



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report Nos. 50-390/82-38 and 50-391/82-35

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

Facility Name: Watts Bar

Docket Nos. 50-390 and 50-391

License Nos. CPPR-91 and CPPR-92

Inspection at Watts Bar site near Spring City, TN

| | | |
|-------------|------------------------|-----------------|
| Inspectors: | <u>R. W. Wright</u> | <u>12/17/82</u> |
| | R. W. Wright | Date Signed |
| | <u>A. G. Debbage</u> | <u>12/20/82</u> |
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| | <u>C. R. McFarland</u> | <u>12/20/82</u> |
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| | <u>A. B. Ruff</u> | <u>12/21/82</u> |
| | A. B. Ruff | Date Signed |
| | <u>John W. York</u> | <u>12/20/82</u> |
| | J. W. York | Date Signed |

Accompanying Personnel: C. M. Upright, Section Chief

| | | |
|--------------|--|-----------------|
| Approved by: | <u>C. M. Upright</u> | <u>12/21/82</u> |
| | C. M. Upright, Section Chief | Date Signed |
| | Engineering Inspection Branch | |
| | Division of Engineering and Technical Programs | |

SUMMARY

Inspection on November 15-19, 1982

Areas Inspected

This routine, unannounced inspection involved 158 inspector-hours on site and at the Knoxville offices in the areas of site and corporate design activities; QA

inspection of mechanical supports/restraints, piping, electrical and instrumentation; review of as-built drawings relative to mechanical supports/restraints, piping, electrical and instrumentation; and licensee action on IEB 79-14.

Results

Of the four areas inspected, no violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

a. Division of Construction (CONST)

- *G. Wadewitz, Plant Manager
- *R. W. Olson, Construction Engineer
- *J. C. Cofield, Assistant Construction Engineer (ACE), QC
- *S. Johnson, ACE
- *H. J. Fischer, ACE, Mechanical
- *C. G. Christopher, ACE, Civil
- *A. W. Rogers, Site QA Unit Supervisor (QAU)
- *H. G. McFarland, QA Engineer (QAU)
- *D. W. Kelley, QC & Records Unit Supervisor (QC&RU)
- *T. W. Hayes, Nuclear Licensing Supervisor
- *J. A. Thompson, Procedures and Training Unit
 - F. Smith, Jr., Civil Engineering Unit Supervisor (CEU)
 - W. H. Bessom, Civil QC Unit Supervisor
 - W. Smathers, Mechanical Design Group Supervisor
 - T. R. Brown, Hanger Engineering Unit Supervisor (HEU)
 - D. R. Brown, Hanger Engineering Unit Group Leader
 - G. W. Baisden, Hanger Engineering QC Unit Supervisor
 - J. W. Perkins, Hanger Engineering QC Engineering Assistant
 - G. B. Lubinski, Electrical Engineering Unit Supervisor (EEU)
 - J. R. Vineyard, Electrical Engineering Supervisor
 - V. P. Thomas, Instrumentation Engineering Unit Supervisor (IEU)
 - R. W. Forsten, Instrumentation Engineering Supervisor
 - R. Nabor, Assistant General Construction Superintendent
 - E. Austin, Electrical QC Supervisor

b. Division of Engineering Design (EN DES)

- R. W. Costner, QA Branch Chief
- A. Jonsson, Civil Design Project Engineering Supervisor
- P. F. Carter, Design Engineering Associate
- W. W. Wilson, Design Engineer, Sequoyah Watts Bar Projects (SWP)
- P. K. Lester, Design Engineer, SWP
- J. L. Dorris, Instrumentation and Control Supervisor (SWP)
- J. F. Holt, Electrical Designer, SWP
- C. Baugett, Electrical Designer, SWP
- W. I. Dothard, Project Control Engineer, SWP
- D. L. Williams, Licensing Section Supervisor, Nuclear Engineering Branch

Other licensee employees contacted included construction craftsmen, QA personnel, design engineers, construction engineers, QC inspectors, and training and management personnel at the Knoxville offices and the Watts Bar site.

NRC Resident Inspector

*T. L. Heatherly

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on November 19, 1982, with those persons indicated in paragraph 1 above. The licensee was informed of the item listed below. There were no dissenting comments by the licensee.

Inspector Followup Item 390/82-38-01, 391/82-35-01; Revision to WBNP-QCI 1.13, Section 6.8, paragraph 5.b.4.

3. Licensee Action on Previous Enforcement Matters

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Onsite Design Activities (37055B)

a. Functional Responsibilities

The inspectors reviewed the functional responsibilities of the Division of Construction (CONST) relative to onsite design activities and changes to the original design initiated by the onsite CONST engineers. The only design work being performed on the site is related to hangers and restraints. Design changes may be requested by the CONST engineers, but the design change is performed by the Division of Engineering Design (EN DES) in Knoxville. The interface between the CONST and EN DES was discussed with representative engineers and supervisors of both groups for the Field Change Requests (FCR) and Engineering Change Notices (ECN) noted in subsequent paragraphs. The interface with the home office (EN DES) and the site appears to be satisfactory. Previous inspections of the TVA design activities are reported in IE reports 50-390/82-05 and 82-27 and 50-391/82-03 and 82-24.

FCRs and ECNs are used to document design changes initiated by EN DES and CONST. These changes are subsequently incorporated into revisions to drawings and other documents as applicable.

The applicable procedures reviewed by the inspectors included the following:

Engineering Design Procedures

| | |
|----------------------|--|
| EN DES - EP 1.26 | Nonconformances - Reporting and Handling by EN DES |
| EN DES - EP 4.02 | Engineering Change Notices - Handling |
| EN DES - EP 4.03, R7 | Field Change Requests |
| SWP-EP 43.14, R4 | Program for Hanger and Support Requirements |

Construction Procedures

| | |
|-----------------------|--|
| WBNP-QCP - 4.23-3, RO | Support Location and Orientation |
| WBNP-QCP - 4.23-4, RO | Visual Examination of Support Weld Joints |
| WBNP-QCP - 4.23-5, RO | Support Shock Suppressors |
| WBNP-QCP - 4.23-6, RO | Support Springs |
| WBNP-QCP - 4.23-7, RO | Support Lubrication |
| WBNP-QCP - 4.23-8, R2 | Support Final Inspection |
| WBNP-QCP - 4.56, RO | IE 79-14 Walkdown |
| WBNP-QCI - 1.01, R5 | Drawing and Document Control |
| WBNP-QCI - 1.02, R5 | Control of Nonconforming Items |
| WBNP-QCI - 1.09, R3 | Disposition of Engineering Change Notices |
| WBNP-QCI - 1.13, R7 | Preparation and Documentation of Field Change Requests |
| WBNP-QCI - 1.28, R1 | Preparation and Documentation of Seismic Support Variances |

Design Criteria

| | |
|----------------------|--|
| FSAR 2.5.2.4 | Maximum Earthquake Potential |
| CEB-76-5, R1 | Alternative Criteria for Piping Analysis and Support |
| WB-DC-40.31.8, App E | Design Criteria, Supports |
| WB-DC-20-21 | Design Criteria for Miscellaneous Steel Components for Seismic Category I Structures |
| DS-C6.1 | Civil Design Standard |
| WB-DC-20-23, R1 | Design Criteria for Reinforced Concrete Block Walls |

The inspectors reviewed the above procedures instructions, design criteria and discussed the procedures and the design review process with personnel at the site and at EN DES. The inspectors determined that the staff is knowledgeable of the procedures and design process and that control of the design process is being maintained.

b. Civil Design Review Activities

(1) Design Procedures

The inspector conducted discussions with supervisors, principal designers, engineers, checkers from the Watts Bar Civil Design Project group, and with responsible site Civil Engineering and QC personnel to determine whether they were knowledgeable of the requirements specified in their applicable design procedures, specifications, and references as listed in paragraph 5.a. The above mentioned personnel were found to be knowledgeable of their applicable requirements.

(2) Design Changes

The inspector reviewed the following FCRs and ECN to determine that the reason/need for the change was adequate, that the change did not appear to compromise the original design intent, that the change was reviewed and approved by "other than originator", that design drawings were revised or are in the process of being revised, and that design calculations were independently verified.

| | |
|----------------|--|
| FCR E - 2758 | Cable Tray Support, MK168 |
| FCR F - 2245R1 | Reinforced Masonry Walls |
| FCR F - 2273R1 | Steel Framing For 36" Diameter Sleeve Cutout |
| ECN 2351 | Additional Diesel Generator Building, MK50 and 51 |

For the above design changes, the inspector reviewed the design input criteria, specifications, references utilized, and calculations with TVA EN DES designers to ascertain whether the designers were working within the criteria and/or specifications established for the facility, that design calculations are verified by a qualified independent checker, and that these design changes are controlled and processed as required by TVA's QA program. No problems were found in this area.

(3) Field Inspection

The above listed (FCRs and ECN) design changes were visually inspected in the field to verify that the work was accomplished in accordance with the approved design disposition. All work was found acceptable.

(4) Drawing Control

EN DES is responsible for the Watts Bar original design drawings, for revising these drawings to incorporate design changes, and for issuing new drawings to the site. QCI 1.13, Section 6.8, states

that upon receipt of revised drawings from EN DES resulting from FCRs, the QC and Records Unit (QC&RU) notifies the responsible engineering unit (REU) who initiated the FCR. Assigned personnel from the REU are required to review the affected drawings upon receipt and verify by visual inspection or other means that the revision shown on the drawings corresponds to the work performed by the FCR. If verification is found acceptable, the reviewer initials the FCR master log in the QC&RU office. The inspector found that Section 6.8 of the subject procedure is being implemented except the documentation of this verification is accomplished by means other than initialing the FCR master log in the QC&RU. The REUs use various means such as keeping their own FCR log status, or utilizing the computer system to document this completed action. The inspectors informed Watts Bar management that Section 6.8 should be revised to truly reflect how the site documents FCR verification. This item was identified as Inspector Followup Item 390/82-38-01, 391/82-35-01, Revision to WBNP-QCI 1.13.

The inspector selected drawings from the master control index list (drawings selected were affected by CEU FCRs) dated November 12, 1982, that identified the most current revision of the drawings used and the respective drawings in the main spread room and the CEU work areas were examined for agreement with the control list.

The following drawings were reviewed:

| | |
|------------|-------------|
| 41 N2452-2 | 48 N824 |
| 41 N318-3 | 48 N946-1 |
| 41 W237-2 | 48 N955-4 |
| 46 W405-1 | 48 W1214-2 |
| 46 W405-2 | 48 W1297-1 |
| 48 W1352-2 | 48 W1297-38 |

Within this area, no violations or deviations were identified.

c. Mechanical, Hanger/Support Design Activities

The hanger engineering unit (HEU) consists of 72 personnel and the current weekly work load includes the processing of 50/60 FCRs and 70/90 variances. The unit is planning to transfer 8,000 hangers this month to the Power Production Division. Approximately 5,000 hangers remain to be installed or modified in reactor Unit 1 and the common area; 45% of these are for the emergency raw cooling water system. The method of controlling the various activities, especially the relationship between design, inspection and craft personnel was discussed. FCRs and variances were examined. FCRs are submitted to design for review and approval/rejection, and variance calculations are performed

in the HEU. Support variances are documented on a Support Variance Sheet (SVS) and calculations are made on the configuration change to the identified typical support. SVS calculations reviewed included the following:

| | <u>SVS MA-053-136-61</u> | <u>SVS MA 55-70-1</u> |
|---------------------|--------------------------|-----------------------|
| Work Package | MH26A-09 | M030V-14 |
| Drawing Number | 47A053-136,R1 | 47A055-70,RO |
| Building, Elevation | Auxiliary, 692' | Containment, 755' |

Watts Bar mechanical design section #5 located at the site is an extension of the Sequoyah and Watts Bar design project office located at Knoxville. The section has 40 design and support personnel and the current weekly workload includes the processing of 125 variances and 60 FCRs. The two methods of analysis performed are rigorous calculation and alternate criteria calculation. Computer programs developed by Structural Dynamic Research Corporation are available at the computer terminals - static analysis of general structures (SAGS) and dynamic analysis of general structures (DAGS). Fifty copies of Alternate Criteria - EDS Nuclear are distributed in the section. Equipment available includes five portable computers, GE Terminet 200, TI Omni 800, Tektronix phone transmission, and a MEDs terminal for TVA's data storage access. FCRs and subsequent calculations were reviewed to determine that they had been processed in accordance with established procedures and that adequate conclusions were reached. This included the following:

| | | | |
|----------------------|---------------|-------------------|-----------------|
| Field Change Request | MH-1734 | MH 1678 | MH 1665 |
| Drawing affected | 1-63-386-R904 | 67-1ERCW-R89-R901 | 47A920-31-70R/2 |
| Isometric Drawing | 47W435-222 | 47W450-200 | N/A |
| Analysis Used | Rigorous | Rigorous | Alternate |

FCRs and variances which were rejected by the design section were checked to verify that the HEU and craft were adequately informed of the disposition. These included the following:

| | | | |
|------------------|--------------|--------------|---------------|
| FCR/Variance | H8591 | H8492 | MH 199 |
| Drawing affected | 1-03A-289-R3 | 1-03A-531-RO | 1-63A-531, RO |
| Work Package | H003F2B | 757 | NCR 3589R |

The hanger quality control group consists of 38 inspectors and support personnel. The current weekly workload includes 240 hanger inspections and the closure of 24 work packages. Inspection records were reviewed; these included those records related to work packages H067H08, H077M24, H068A92, and H062F14.

Field changes to installed hanger/supports recently completed or currently in process were observed in the reactor building and the north valve room. The field change requests, attached sketch and the related work package for the hanger/supports were examined. These included the following:

| Hanger Number | Field Change Request | Work Package No. |
|---------------|----------------------|------------------|
| 1-03A-289 | H 8629 | H003 F-28 |
| 1-03A-285 | H 8657 | H003 F-30 |
| 1-03A-405 | H 8721 | H003 F-03 |

Within this area, no violations or deviations were identified.

d. Electrical/Instrumentation Design Activities

(1) Review of ECNs and FCRs

The inspector reviewed ECNs 2031 (7/14/80) through 2786 (5/29/81) relative to electrical work and ECNs 2050 (7/20/79) through 2298 (1/21/80) relative to instrumentation work. The inspector reviewed FCRs for electrical work initiated in September and October, 1982, and FCRs for instrumentation work initiated in August, September, and October 1982. These reviews verified the general statement that EN DES performs all design work; no design work is performed on site in these areas. The inspector selected the following FCRs and ECNs for detailed review as potentially significant relative to the design of safety related items:

Electrical FCRs E-3393, 3396, 3411, 3412, 3414, 3417, 3437
ECNs 2329, 2340, 2343, 2351

Instrumentation FCRs I-944, 946, 954, 968, 972
ECNs 2085, 2086, 2091, 2095, 2104, 2110, 2132,
2136, 2148, 2252, 2296

The FCRs selected for review permitted design changes only within already established guidelines. These revisions were related to such items as cable routing, junction box or equipment locations, and documentation changes for notations and symbols on drawings.

The inspector reviewed the design procedures, the design inputs, and the major drawings for the following ECNs with a responsible EN DES engineer and a CONST engineer on site: ECN-2085, 2086, 2091, 2132, 2252, 2329, 2340, 2343, and 2351. The documentation of design changes meets procedural requirements and appears to be reasonable. The inspector verified thirty drawings applicable to ECNs 2091, 2329, and 2340 and reviewed the facilities used for

the control of drawings and procedures. Surveillance of the ECN and FCR work is performed by the CONSI engineers. The work on ECNs 2091 and 2329 was completed. The records for these two ECNs appeared to be complete.

(2) Field Inspection

The inspector observed the field change work related to the following ECNs:

| <u>ECN No.</u> | <u>Subject</u> |
|----------------|------------------------------------|
| 2329 | Reactor Level Instrumentation |
| 2340 | Reactor Containment Venting System |
| 2343 | Post Accident Sampling Station |

Work related to ECNs 2340 and 2343 was in progress. Work on the above ECNs appeared to be adequate relative to the design change documentation and drawings.

Within this area, no violations or deviations were identified.

e. Audits

Semiannually the Document Control Center (DCC) is required to conduct audits of all associated drawing activities to verify conformance with WBNP-QCI-1.01. The inspector examined "Drawing Audit Results" conducted by DCC during the span of May 19, 1982, to September 19, 1982, which disclosed an approximate ten percent "error rate." Consequently, construction management requested audit WB-G-82-19 (conducted September 1-23, 1982) to determine the validity of the DCC audit and/or possible potential problem areas. Watts Bar audit WB-G-82-19 confirmed the ten percent "error rate" but all deficiencies identified were determined not significant. The Manager of QA, OEDC, had the nuclear licensing branch evaluate the subject audit report for reportability to the NRC under the requirements of 10 CFR 50.55(e). Inspector discussions with licensing personnel and review of the applicable Information Worksheet for 10 CFR 50.55(e) revealed they had determined these audit findings not reportable based on the fact there was no significant breakdown in QA, no construction or design deficiencies were identified, and there were no significant deviations from performance specifications.

Discussion with the DCC Supervisor revealed that until very recently, drawing audits were conducted utilizing the manually kept ledger control system which was very slow, tedious, and more prone to error. Currently, the control and audit of drawings at the Watts Bar site are nearly 100% computerized and it appears that the computer has significantly reduced the "error rate." To help improve drawing controls, DCC

now periodically issues, to each controlled document holder, a computerized current list of revisions to drawings that each document holder should have in his possession. Each document holder is required to perform a self audit of his drawings and report the results to DCC. This more timely self audit computerized program appears to have greatly enhanced drawing control at the site. The inspector examined the recently performed computerized self audit results conducted by the NRC resident and electrician foreman 4-19.

The following audits were examined to verify that the audited organization received a copy of the audit report, that appropriate standards were referenced for measuring performance, that auditors were selected in accordance with QA manual provisions, and that adverse findings received effective corrective action:

Construction Audits

| | |
|------------|--|
| WB-G-81-17 | Control of As-Constructed Drawings |
| WB-G-82-04 | Installation, Inspection, and Documentation Requirements for Seismic Support |
| WB-G-82-10 | Preparation and Documentation of Seismic Support Variance |
| WB-G-82-15 | Design Information Requests and Engineering Change Notices |
| WB-G-82-19 | Drawing and Document Control |

Joint QA Audit Report (Office of Power and OEDC)

| | |
|-----------|--|
| JA8200-04 | Equipment Turnover and Configuration Control |
|-----------|--|

Within this area, no violations or deviations were identified.

6. QA Inspection of Performance (35061B)

This inspection was conducted to determine whether site work is being performed in accordance with NRC requirements and SAR commitments, that the QA/QC program is functioning in a manner to assure that requirements and commitments are met, and that prompt and effective action is taken to achieve permanent corrective action on significant discrepancies.

The following areas were examined to achieve the inspection objectives:

a. Piping Activities

The licensee currently has a program in progress for replacing a large amount of the carbon steel piping with stainless steel type 316 in the Essential Raw Cooling Water System (ERCW). This problem was reported in Watts Bar Nonconformance Report (NCR) NEB 8017.

The following drawings, construction specification, and work packages were reviewed in regards to this activity:

- Flow Diagram No. 47W845-2, Rev. 20 (Identifies piping segments for ERCW)
- Drawing No. 47W450 - 24R16 (Dimensions and locations of piping)
- Sketch SK-450-21 Sheet 1-28, Rev 8 (Relative location and number of welds along piping system)
- General Construction Specification G-43, Support and Installation of Piping Systems in Category I Structures, Rev 6
- Work Package No. M067-A15 (Detailed instructions for installation of segment 15 of ERCW Unit 1)
- Work Package No. M067-A191 (Detailed instructions for installation of segment 191 of ERCW Unit 2)

Parts of piping segments 15, 191, 225, and 228 in the ERCW system were chosen by the inspectors for an evaluation of the QA/QC program. The inspectors discussed the modifications on several of the above segments with craftsmen and foremen that were performing these functions during the inspection walkdown. The inspectors reviewed the qualifications of two of these craftsmen, welder identification nos. 6PE and 6EEB, and noted that the welders were properly qualified for the welding operation they were performing. The inspectors reviewed the work packages associated with the activities. A weld fit-up inspection was being performed on weld no. 1-067C-T287-21 during this inspection and the inspectors noted that the weld fit-up was rejected due to insufficient root opening.

Sample dimensional measurements of piping, approximate weld locations, location of valves, and heat identifications of piping and elbows were noted during the walkdown. The inspector reviewed the following receiving inspection records for piping and elbows:

- 90° Elbow-heat no. NBY6S - material SA403, WP316
- 6" diameter pipe-heat no. 782744 - material SA312, TP316
- 3" diameter pipe-heat no. N3608 - material SA312, TP316
- 2" diameter pipe-heat no. 04124 - material SA312, TP316/316H
- 45° Elbow-heat no. P394-055-material SA182, F316

The inspectors reviewed nonconformance report (NCR) NEB 8017 to verify that the action taken corrected the items, that the cause of the nonconformance was identified, that effective action was initiated to prevent recurrence in similar areas, and that reportability to NRC was

considered. During walkdown of segment 191, the inspectors noted that two clearance problems had been noted, problem nos. 714 and 715. The procedure WBNP-QCP 4.10-2 paragraph 6.1.5.1 states that, where piping has a clearance of less than 1½ inch, the responsible engineering unit is to be notified. The inspectors discussed the resolution of these two clearance problems with the responsible engineer.

The following quality control procedures used for piping inspection were reviewed:

- QCP 4.10-2, Pipe Location Verification, Rev. 2
- QCP 4.10-9, Valve Installation Inspection, Rev. 2
- QCP 4.10-17, Material Verification, Rev. 1

The inspectors reviewed the training and qualifications records of the two QC inspectors encountered during the inspection walkdown. One of the QC inspectors was a mechanical inspector and one was a welding inspector.

The inspectors reviewed the following trend analysis reports and responses to these reports:

- Quality Trend Analysis Report of Audit Items for the period July thru September 1982, Audit No. WB-TAAI-82-03
- Quality Trend Analysis Report of Significant and Reportable Items for the period April thru June 1982, Audit No. WB-TSAR-82-02 Rev. 1

The inspectors reviewed the following QA audits to verify program effectiveness relative to piping activities:

- Audit No. WB-M-82-03, In the area of bolted connections, for the period April 19-30, 1982
- Audit No. WB-M-82-11, In the area of pipe location verification, for the period September 20-30, 1982

Within this area, no violations or deviations were identified.

b. Electrical/Instrumentation Area

(1) Field Drawing and Work Procedures

The following drawings and installation specification were examined to determine whether the most recent revisions of the documents were in agreement with the SAR and to determine that the revisions were properly reviewed, approved, and processed:

- a) Drawing 45W1769-3, R3 (FCR E-2801); Wiring Diagrams 480V Reactor MOV 1B2-B Connection Diagram.
- b) Drawing 45W1767-5, R5 (FCR E-2801); Wiring Diagrams 480V Reactor MOV 1A2-A Connection Diagram.
- c) Drawing 45W1699-26, R3 (FCR E-3319); Wiring Diagrams CO2 Fire Protection System Connection Diagram Sheet 26.
- d) Drawing 47W600-206, R4 (FCR I-830); Drawing Electrical Instrumentation and Control.
- e) Construction Specification G-38, R3, Installing Insulated Cables Rated up to 15k Volts.

(2) Field Inspection

The inspector performed a field inspection of selected items covered by the drawing revisions and installation specification identified in paragraph 6.b(1) above and found them in accordance with requirements of the applicable documents.

(3) Training Records for Craftsmen

A licensee's program for training of individuals performing craft functions of quality related items is defined in OCI 1.11-1, R1, Indoctrination and Training Program. This program is to insure that craft proficiency is maintained. Selected training records from July to November 1982 for electrical and instrumentation craft personnel were examined to insure that training was being conducted in accordance with the requirements of this document. A discussion with several craftsmen indicated that they had adequate knowledge in their craft functions.

(4) Nonconforming Item Reports (NCR)

One NCR, 4334R, was reviewed to verify that action taken corrected the item, that the cause of the deficiency was identified, that reportability to NRC was considered, and that proper effective action was initiated to prevent recurrence in similar areas. A field examination was made to determine whether corrective action specified agreed with the field installation.

The licensee has a program to detect quality trends in discrepancies (Construction Deficiency Reports and NCRs). This program was initiated by QASP 7.2, R6, Trend Analysis. Quality Trend Analysis Report of Significant and Reportability Items number WB-TASR-82-02 R1 was reviewed to insure that requirements of the above document were being performed.

(5) Audits

The inspector selected the following QA Audits for an examination.

- a) WB-G-82-19, Drawing and Document Control
- b) WB-G-82-14, Craft Qualification/Certification Program
- c) WB-G-82-18, Site Initial Procurement of Engineering Controlled Material
- d) WB-I-82-02, Installation of Instrument Sensing Lines and Supports
- e) WB-E-82-05, Installation, Inspection, and Documentation of Cable Tray Systems

The first three audits above apply to the entire construction activity and are not limited to the electrical/instrumentation area. The audits identified weaknesses, considered meaningful and effective, and reflected quality performance.

Within this area, no violations or deviations were identified.

7. Review of As-Builts (37051B)

This inspection was conducted to verify that as-built design and construction drawings/specifications correctly reflect the as-built conditions of the plant, that changes from the original design are properly reviewed and approved, and that plant seismic and other stress calculations are based on as-built conditions.

a. Piping As-Built

Part of the following segments were walked down by the inspectors:

- Segments 8, 11, and 13 in the Containment Spray System
- Segments 6 and 27 in the Safety Injection System

These segments were sampled for the following attributes:

- Supports-location, type, and configuration
- Pipe welds-location and identification
- Piping-location, size, and configuration

The inspectors observed the verification of the location and partial reinspection of the following hangers located along the above segments:

- Hanger No. 1-72-1CS-RI
- Hanger No. 1-63-088 Rev. 901
- Hanger No. 1-63-1SIS -28
- Hanger No. 1-63-1SIS-R30
- Hanger No. 1-63-1SIS-R31
- Hanger No. 1-63-1SIS-R32

During the inspection of the piping segments, the inspectors noted that instrumentation hanger no. 1-72-AB-B-101 did not have the proper thread engagement for three out of four bolts and that the bolts had not been properly torqued. Construction had turned this system over to power. There was some confusion between QC mechanical and QC instrumentation personnel as to who should inspect these typical instrumentation hangers. This problem had been noted by the licensee during QA Audit No. WB-M-81-07. In response to NCR 4331R the licensee committed to reinspect all these typical instrumentation supports (type B001).

Within this area, no violations or deviations were identified.

b. Electrical/Instrumentation Area

(1) Electrical Raceways

The following cable tray and conduit runs were selected for an examination. The examination was to assure that location, routing, supports, separation, and identification are in accordance with drawings. The conduit runs are identified on drawings but are field run.

| <u>Cable Tray/Conduit Runs</u> | <u>Drawing No.</u> |
|--------------------------------|---|
| Cable Tray 3A-2359 thru 2364 | 45W888-54, R2, Conduit and Grounding Cable Tray Node Diagram Elev 757. |
| Cable Tray 3A-2177 thru 2146 | 45W888-31, R4, Conduit and Grounding Tray Node Diagram Elev 737. |
| Cable Tray 4B-2265 thru 2271 | 45W888-50, R3, Conduit and Grounding Cable Tray Node Diagram Elev 757. |
| Conduit 2-4PLC-2562A | 45W830-4, R22, Conduit and Grounding Elev 772 Ceiling Plan and Details. |

Conduit 2-3PLC-3226A
and 2-2PM - 6472D

45N824-8, R20, Conduit and
Grounding Elev 713 Columns
A8-A15, Q-U line, Ceiling
Plan and Details.

(2) Electrical Cables/Wires

Three class 1E cables (1-4PL-62-6176B, 1-2PM-08-505D and 1-3M-31-3021A) were selected for examination. The pull cards were used to check the routing, identification, protection, and separation of these cables. The termination cards were used to check the termination at one end only.

(3) Licensee Identified Plant Changes

Four plant changes identified as Field Change Request FCR E-3423, E-3425, I-1035, and I-1044, not yet incorporated into as-built drawing, were examined to determine status of licensee's review, approval, and revision of these identified changes from the original design. These changes were properly processed and the as-built action required by the FCR was verified in the field.

Three as-built changes on construction drawings identified as FCR E-3319, I-830, and E-2601 were examined to determine that the changes were properly reviewed, approved, and incorporated in construction drawings. The as-built actions required by the FCRs were verified in the field.

Within this area, no violations or deviations were identified.

8. IE Bulletin 79-14, Seismic Analysis For As-Built Safety-Related Piping Systems (25529B)

The inspectors attended a meeting in which the licensee presented a plan and schedule for the IE Bulletin 79-14 program. The program is similar to that used at Sequoyah Unit 2. This program was started by the licensee on November 1, 1982, and the walkdowns, but not necessarily the rework of the systems, is targeted for completion by March 29, 1983 (Hot Functional Date). At the time of the inspection, 100 inspection packages out of approximately 300 total had been assembled, but inspections had not been performed. This inspection group will have 24 people. The inspectors received copies of the following documents:

- Program Plan for IE Bulletin 79-14, dtd. June 30, 1981
- EN DES-SEP82-13, Program for NRC-OIE Bulletin 79-14, Phase 1 Inspections at Watts Bar Nuclear Plant, Unit 1 (Preliminary Copy)
- QCP-4.56, IE-79-14 Walkdown, Rev. 0, Jtd. November 15, 1982
- QCI-4.56, IE-79-14 Accountability, Rev. 0, dtd. November 15, 1982

Within this area, no violations or deviations were identified.