



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W.  
ATLANTA, GEORGIA 30323

Report Nos.: 50-390/92-21 and 50-391/92-21

Licensee: Tennessee Valley Authority  
6N 38A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

Docket Nos.: 50-390 and 50-391

License Nos.: CPPR-91 and CPPR-92

Facility Name: Watts Bar 1 and 2

Inspection Conducted: July 20-23 and August 17-20, 1992

Inspector: *K.P. Barr*  
R. D. Gibbs, Project Engineer

*Sept 18, 1992*  
Date Signed

Approved by: *K.P. Barr*  
K. P. Barr, Section Chief  
Division of Reactor Projects

*Sept 18, 1992*  
Date Signed

SUMMARY

Scope:

This special, announced inspection was conducted to review the traceability of materials installed during the construction of Watts Bar.

Results:

In the areas inspected no violations or deviations were identified. One unresolved item (paragraph 9) was identified concerning the lack of material traceability for materials used to fabricate Seismic Category I Supports (for Piping, Heating Ventilating and Air Condition, Conduits, Cable Trays, and Instrument lines), and cable tray materials, conduit, and some HVAC materials. These concerns were identified by the TVA Nuclear Safety Review Staff to Watts Bar in 1985. The Inspection determined that TVA evaluated the lack of traceability to be in compliance with 10 CFR 50, Appendix B, Criterion VIII and ANSI N45.2-1971 based on Paragraph 1.2 of the ANSI standard. This issue has been identified as an unresolved item pending additional NRC review. One Inspector Follow Item was identified to track the review of current and past purchasing practices (paragraph 6).

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*T. Arney, Senior Quality Project Manager
- \*M. Black, Technical Support Systems Engineer
- \*J. Christensen, Site Quality Manager
- \*D. Herrin, Site Licensing
- \*R. M. Johnson, Engineering Support Manager
- \*R. Lewis, QA Records Project Manager
- \*A. McLemore, Modifications Engineering Manager
- \*D. Malone, Quality Engineering Manager
- \*W. Museler, Site Vice President
- \*C. Nelson, Maintenance Manager
- \*P. Pace, Compliance Licensing Supervisor
- \*L. Peterson, QA Records Manager
- \*M. Skaggs, Project Manager
- \*S. Tanner, Modifications Special Projects Manager
- \*C. Touchstone, Nuclear Engineer, Site Licensing
- \*J. Vorees, Manager Regulatory Licensing
- \*H. Weber, Engineering and Modifications Manager

Other licensee employees contacted included engineers and administrative personnel.

#### NRC Resident Inspectors

- \*G. Walton, Senior Resident Inspector
- \*G. Humphrey, Resident Inspector
- \*J. Lara, Resident Inspector
- \*K. Ivey, Resident Inspector
- \*M. Glasman, Resident Inspector

\*Attended exit interview

An alphabetical list of acronyms and abbreviations used throughout this report is provided in the last paragraph.

### 2. Inspection Scope

The purpose of this inspection was to evaluate material traceability for various safety related commodities installed during the original construction activities at Watts Bar. The inspection was conducted by review of the requirements for material traceability, review of TVA's Nuclear Performance Plan, Volume 4 and Employee Concerns Special Program Subcategory Report 40500, and review of a sample of the records packages from the twenty hardware elements of the QA Records CAP ASRR. For Hardware commodities, which were not traceable to the Purchase

Specification (Contract, Purchase Order, or Requisition) through the records, a field inspection of the commodity was performed. The inspection was limited to traceability only. Review of each Purchase Specification for technical content or compliance with 10 CFR 50, Appendix B was not performed as a part of the inspection.

### 3. Requirements

10 CFR 50, Appendix B, Criterion VIII states: "Measures shall be established for the identification and control of materials, parts and components, including partially fabricated assemblies. These measures shall assure that identification of the item is maintained by heat number, part number, serial number, or other appropriate means, either on the item or on records traceable to the item, as required throughout fabrication, erection, installation, and use of the item. These identification and control measures shall be designed to prevent the use of incorrect or defective material, parts, and components."

TVA's Nuclear Quality Assurance Plan, Revision 2, dated January 15, 1992, paragraph 8.3 recognizes 10 CFR 50, Appendix B, Criterion VIII and endorses ANSI N45.2-1971 and Regulatory Guide 1.28, Revision 3, August 1985. This paragraph also states (Para. 8.3.2.B): "Traceability of materials, parts, or components to specific manufacturing, installation, maintenance, and/or test records shall be provided as required by codes, standards, or specifications and shall be accomplished through the recording of heat, batch, lot, part, or serial numbers, or other appropriate identification, either on the item or on records traceable to the item."

ANSI N45.2-1971 (Endorsed by Reg Guide 1.28), paragraph 9 in part states: "Measures shall be established and documented for the identification and control of materials, parts, and components including partially fabricated sub-assemblies. These measures shall provide for assuring that only correct and accepted items are used and installed, and relating an item of production (batch, lot, component, part) at any stage, from initial receipt through fabrication, installation, repair or modification, to an applicable drawing, specification, or other pertinent technical document...Identification may be either on the item or on records traceable to the item, as appropriate. When codes, standards or specifications require traceability of materials, parts or components to specific inspection or test records, the program shall be designed to provide such traceability."

### 4. Background

TVA Nuclear Performance Plan, Volume 4, Revision 1, Appendix C, dated September 6, 1991 addresses eleven NSRS perceptions of TVA's quality program and its compliance to 10 CFR 50, Appendix B at Watts Bar, which

were expressed in December, 1985. One of these perceptions concerned material traceability and was as follows:

"Material Traceability very poor, especially Seismic Category I supports NSRS staff stated:"

"...A much larger and all-inclusive area of traceability breakdown is in the area of Seismic Category I safety related supports. Material for these supports has been traced only to warehouse storage. The material was not traced to the point of installation and use as required by 10 CFR 50, Appendix B, Criteria VIII, and ANSI N45.2."

TVA's Resolution to this perception in the NPP referenced several Subcategory Reports. The Subcategory report, referenced, which is primarily concerned with material traceability is Subcategory Report 40500.

The inspector reviewed Subcategory report 40500 in an effort to determine what traceability issues had been identified, and also, to determine how those issues had been dispositioned. The Subcategory report identified five concerns regarding lack of heat code traceability for structural materials installed in the plant, as well as, in various storage areas at the plant site. These concerns were consistently evaluated by the Subcategory report as factual, but not a problem. These evaluations were based on a Corporate Position on material traceability, which was stated in a letter from S. White (TVA) to H. Denton (NRC) dated March 20, 1986 (TVA RIMS number L44860320 811). This letter was issued by TVA to address several NSRS concerns regarding the 10 CFR 50, Appendix B program at Watts Bar. The enclosure to the letter specifically addressed the area of material traceability as related to seismic category I supports for piping, HVAC, conduit, cable trays, and instrument lines, and concluded that: "...TVA's material control program meets the requirements of 10 CFR 50, Appendix B, Criterion VIII and ANSI N45.2, section 9." (Note: The enclosure to the 1986 letter, is reproduced as Appendix A to this inspection report for information).

Based on the above the inspector concluded that NSRS originally expressed a concern that materials used to fabricate seismic category I supports were not traceable, and had taken the position that this traceability was required by 10 CFR 50, Appendix B, Criterion VIII and ANSI N45.2-1971. TVA subsequently took the position that traceability for these commodities was required to segregated warehouse storage but not to the installed location.

##### 5. Records/Hardware Inspection

TVA's procurement process is initiated by the design engineer, who utilizing design criteria and standards, determines the technical requirements for the material to be installed. These technical requirements are then incorporated into design drawings, and are transmitted to the procurement engineers. The procurement engineers then incorporate the material technical requirements into the procurement

specifications. Therefore, in order for TVA to meet 10 CFR 50, Appendix B, Criterion VIII and ANSI N45.2, paragraph 9, some means of identification of an installed item must be maintained either on the item, or on records which installed the item, which relate (provide traceability of) the item to the technical requirements in the purchasing specification. In order to evaluate TVA's compliance with these requirements, the inspector reviewed records packages for various hardware installed in the plant to determine if traceability to the purchase specification was adequately documented for installed materials. In cases where the records did not provide this traceability, a field inspection was performed to determine if markings on the material in the plant provided the traceability. The results were as follows:

HVAC support 1030-DW920-10H-1098:

Materials used to fabricate this support were not traceable to the purchase specification. The following commodities were used:

- I beams
- Steel foundation plate
- Anchor bolts
- Rivets
- Weld filler material

HVAC support 1030-DW915-15H-1495:

Materials used to fabricate this support were not traceable to the purchase specification. The following commodities were used:

- Anchor bolts
- Angle Iron
- Tube steel
- Steel foundation plate
- Welding filler metal

HVAC support 1030-DW920-05H-1629:

Materials used to fabricate this support were not traceable to the purchase specification. The following commodities were used:

- Rivets
- Anchor bolts
- Steel foundation plate
- Tube steel
- I beams
- Weld filler material

Conduit 0-2MC-290-978B:

This metallic conduit was not traceable to the purchase specification.

## Cable tray support 0-CTSP-292-160:

Materials used to fabricate this support were not traceable to the purchase specification. The following commodities were used:

|                      |  |
|----------------------|--|
| Tube steel           | Drawing 48W1298-1, R20 required ASTM A501 or A500, Grade B |
| Weld filler material | Drawing required AWS 5.1, E70 series electrodes            |

## Cable tray 0-4TRY-292-2315/2316-B:

The tray was not traceable to the purchase specification.

## HVAC damper 1-030-DG-FCO-465:

This damper was traceable through the Mark # 47A381-140 recorded on the installation record to Requisition # 820266.

## RHR Mini flow line (large bore) support 1063-63-1SIS-R185:

Support was installed June, 1981 and modified in May, 1990 to change the snubber to a rigid rod support. Some of the materials used to fabricate this support were not traceable to the purchase specification and other parts were traceable. The following commodities were used:

|                      |  |
|----------------------|--|
| Anchor bolts         | Not traceable.   |
| Foundation plates    | Not traceable.   |
| I beam               | Not traceable.   |
| Pipe clamp fasteners | Not traceable.   |
| Pipe clamp           | The original clamp was not traceable. The clamp installed by the modification was traceable through the records. The clamp was marked with the vendor part number. |
| Rigid rod strut      | The strut installed by the modification was traceable through the records. The strut was marked with the vendor part number.                                       |
| Weld filler material | The original filler material was not traceable. The modification filler material was traceable.  |
| Snubber              | The snubber originally installed was traceable (S/N 1012). It was replaced by the strut during the modification.   |

ERCW (small bore) support 1067-450-6-7-1:

Materials used to fabricate this support were not traceable to the purchase specification. The following commodities were used:

Anchor bolts  
Weld filler material  
Tube steel  
Unistrut  
Pipe clamp fasteners  
Shim material  
Pipe clamp

The clamp was marked with vendor part # P2558 which could allow review of the vendors specification, but it was not traceable to the TVA purchase specification.

Instrument line 1-062-L558-0001:

The materials in this line were traceable by markings (heat numbers) on the material in the plant (pipe=heat #455533, vent valve=heat #EX1841, panel isolation valve=heat #BX10562, root valve at the system flange=SN 75-5279-11-5 and contract E2897-GC)

Cable 1-3V-1-8421-B:

This cable was traceable through the TVA reel # WB-7523 documented on the cable pull card. TVA had manual cable tracking system, which ties the TVA reel number to the vendor reel number and the contract (822173-01 in this case).

Large bore piping, fittings, and weld filler material:

The piping and fittings were traceable through the Weld Operations Sheets by heat numbers. The heat numbers are traceable through RIMs to the CMTR, which references the TVA Purchase Specification. The weld filler material was not traceable to the TVA purchase specification. The items reviewed by the inspector were:

Weld # 1-067-T257-30  
Tee=heat #HXD6SA  
Pipe=heat #N3961, P.O. 77K53-821594

Small bore piping, fittings, and weld filler material:

The piping and fittings were traceable through the Weld Operations Sheets by heat numbers. The heat numbers are traceable through RIMs to the CMTR, which references the TVA Purchase Specification. The weld filler material was not traceable to the TVA purchase specification. The items reviewed by the inspector were:

Weld # 1-063B-T109-14

Pipe=heat #459025, P.O. 38-83015  
Elbow=heat #MG

Valve # 0-ISV-77-748G:

This valve was traceable through the installation record which referenced the Manufacture's Serial Number 75-5277-13-48. The valve with this serial number was traced through RIMS to contract 83015. Valves were also traceable through the EMS computer data base using the valve number.

Safety related coatings (reactor building 1, accumulator room 1, area #1D01F):

Material was found to be traceable through the Coating System Final Acceptance Report #11487 (WBNP-QCP-2.12,R12) and RIMS to Contract 828718.

Pump 0-062-PMP-155:

The installation record (QCP-4.4) lists the manufacturers Serial #19853-72 for the pump. This pump serial # was traceable through RIMS to contract 54114. Pumps were also traceable through EMS data base using the pump number.

Instrument line 1-001-L423-P001:

The piping and fittings were traceable through the Weld Operations Sheets by heat numbers. The heat numbers are traceable through RIMS to the CMTR, which references the TVA Purchase Specification. The weld filler material was not traceable to the TVA purchase specification. The items reviewed by the inspector were:

Weld # 0-032G-T078-13  
Elbow=heat # NW  
Pipe=heat # 405188, P.O. 825673

Concrete Structures:

Drawings show where concrete pours are located in the plant and assign pour numbers (TVA made their own concrete). The pour reviewed by the inspector was pour # CCBCAA10. RIMS was accessed with the pour number and the inspection documentation for the pour was obtained. Re-bar installed in the pour is not traceable to the pour.

Masonry wall 41N366-1-912:

The inspector reviewed Masonry inspection record (WBNP-QCP-2.11, R1). Traceability of concrete block and mortar was not considered to be required by the inspector.

**Check Valve 1-CKV-003-0806B:**

This valve was traceable through the serial number on valve or through the Weld Operations Sheet to contract 83015. Valves were also traceable through the EMS data base using the valve serial number.

**Instrumentation valve 1-TSV-062-0079-A:**

This valve was found to be traceable through a computer printout (Instrumentation Valves Construction Status) which lists this valve and references contract 71C62-54114.

**Breaker 1-BKR-063-098A-B:**

This breaker was traceable as follows: Accessed EMS data base and determined that the breaker was in MCC 1-MCCC-213-B1/3F2-B. Reviewed construction drawings and records and determined that records reference DWG 45B1768-3F. That DWG references contract 74C5-84646.

**Panel annunciator 0-PA-067-0056:**

This annunciator was traceable as follows: Work Plan KPO3000A-1, R4 referenced form 575 # A095278. This 575 for 0-XA-55-27A referenced contract 75364A. DWG 47B601-67-10, R36 identified that 0-PA -067-0056 was located in control room panel 0-XA-55-27A.

**Inverter 1-INV-235-004-G:**

This inverter was traceable as follows: DWG 45N218, R10 showed this inverter and referenced contract 74-85264.

**Structural steel in the fuel pool:**

This steel was found to be traceable through the drawings and the field fabrication sheets by heat number to the contract e.g. DWG 48N1233, MK #s 1&2 (embedded plates), Ht # 17598, contract 65567.

Based on this review, the inspector concluded that structural materials used to fabricate seismic category I supports for piping, HVAC, and cable trays were not traceable from their installed location to the technical specifications for the material in the procurement specifications. Additionally, the inspector concluded that conduit, cable tray materials, some HVAC materials, as well as, weld filler materials for both ASME and AWS welding were not traceable.

**6. TVA Purchasing Practices**

For commodities which were determined to lack traceability to their installed location, TVA was requested to provide information as to how these commodities had been purchased. The following information was provided by TVA: Note: This information was not independently verified by the inspector during this inspection, however, review of TVA's current and

past purchasing practices will receive further review during the NRC's inspection of the RIP CAP (This item is identified as IFI 50-390,391/92-21-02).

**Structural Steel (plate, tube steel, angle iron, etc.):** Material was purchased as safety related (in accordance with 10 CFR 50, Appendix B) and as non-safety related. It was the intent of TVA's program to use safety related steel in safety related supports. The TVA program provided for traceability to warehouse storage (for TVA Level II steel), and did not provide for traceability to the installed location in the plant. TVA Level I steel is traceable to its installed location. TVA's current program purchases these commodities as safety related or as commercial grade, with dedication in accordance with the latest NRC/Industry guidance in that area.

**Anchor bolts:** The majority of the anchor bolts were installed in the supports in the plant in the late 1970s and early 1980s. During this time frame anchor bolts were purchased as non-safety related. TVA's current program purchases this commodity as safety related or as commercial grade, with dedication in accordance with the latest NRC/Industry guidance in that area. TVA also noted that a sample pull testing program for anchor installations has been effect since the beginning of construction.

**Rivets:** Rivets used to attach HVAC duct to the supports were purchased as non safety related. TVA's current program purchases this commodity as commercial grade, with dedication in accordance with the latest NRC/Industry guidance in that area.

**Standard support components (struts, pipe clamps, brackets, spring cans, etc):** These components were purchased as safety related, only. TVA's current program purchases these commodities as safety related.

**Unistrut:** Unistrut was purchased as non-safety related. TVA's current program purchases this commodity as commercial grade, with dedication in accordance with the latest NRC/Industry guidance in that area.

**Weld filler material:** TVA has always purchased weld filler materials as safety related in accordance with 10 CFR 50, Appendix B for use at Watts Bar.

**Conduit:** Conduit has always been purchased as non-safety related. TVA's current program purchases this commodity as non safety related.

**Cable Tray materials:** These materials were purchased as safety related and as non-safety related. It was the intent of TVA's program to use safety related tray materials in safety related applications. TVA's current program purchases these commodities as safety related or as commercial grade, with dedication in accordance with the latest NRC/Industry guidance in that area.

**HVAC duct materials:** These materials were purchased as safety related and as non-safety related. In 1981 TVA discovered the possibility that non-

safety related materials may have been installed in safety systems. NCR 2929R1 (later rolled over to the new CAQ program as CAQR WBP890368) was written to accomplish sample testing of safety related system material to verify technical adequacy of those materials.

HVAC dampers: Manually operated dampers have been and continue to be purchased as non-safety related. Power operated dampers were purchased for specific applications and, as a result, the mixing of safety and non-safety related power operated dampers is unlikely. Note: The power operated damper reviewed by the inspector was found to be traceable from its installed location to its purchase specification.

HVAC fans and fan motors: These components were purchased for specific applications and, as a result, the mixing of safety and non-safety related fans and fan motors is unlikely. Note: A specific fan and fan motor were not reviewed by the inspector during this inspection.

The inspector concluded that some commodities (such as conduit, anchor bolts, unistruts, rivets, and some HVAC materials) have been installed in safety related systems which were not purchased to 10 CFR 50, Appendix B (non-safety related). Other commodities have been purchased and controlled as both safety related and as non-safety related. Weld filler materials have always been purchased as safety related.

#### 7. TVA's Current Program for Providing Material Traceability

TVA's current work control programs provide material traceability through the work document and material requisition forms as follows:

The modifications process is controlled by SSP-7.53, "Modification Work Plans." Paragraph 2.3.I and Appendix A, of the SSP require that a material list be developed for each WP, which references the applicable form 575 requisition forms for material used in performing the work. The form 575's provide traceability to the applicable purchasing specification.

The maintenance process is controlled by SSP-6.02, "Maintenance Management System." This SSP defines the work request and the work order processes used to identify and control maintenance activities including material used. Paragraph 2.2 of the SSP requires that the material requisition form (form 575) for material used be identified and attached to the WR. Paragraph 2.22D of the SSP requires that the 575's for material used shall be recorded on the Appendix H and G attached to the WO. The form 575's provide traceability to the applicable purchasing specification.

The inspector reviewed the above procedures and concluded that these controls, if properly implemented, would provide adequate traceability in order to meet 10 CFR 50, Appendix B, Criterion VIII and ANSI N45.2-1971.

## 8. Welding Filler Materials

The inspector determined that none of the welding filler material reviewed was traceable from its installed location to the purchasing specifications for the material. This includes weld material used in ASME applications for welding of piping system materials, as well as, in AWS applications for welding of supports. The inspector's review of this area concluded the following:

### AWS Welding Materials:

The inspector researched NRC's files to determine if the NRC had previously accepted TVA's program for the control of AWS D1.1 welding filler materials. This review determined that TVA had given a presentation to the NRC concerning the controls over those materials on January 12, 1984. This presentation was documented in NRC Region II memo Richard C. Lewis to H.G. Parris dated January 23, 1984. The enclosure to this letter specifically addressed whether traceability to heat and lot was required for AWS safety related weld filler material, and concurred in TVA's program which did not provide this traceability.

### ASME Welding Filler Material:

TVA is committed to ASME Boiler and Pressure Vessel Code 1971 Edition, Summer, 1973 Addenda. The inspector's review of this code concluded that traceability of weld filler material is only required to the point of deposit, due to the following requirements:

Section NB-2152, Welding and Brazing Materials Identification: "...Welding and brazing materials shall be controlled during the repair of materials and the manufacture and installation of components so that they are identifiable as acceptable material until the material is actually consumed in the process (see NB-4122)."

Section NB-4122, Materials Identification: "...Welding and brazing materials shall be identified and controlled so that they can be traced to each component and/or installation of a piping system, or else a control procedure shall be employed which ensures that the specified materials are used."

Note: TVA's current program (SSP 7.51, Revision 3), developed and implemented in approximately 1988, provides for traceability of welding materials through the weld materials requisition slip, which is a life of plant QA Record.

Based on the above, the inspector concluded that traceability of weld filler materials from the installed location to the purchasing specification for AWS and ASME applications at Watts Bar is not required. However, an adequate control procedure had to be implemented to assure the specified materials were used in ASME applications.

## 9. Summary

Based on the scope and results of this inspection, the inspector concluded that the NSRS perceptions concerning the lack of material traceability, for materials used to fabricate Seismic Category I supports (for Piping, HVAC, Conduit, Cable Trays, and Instrument lines), were valid. The inspector also concluded that cable tray materials, conduit, and some HVAC materials are not traceable. Some materials such as conduit, anchor bolts, unistrut, rivets, and some HVAC materials which were purchased as non-safety related have been installed in safety related systems. In addition, the inspector determined that TVA's corporate position is that traceability of the aforementioned material to installation is not required, based upon their interpretation of 10 CFR 50, Appendix B, Criterion VIII and ANSI N45.2-1971. This position has been presented in correspondence to the NRC referenced above. Until a technical resolution to this issue can be obtained, this item is identified as Unresolved Item URI 50-390,391/92-21-01.

## 10. Exit Interview

The inspection scope and findings were summarized on August 20, 1992, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results. Dissenting comments were not received from the licensee. Proprietary information is not contained in this report.

| <u>Item Number</u>           | <u>Status</u> | <u>Description and Reference</u>                                       |
|------------------------------|---------------|--|
| 390/92-21-01<br>391/92-21-01 | Open          | URI-Lack of material traceability (See paragraph 9).                   |
| 390/92-21-02<br>391/92-21-02 | Open          | IFI-Review of current and past purchasing practices (See paragraph 6). |

## 11. List of Acronyms and Abbreviations

|      |  |
|------|--|
| ANSI | American National Standards Institute    |
| ASME | American Society of Mechanical Engineers |
| ASRR | Additional Systematic Records Review     |
| ASTM | American Standards for Testing Materials |
| AWS  | American Welding Standard                |
| BKR  | Breaker                                  |
| CAP  | Corrective Action Program                |
| CAQ  | Condition Adverse to Quality             |
| CAQR | Condition Adverse to Quality Report      |
| CATD | Corrective Action Tracking Document      |
| CFR  | Code of Federal Regulations              |
| CKV  | Check Valve                              |
| CMTR | Certified Material Test Report           |
| CTSP | Cable Tray Support                       |
| DWG  | Drawing                                  |
| ECSP | Employee Concerns Special Program        |

|      |  |
|------|--|
| EMS  | Equipment Management System              |
| ERCW | Emergency Raw Cooling Water              |
| HT   | Heat                                     |
| HVAC | Heating Ventilation and Air Conditioning |
| INV  | Invertor                                 |
| MCC  | Motor Control Center                     |
| MK   | Mark                                     |
| NCR  | Non Conformance Report                   |
| NPP  | Nuclear Performance Plan                 |
| NRC  | Nuclear Regulatory Commission            |
| NSRS | Nuclear Safety Review Staff              |
| OE   | Office of Enforcement                    |
| ONP  | Office of Nuclear Power                  |
| PMP  | Pump                                     |
| QA   | Quality Assurance                        |
| QCP  | Quality Control Procedure                |
| RHR  | Residual Heat Removal                    |
| RIMS | Records Information Management System    |
| RIP  | Replacement Items Project                |
| SN   | Serial Number                            |
| SSP  | Site Standard Practice                   |
| TVA  | Tennessee Valley Authority               |
| URI  | Unresolved Item                          |
| WBN  | Watts Bar Nuclear                        |
| WO   | Work Order                               |
| WR   | Work Request                             |

APPENDIX A  
TVA CORPORATE POSITION ON MATERIAL TRACEABILITY

"NSRS Perception:

MATERIAL TRACEABILITY VERY POOR, ESPECIALLY SEISMIC CATEGORY I (PIPING, HVAC, CONDUIT, CABLE TRAYS, INSTRUMENT LINES, ETC)

Corporate Position:

TVA's program of structural material traceability at WBN places primary emphasis on the procurement and use of qualified material that meets design requirements. The procurement process is initiated by the design engineer who, referring to design criteria and standards, documents the requirements for material and indicates them on drawings and conveys them to the procurement engineer who defines them in the procurement specifications. Selective inspections and testing at the vendors facility and upon receipt of the material verify the acceptability of the material to meet specification requirements. Dependent upon the design requirements of the material, the material is then traced to either warehouse storage or, in some cases, the material is traced to installation. Where traceability to installation is required, the material and traceability are controlled as needed from warehouse storage and during fabrication and installation through site Quality Control Instructions and Procedures. Inprocess Inspections and testing during fabrication and installation verify that material is acceptable and that it meets design requirements as defined on the drawings and in design documentation.

Traceability of materials to installation is not required for all materials. The requirement for identification and tracking of the material to installation is determined based on the safety-related nature of the material and other factors. ANSI N45.2-1971, section 1.2 allows the plant owner to determine the extent to which the standard applies dependent upon the importance of the item. The primary emphasis of ANSI N45.2, section 9 is to ensure the usage of only correct and accepted items. It requires that the item be capable of being related to an applicable drawing, specification, or other technical document.

TVA implements control of materials initially through the definition of requirements for the materials, parts, and components on the design drawings and in design documentation. These documents define specific quality requirements for the material relating to industry standards to be met and documentation that must be provided with the material. WBN Construction Specification N3G-881 entitled, "Identification of Structures, Systems, and Components Covered by the Watts Bar Nuclear Plant Quality Assurance Program," identifies the following two quality levels.

Quality Level I materials require: (a) certified material/mill test reports (CMTRs), (b) traceability, and (c) inspection documentation. It further requires that the traceability of the material is to be from mill heat number to installation. Some examples of this type of quality level are the steel containment vessel and the reactor coolant system supports.

Quality Level II materials require: (a) material certificates of compliance or traceability from mill heat number to segregated warehouse storage and (b) inspection documentation. It further requires that structural steel materials,

except structural tubing, require traceability from the mill heat number to the project segregated warehouse storage. Only material from this storage is utilized for level II items. It further notes that structural tubing requires only certificates of compliance.

Several areas have been identified and evaluated in the past regarding material traceability for supports and ASME bolts. As early as 1974, a determination was made by OE that, while not a commitment, ASME Code Section III, Subsection NF could be used as the basis for traceability of material for component supports. Subsection NF fully supports TVA's traceability requirements for Quality Level II structural materials used in supports. TVA's bolting program has been established to comply with Criterion VIII of 10CFR50, Appendix B.

Thus, it can be seen that the design process requires the design engineer to assess the various aspects of the design, determine the quality requirements of the material, and determine whether full traceability to installation is required. This meets the requirements of 10CFR50, Appendix B, Criterion VIII and ANSI N45.2.

Also, concerns have been raised with respect to response to 10CFR Part 21 Notifications. In case of notification of defects under 10CFR Part 21, TVA has and will effectively respond to these notifications. Appropriate evaluations have been and will be made to identify potentially defective material under 10 CFR 21. The result of not having each item identified to its installed location can result in a large sample that must be evaluated and can require significantly more time to accomplish. However, traceability to installation is an economic decision to be made by the owner, and the safety of the plant is not degraded when traceability is implemented as defined in Construction Specification N3G-881.

In conclusion, TVA's material control program meets the requirements of 10CFR50, Appendix B, Criterion VIII and ANSI N45.2, section 9."