/83-02-05, Measuring and Test Equipment (CAT Report Paragraph II.B.4). Two potential problems were identified in this area. Identification and resolution of the potential problems are as follows:

(1) Instrument Test Laboratory (ITL)

Potential Problem: There were a large number of pressure gages found on Shelves D and E that were damaged or out of calibration. These defective gages were neither segregated nor identified by tags to prevent their misuse.

Resolution: Discussions with the ITL personnel revealed that the subject damaged and out-of-calibration pressure gages identified by the CAT inspection were primarily surplus defective gages being kept for their spare parts value. The CAT finding was valid in that these gages were knowingly stored by the ITL personnel on Shelves D and E and none were tagged as specified by controlling procedure QCP 10.11, Revision 9, Paragraph 6.3.5, which states that measuring and test equipment (M&TE) awaiting calibration or calibration documentation shall be tagged "Do Not Use Until Calibrated" or equivalent to preclude its inadvertant use. Although legally these gages may not have been "awaiting calibration" since they were primarily spare parts, they were nonconforming items and should have been clearly identified (tagged and segregated) as such. The subject gages are now stored on the same shelves in a few carboard boxes which have been clearly tagged on the outside "Hold Do Not Use Until Calibrated."

Certain selected M-5 and M-6 engineering personnel had keys in addition to the ITL personnel to obtain M&TE during the night shift or during weekends if necessary. However, if procedures were followed, the inadvertant use of one or more of these defective surplus pressure gages would not go undetected. By procedure (QCP10.11, Revision 9, Attachment D), all pressure and vacuum gages are verified suitable for use when issued and are recalibrated upon return. There was no evidence that any of the subject defective surplus pressure gages were used during the plant construction; consequently, this portion of the unresolved items is closed and the paperwork deficiency (lack of tagging) upgraded to a violation 438, 439/83-07-01, Measuring and Test Equipment.

(2) Hanger Engineering Unit (HEU)

Potential Problem: An inspection was made of the Hanger Engineering Unit storage locker and two damaged torque wrenches were located, Nos. HEU-153 and HEU-160; they were damaged and in need of repair and were not segregated from workable tools. In this same storage locker was found a Wild Nak 1 surveyor's level that was out of calibration and was not suitably tagged to indicate this condition. The ID No. of this item was 360673, the calibration date was November 18, 1981, and the calibration due date was December 17, 1981.

Resolution: Discussions conducted with knowledgeable HEU and hanger QC unit (HQCU - formerly part of HEU) personnel revealed to the best of their recollection that the two damaged torque wrenches were located in the above mentioned locked storage locker. They were on the same shelf with properly calibrated torque wrenches, but off to the right edge of this shelf with a blue memo form lying either on top, near, or attached the subject wrenches stating "Need Repair" or something similar to that. The HQCU representative responsible for issue and control of these torque wrenches stated that the CAT inspector wanted a "Do Not Use Until Calibrated" tag attached to the subject damaged wrenches as specified by procedure. Although possibly not the best method of control/segregation to prevent inadvertant use of the damaged torque wrenches and if the scenario was correctly described by the HQCU representative, the above mentioned control would have been considered an acceptable equivalent (meeting procedure QCP 10.11, Revision 9, requirements) by this inspector. In any event, there does not appear to be any safety significance involved since the licensee records examined to date do not indicate any usage of the subject wrenches since being reported damaged.

There are no mitigating circumstances concerning the Wild Nak I survey level. This level was in the site calibration (monthly frequency) program and once its calibration due date was passed (December 17, 1981), by procedure it should have been tagged "Do Not Use Until Calibrated" or equivalent to preclude its inadvertent use. Subsequent calibration testing of the subject level (after the CAT finding) disclosed the level was out of allowable tolerance and it was eventually adjusted and certified calibrated by TVA Division of Natural Resource Operations, Knoxville, Tennessee. The level is currently back in the site calibration program and found acceptable per Calibration Statements dated January and February 1983. The HEU and HQCU supervisors have researched the past use of the level and to the best of their knowledge the subject level has not been used during inspection. It was used primarily to aid in the installation of pipe supports or for checking the elevation of a piping run before these items were submitted for inspection.

Although of no apparent safety significance, the damaged torque wrenches and the survey level appear to be another example of failure to follow procedure which would never have developed if prescribed tags were applied. This unresolved item is closed and the above paperwork deficiency is being cited as another example of violation 438, 439/83-07-01, Measuring and Test Equipment.

b. Unresolved item 438, 439/83-02-07, Annual Construction Audits (CAT Report Paragraph II.B.7)

Potential Problem: Applicable areas of the site construction QA Program were not audited annually as required by Quality Assurance Branch Procedure QASP 7.1, Revision 10.

Resolution: It was verified that by review of audit schedule comparisons that 8 percent or 6 out of 75 audits conducted during the interval March 16, 1981, to March 15, 1982, had been slipped beyond the required 12-month audit frequency. How you actually measure an audit interval (date first audit started to date next audit started, date first audit completed to date next audit completed, or date first audit completed to date next audit starts) is not defined but has considerable bearing on the lateness period. For example, using the date the first audit was completed to the date the second audit started would have resulted in only 4 out of 75 audits being late with lateness periods varying from one to three months. Using the above audit interval would have resulted in the "Weld Repair" and "Equipment Installation - Electrical" audits meeting required frequency.

The QA audit unit at the time of the CAT inspection was charged with 100 percent review of safety-related purchase requisitions. They were on distribution for all non-safety-related purchase requisitions, and were required to review 100% of all stop work authorities/allegations. These 100 percent reviews should have certainly more than adequately covered these required audit areas.

However, since the CAT finding is valid in that certain reaudited areas exceeded the required annual audit frequency, this unresolved item is closed and upgraded to Violation 438, 439/83-07-02, Annual Construction Audits.

c. Unresolved item 438, 439/83-02-08, Audit of ITT-Grinnell (CAT Report Paragraph II.B.7)

Potential Problem: An area that has not been audited by the licensee QA Unit in the past four years is the ITT-Grinnell (ITTG) hanger design group.

Resolution: The ITTG Engineering Support Group (ESG) located at the Bellefonte Nuclear Plant is a field engineering extension of ITTG's Engineering Pipe Hanger Division and corporate office located in Providence, Rhode Island. The ITTG, ESG activities at Bellefonte Nuclear Plant are limited to providing onsite design support to TVA during the installation of ITTG engineered component supports. The ITTG, ESG implements the requirements of the Division QA Manual and these instructions are controlled and distributed by Division Headquarters in Providence, Rhode Island. It should be noted that all drawings released by ITTG, ESG are only preliminarily approved for use. The Providence office finalizes the revised drawings and submits them to TVA Mechanical Engineering Support Branch for final approval.

The subject ITTG, ESG contract was awarded by TVA Engineering Design Division (EN DES). The subject contract, TVA management policies, and as specified by EN DES procedure EP 5.34, "Vendor Quality Assurance Audit Program" require the EN DES QA unit (not Construction QA) to audit this design function once every three years. EN DES audited the Providence design activities on January 17 - 19, 1978, and did not perform the required reaudit until September 26 - 28, 1982 (20 months late). The latter audit had one deficiency finding concerning quality records not being stored in the required protective environment.

The triennial audit frequency requirement for ITTG's contracted design services was admittedly missed by EN DES QA. This unresolved item is closed and upgraded to Violation 438, 439/83-07-03, Audit of ITT-Grinnell.

d. Unresolved item 438, 439/83-02-09, Use of Design Information Requests (CAT Report Paragraph IV.B.3.a(2))

Potential Problem: Design Information Requests (DIRs) which are uncontrolled documents have been used to process design changes, establish procedural requirements, define repair procedures, and establish accept/reject criteria for the installation of equipment which violated the requirements of procedure BNP-QCP-10.21.

Resolution: Records examined revealed that Bellefonte Construction QA (BCQA) encountered, identified, and handled an individual case of misuse of the DIR system as early as March 1982. In this instance, QA appropriately issued stopwork order No. SW005 because they found electrical penetration terminations were being installed/inspected to unapproved drawings/sketches transmitted by EN DES as attachments to five electrical DIRs.

A Region II inspection of DIRs conducted at the Watts Bar site and TVA's Knoxville offices on July 27 - August 6, 1982, resulted in an unresolved item being identified since EN DES did not have a procedure for handling DIRs (affecting all TVA construction sites) to assure that the applicable design controls are applied to the dispositions issued to construction.

It is apparent from the "EN DES 1982 Action Plan for Quality Improvement - Status Report July 1, 1982" that TVA was concerned that they may have a generic problem in their program concerning the process by which design requirements are conveyed. As of this time, generic reviews and studies (which included the DIR system) were underway by an TVA Action Team.

TVA's BCQA conducted audit BN-G-82-11 (9/20 - 10/21/82) entitled "QA Records and Use of DIRs" which was independent of but coincident with the CAT inspection conducted (9/20 - 10/1/82 and 10/12-22/82). Audit Deficiency No. 1 (dated 10/4/82) of the subject BCQA audit identified essentially the same potential DIR problem which was subsequently identified by the CAT inspection. As a result of the BCQA audit finding, all engineering units have performed an extensive review of all DIRs which have been initiated and approved by EN DES. Any DIR found not meeting the scope of procedure BNP-QCP-10.21 regarding design requirements and/or acceptance criteria has had a nonconforming condition report (NCR) written and dispositioned to require EN DES to review and revised as necessary any construction specifications and/or drawings affected. Currently, the use of the Design Information Request has been discontinued at Bellefonte Nuclear Plant and related DIR procedures QAP 3.2 and QCP 10.21 have been cancelled.

The generic potential DIR problem has been previously identified by both licensee and Region II inspectors and is being adequately tracked. As stated above, TVA recognized that they needed to improve their process by which design requirements and changes were transferred and consequently designated an Action Team V-1 (July 1, 1982) to review, evaluate, and make recommendations to eliminate problems in their system. Since unresolved item 50-390/82-27-07, 391/82-24-07, EN DES Procedure for Handling DIRs (this procedure is generic to all TVA construction sites) and TVA's audit BN-G-82-11 have already identified and are currently tracking this potential problem, this item is closed.

e. Unresolved Item 438, 439/83-02-12, Engineering Review Procedures (CAT Report Paragraph IV.B.3.d)

Potential Problem: Deficiency 3 of TVA QA Audit BN-G-81-14 identifies five electrical/instrumentation area QCIRs which require EN DES action, but none of the QCIRs were dispositioned to issue an NCR (thereby ensuring EN DES review and incorporation of affected changes) as required by controlling procedure QCP 10.4, Revision 4.

Block 6 the "Corrective Action Proposed and Implemented" for Deficiency 3 appears to be the CAT inspector's main concern. It states in part:

**The identification of a suspected problem or condition that may need EN DES resolution should not always require a NCR. If EN DES responds to a condition, after verbal notification, by making appropriate changes to drawings, specifications, etc., without the initiation of a NCR, then the QCIR has been satisfied.

If the above proposed action ** was accepted and implemented under the existing Bellefonte QCIR program and related procedures were revised to that effect, there would be no assurance that such nonconforming conditions (QCIRs) received engineering review commensurate with original design nor assurance that design changes had been properly incorporated.

Resolution: Further examination of Deficiency 3 revealed that cited QCIRs concerned non-safety-related items and thus did not require an NCR to be written. This assessment was verified by the auditor to be correct and the deficiency was closed December 22, 1982.

The CAT inspector's concern that Bellefonte procedures would be revised to allow suspect problems or conditions that may need EN DES resolution to be handled verbally by QCIRs (as mentioned above**) rather than by NCRs has not been implemented. Because of block 6's ambiguous title, "Corrective Action Proposed and Implemented," it would be normal to assume the subject verbal QCIR proposal had been implemented. In actuality, it was only proposed action by the audited organization that was never implemented or concurred with by QA. Procedure QASP 7.1, Auditing Construction Activities, in Paragraph 9 and in attachment "F" details the information to be supplied in block 6. The procedure states, "all responses from the audited organization " pertaining to the specific audit deficiency, corrective action, or action required to prevent recurrence shall be documented in block 6. Furthermore, it states, "the auditor's signature does not imply concurrence with the information entry." Discussions with the lead auditor who wrote Deficiency 3 revealed that he did not concur with QCIRs being resolved in the above (**) fashion. Bellefonte procedures BNP-QCP-10.4, R8, Nonconforming Condition Reports, and BNP-QCP-10.26, R4, Quality Control Investigation Reports, in existence during the CAT inspection have since been superceded (effective 11/18/82) by BNP-QCP-10.4, R9, Control of Nonconformances. The subject procedure is a complete rewrite and restructure that incorporates both of the above superceded procedures. This procedure does not implement the unacceptable QCIR proposal (**) nor does it appear in any way to lessen former procedural requirements for NCR initiation. This item is closed.