



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

Report Nos.: 50-390/93-69 and 50-391/93-69

Licensee: Tennessee Valley Authority
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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: September 20 - October 15, 1993

Team Leader: Ron Gibbs 11/10/93
R. D. Gibbs, Project Engineer Date Signed

Inspector: J. H. Greene, NRC Contractor

Approved by: P. E. Fredrickson 11/12/93
P. E. Fredrickson, Section Chief Date Signed
Division of Reactor Projects

SUMMARY

Scope:

This special, announced inspection was conducted to review the QA records and the QA record plans for the Masonry Walls and Coatings hardware elements of the Additional Systematic Records Review (ASRR) portion of the QA Records Corrective Action Program (CAP).

Results:

In the areas inspected no violations or deviations were identified. The inspection team concluded that the QA record plans for Masonry Walls and Coatings were technically sound. Only minor administrative problems were found in the plans, which were immediately corrected by TVA. TVA was able to retrieve all records requested by the team. The records sampled provided adequate documentation of the installation of the hardware; only minor problems were observed in the records. These problems were corrected during the inspection. Corrective actions for problems identified by ASRR were found to be adequate.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *T. Arney, Sr. QA Project Manager
- T. Bowers, ASRR Project
- J. Burruss, ASRR Project
- *J. Christensen, Construction QA Manager
- *W. Elliott, Engineering and Modifications Manager
- *W. Ezell, QC Supervisor
- *M. Fecht, Operations QA Manager
- *P. Grooms, Modifications Supervisor
- *J. Hubbuch, QA Specialist
- *R. Johnson, Engineering Manager (acting)
- *N. Kazanas, Vice President Completion Assurance
- *F. Laurent, QA Special Projects Manager
- *A. Layfield, QA Supervisor
- *W. Lewellyn, Licensing Engineer
- *R. Lewis, QA Records Project Manager
- *E. Magilley, Project Manager
- *D. Malone, Quality Engineering Manager
- *R. McIntosh, Q-list Project Manager
- *R. Mende, Operations Manager
- *T. Morales, QA Specialist Completion Assurance
- *W. Museler, Site Vice President
- *P. Pace, Compliance/Licensing Manager
- *G. Pannell, Site Licensing Manager
- *V. Patuzzi, QA Specialist Completion Assurance
- *L. Peterson, ASRR Project Manager
- *A. Reynolds, QC Manager
- *M. Singh, Modifications Project Manager
- K. Westervelt, ASRR Project

Other licensee employees contacted included engineers and administrative personnel.

NRC Resident Inspectors

- *G. Walton, Senior Resident Inspector, Construction
- *K. Van Doorn, Senior Resident Inspector, Operations
- G. Humphrey, Resident Inspector
- *J. Lara, Resident Inspector
- K. Ivey, Resident Inspector
- *M. Glasman, Resident Inspector

Other NRC Employees

- *R. Gibbs, Project Engineer, RII

NRC Contractors

*B. Smith
*K. Van Dyne
*J. Greene

*Attended exit interview

Acronyms and initialisms used throughout this report are listed in the last paragraph.

2. Background

The QA Records CAP was developed by TVA to address an adverse trend in CAQs, which indicated that records at Watts Bar (1) were not retrievable in a timely manner, (2) were maintained in improper storage, and (3) had quality problems (e.g., were incomplete, technically or administratively deficient). Initially the CAP was directed at corrective actions for known records problems which were identified on CAQs. During later versions of the CAP, the ASRR was added to the CAP, which provided for a systematic evaluation of all Watts Bar records in accordance with ANSI N45.2.9. The ASRR includes several different types of records reviews: the records quality review assesses the retrievability and quality of all of the ANSI types of records, the records hardware review compares the records to the installed hardware, and the records technical content review compares the design output to the hardware and records.

In 1985/1986 TVA began a recovery process to ensure that Watts Bar was adequately constructed (i.e., plant hardware was acceptable). This recovery process has been and continues to be accomplished by various CAPs and SPs, as well as corrective actions to nonconformance reports, resolution of employee concerns, corrective actions for CDRs, etc. During each of these corrective actions, records have been developed which document the completion of corrective actions. These records are being used by TVA to supplement the original construction records, or, in some cases, serve as a substitute for the original construction records. These corrective actions are termed by TVA as an "alternate technical basis" and the records developed by these efforts are termed "alternate records".

As a result of the findings by the ASRR and in an effort to properly document the construction records licensing basis for Watts Bar, TVA has developed a series of QA record plans, which describe in detail the records which are applicable to each type of system, structure, or component. These record plans make use of the extensive CAPs and serve as a "road map" to define which records provide the licensing basis, i.e. original construction records in combination with alternate records. TVA has developed thirty nine (39) of these record plans. The NRC plans to review these record plans and the associated plant records to verify technical adequacy of Watts Bar records for licensing. This inspection of Masonry Walls and Coatings involved the review of the individual record plans, record retrievability, the technical adequacy

of the records, and a sampling of the corrective actions for ASRR identified records problems.

3. Inspection Scope (TI 2512/28)

a. Record Plan Review

Part of this inspection was conducted to review the QA Record Plans for Masonry Walls (Revision 3, dated September 10, 1993), and Coatings (Revision 2, dated October 6, 1993). These plans included a matrix of approximately fifteen to twenty attributes which are critical to the proper installation of these items in the plant. For each of these attributes the plans listed the TVA record type, the original inspection process procedures, and the alternate records which were applicable (if any). In addition, the plans indicated which process procedures were applicable based upon the period of time when the item was installed or modified. Each attribute listed on the record plans included a highlighted area, which indicated the licensing records basis for each attribute (i.e., old construction records or alternate basis records).

The inspection team conducted a review of the technical adequacy of the records licensing basis for each attribute. For attributes where the original construction records were the licensing basis, (i.e., original procedures were referenced) the team reviewed the referenced procedures to determine what records were required. This information was used in the detailed records review which is discussed in paragraphs 4.c and 5.c of this report. For attributes where an "alternate technical basis" or alternate records were used, the team reviewed the referenced alternate technical basis to verify that the alternate basis adequately addressed (and took corrective action for) the attribute being reviewed. The team also determined what records were generated by this alternate basis, and used this information in the detailed records review which is discussed in paragraph 4.c and 5.c of this report.

b. Retrievability

The TVA data bases and drawings related to masonry walls and coatings at Watts Bar were used to select a sample of specific areas for review during this inspection. From this data a sample of items was selected to determine if TVA was able to retrieve the construction records. The listing of items selected, and a generic listing of the types of records provided by TVA is included in Attachment A to this inspection report. The records for these items were selected completely independent of records reviewed by TVA during performance of the ASRR, in order to compare the results of this inspection to the deficiencies identified by the ASRR. The records for the items listed in Attachment A were reviewed to verify that TVA was able to retrieve

the records. In addition, TVA was requested to retrieve supplementary records such as welder/inspector qualification records, NDE records, receipt inspection reports, etc. The inspection team verified that these records could also be retrieved, and reviewed these records for technical adequacy (see paragraphs 4.c and 5.c below and Attachment B).

c. Records Review

The inspection team selected a smaller subset of the retrieved records (from paragraph 3.b) for a more detailed technical review. These records were reviewed against the design output documents (drawings, design changes, workplans, etc.) and the installation of materials in the plant (including a plant walkdown), to determine if the records and installation agreed with the design. The records were also reviewed to verify whether or not the records properly documented the technical attributes of the installed equipment. In addition, supplementary records such as welder/inspector qualification records, NDE records, receipt inspection reports, etc. were requested from TVA and were reviewed by the inspection team. The record plans for masonry walls and coatings were used in this review to determine if installation had been properly documented. For attributes where the plan specified that the original construction records were the licensing basis, this consisted of a review of the applicable inspection procedures and verification that the appropriate records required by procedure had been completed during the performance of the original work. For attributes where the plan specified an alternate record as the licensing basis, this consisted of a review of the alternate basis to determine if the attribute was bounded by the alternate records.

d. ASRR Deficiencies and Corrective Actions

The ASRR performed several general types of records and hardware reviews which are discussed in detail in the QA Records CAP. The deficiencies identified by these reviews were documented and resolved in several different ways. Record quality review deficiencies were documented (as RRSSs) on WBSCA910227, the workplan reviews were documented (as SPERs) on WBP910463, and the hardware review and technical content review deficiencies were documented and resolved in most cases on the evaluation checklists used to perform the review.

The inspection team requested TVA to provide a copy of all deficiencies found by the above ASRR reviews within the masonry walls and coatings hardware elements. The team reviewed a sample of these deficiencies within each of the hardware elements to determine what types of problems had been found by TVA, and to determine the adequacy of corrective actions for these items. Specific information regarding this review is included in paragraphs 4.d and 5.d of this report.

4. Masonry Walls - Inspection Results (TI 2512/28)

a. Record Plan Review

For Masonry Walls, the attribute "configuration" was subdivided into four sub-attributes: attachments, geometry, penetration details, and damage or cracks. With regard to the sub-attributes "attachments" and "penetrations," the inspection team could find no record of the installed configuration except for those "worst case" walls analyzed in calculation WCG-1-767 "Masonry Block Wall Evaluation." For example, wall D2 (ID 46W405-1 3c2 692 EL Room 692.0 C2) in the control building is not a "worst case" wall and therefore, no "as installed" record is available to show locations of attachments and penetrations. The inspection team questioned TVA regarding this observation.

In response, TVA pointed out that all masonry walls were subjected to detailed walkdowns and subsequent evaluation of attachments as documented in WCG-1-623, "Worst Case Concrete Block wall Selection." The walkdowns resulted in the tabulation and assessment of all attachments and penetrations for all walls. These field reviews were combined with other reviews that assessed configuration, severity of loadings (from attachments), elevation (higher elevations translate into higher seismic demand), and applicable load combinations (tornado, differential pressure, etc.). Based on this review process, nineteen walls were selected as "worst case" walls. The detailed analyses in calculation WCG-1-767 provides assurance that these nineteen "worst case" walls, and therefore all walls, are structurally suitable to meet design requirements. Changes to any walls (i.e. the addition of attachments) which could potentially create new "worst case" walls are evaluated on a case by case basis in accordance with EAI-8.07, "Documentation and Evaluation for attachments to Civil Features" and N3C-946, "Attachments to Civil Features." The inspection team agreed with this explanation.

For the sub-attribute "geometry," two alternate technical basis documents were listed; calculations WCG-1-1419, "Watts Bar Nuclear Plant Seismic/Civil Validation Program," and WCG-1-767, "Masonry Block Wall Evaluation." These calculations do not provide records for the geometry for all block walls. Calculation WCG-1-767 does provide records for the geometry for nineteen of eighty-five walls. Calculation WCG-1-216 provides records for loading and geometry of an additional seventeen walls, but this calculation was not listed as a reference document on the record plan. This observation was pointed out to TVA for followup. TVA provided additional information as follows: Calculation WCG-1-216 Rev. 0 was originally supplied to the inspection team for review. There was no reference to calculation WCG-1-767 in this revision. However, WCG-1-216 Rev. 1 was subsequently provided and it does reference calculation WCG-1-767 in stating that..."Those walls previously analyzed within this calculation are included in the

total population and are supplemented by calculation WCG-1-767 by reference." The inspection team agreed with this supplemental information as justification for not including WCG-1-216 on the record plan. With regard to geometry records for those walls not included in WCG-1-767, the inspection team identified that the record plan did not reference the appropriate original construction records procedure, QCP 2.11 "Inspection and Documentation of Contract Masonry" as a primary record. TVA issued revision 4 of the record plan to correct this omission.

b. Retrievability

For the masonry walls under review, construction records were generally retrievable. An exception to this was an instance of missing QC records per WBNP-QCP-2.11 for the wall identified as 46W405-4 6c2 Room 755.0-C16. This condition had been previously identified on NCR 5615, dated 5-4-84. This NCR was dispositioned "use-as-is" and an "Engineering Evaluation Form QCI-1.08 Attachment D" was included as supporting documentation for this wall. The inspection team agreed with the disposition of the NCR.

c. Records Review

From the seventeen wall groups listed in Attachment A, a sample of six individual walls were chosen for a detailed technical review of hardware and records. These six walls and specific records reviewed are listed in Attachment B. Specific observations resulting from this review are detailed below:

Wall ID: 46W405-1 3c2, Control Building, Room 692.0 C2/C3, Wall C4Q

- TVA provided calculation WCG-1-767, Attachment H. Pages 45 and 48 of that attachment are walkdown sketches of both faces of the subject wall. In general, the field installation was accurately represented by the walkdown sketches with the exception of minor dimensional discrepancies. For example, for the elevation view looking east, there are two terminal boxes mounted on the wall, one near each end of the wall. The walkdown sketch shows the terminal box mounting bolts spaced laterally eight inches from centerline to centerline. The actual field dimension is twelve inches. Discussion with TVA Engineering personnel confirmed that this discrepancy was insignificant with regard to safety because these dimensions are not used in any calculations for wall loading.
- TVA also provided documentation for the inspection of the block walls which was carried out in accordance with DEC-QCP-2.11, Rev. 0, Attachment A. The inspection team reviewed these records to find the inspection documentation for wall C4Q. Although there were eighteen inspection

reports, the inspection team was not able to determine which, if any, provided the inspection record for wall C4Q. This observation was pointed out to TVA for clarification. TVA responded by stating that the final inspection, as documented on Attachment C of WBNP-QCP-2.11 Rev. 4 (ID # 46W405-1 3c2, Dated 1-14-83), provides evidence that all inspection records for all masonry walls depicted on DWG. 46W405-1 are included in the inspection package. Therefore, although wall C4Q is not specifically identified, it is enveloped by the complete set of inspection reports. The inspection team reviewed WBNP-QCP-2.11 Rev. 4 and Attachment C but was unable to confirm that the total scope of the inspection reports was clearly defined. Additional information provided by TVA points out that inspections were carried out and documented on a daily basis until all work was complete. The final inspection record includes a statement that all work was complete. The inspection team concluded that the records therefore provide reasonable assurance that inspection sheet for wall C4Q is included in the package.

Wall ID: 46W405-4 6c2, Control Building, Room 755-C16, Wall C16a
and Wall ID: 16W419-1 0c4, Diesel Generator Building, Room
760.5-4, Wall D

- Both of these walls had minor dimensional discrepancies similar to those discussed in the example above; three in total. TVA Engineering personnel again confirmed that these discrepancies were insignificant with regard to safety because they were not used in any calculations for wall loading.

As was the case for control building wall C4Q, the inspection team was unable to determine which, if any, of the DEC-QCP-2.11 Rev. 4 Attachment A inspection reports provided the inspection record for diesel generator building wall D. Also, the documentation package provided to the inspection team included Attachment A, reports number 2 through 10, but no report number 1. When this was identified to TVA, they determined that report number 1 and a report number 11 were inadvertently omitted from the package. This omission was simply an oversight but did lead the inspection team to question how an accurate determination could be made as to whether the package contained all of the inspection records for the total population of walls within the scope of inspection package ID 16W419-1 0c4. This question was posed to TVA for response. TVA responded by explaining that construction of walls was documented by packages identified by drawing number. This program was carried out in accordance with procedure QCI-1.40-6 "Civil Engineering Unit Tracking System." The package which was provided to the inspection

team contained 108 pages, as was indicated on the cover sheet. A detailed review of the package determined that work commenced on April 14, 1975 and the package contained a work inspection record for each workday up to April 29, 1975. The masonry inspection record for April 29, 1975, stated "Contractor finished work on walls at El. 692." Therefore, the records provided to the inspection team encompasses the entire period that work was performed on that area and drawing. The inspection team agreed with the conclusion reached by TVA.

In view of past problems at Watts Bar Nuclear Plant regarding unauthorized wall attachments (Reference NRC Inspection Report Nos. 50-390/93-01 and 50-391/93-01, page 3, Section 2.a), the inspection team looked closely to determine if additional unauthorized attachments were mounted on those walls inspected. None were found.

d. ASRR Deficiencies and Corrective Actions

The inspection team reviewed the RRSSs and resolutions that were applicable to masonry walls. Results of the inspection team's review are as follows:

RRSS-58:

- This RRSS dealt with availability of codes and standards. Two standards applicable to masonry walls, ACI 315-74 "Manual For Standard Practice For Detailing Reinforced Concrete Structures" and ACI 349-76 "Code Requirements For Nuclear Safety Related Concrete Structures" were not retrievable at the Watts Bar site. For corrective action, the DCRM planned to purchase hard copies of both documents and place them in the Temporary Storage Office Building Technical Information Center (TSOB TIC) for permanent retention. The inspection team determined that this corrective action was not complete but it was being tracked as incomplete via SCAR WBSA910227 which was stasured "open." The inspection team concluded the actions planned to resolve this item were adequate.

RRSS-93:

- For this RRSS, there was one deficiency related to masonry walls. The deficiency was written because no evidence of certification could be found for a construction worker regarding training on WBNP-QCP-2.11 Rev. 4. It was later determined that the individual was certified to the proper procedure revision for the inspections performed, but the inspections were documented on attachment A of an earlier procedure revision. TVA concluded no corrective action was

warranted. The inspection team concluded the resolution to this item was satisfactory.

RRSS-121 and 128:

- These RRSS's documented minor secondary deficiencies which were insignificant to safety. TVA resolution to these RRSS reviews was considered adequate.
- ASRR technical content review for wall 16W419-1 0c4: This review evaluated the technical content of the masonry walls installation record. This review examined various attributes including location, configuration, analysis technique, loads, allowable stresses, and material. There were no open items identified from this review. The inspection team examined TVA's records of this review and concluded that the ASRR technical content review was thorough and provided an adequate basis for accepting these records.

ASRR hardware review checklists 19-1 through 19-17:

- The inspection team reviewed the results of the ASRR inspection of the "as installed" masonry walls. The deficiencies identified by that inspection were documented on Problem Evaluation Report (PER) No. WBPER 910366. There were two categories of deficiencies identified: "Cracks and Holes in Masonry Walls," and "Layout of Walls." With regard to the cracks and holes, the engineering department concluded that the defects were minor in nature and that ..."Cracks are common in concrete or masonry construction. Acceptability of cracks (and holes) in masonry walls has been recognized industry wide by the "cracked section" method used in analysis and design of walls." In addition, the PER disposition stated that..."masonry walls have been re-evaluated as part of the civil/seismic reassessment effort and qualified "as-built" (determined by walkdown) utilizing a worst case approach (calculation WCG-1-767, RIMS B18910528251)." With regard to wall layout, engineering determined that the documentation for a wall, which was not physically installed in the plant, was on hold. The hold was finally resolved by deletion of the wall. In another example, the installation of two doors deviated from the design location by 4". Engineering concluded that this defect did not impair the strength of the wall. The final conclusion by engineering was to accept these conditions and disposition the PER "use-as-is." The inspection team reviewed the details of this PER and found this disposition acceptable.

Within the areas examined, no violations or deviations were identified.

5. Coatings - Inspection Results (TI 2512/28)

a. Record Plan Review

During TVA's Coatings record review, it was determined that "There [had] been many excursions from specified dry film thicknesses (DFT's), and many records generated accepting the installed DFT's "as-is." Also, the TVA record review determined that the manufacturer's qualification testing was for a peak temperature of 316 degrees fahrenheit while the peak temperature for a main steam line break (MSLB) is defined as 327 degrees fahrenheit in drawing 47E235-41 Rev. 4. Design change notice DCN-Q-26974-A was issued to document these problems and the resolutions. The record plan now identifies this DCN as a primary QA record for demonstrating the attribute "DBA Qualification of Coatings" for DBA Temperature Profile and for Qualified DFT. The inspection team reviewed the engineering resolution documented on the DCN and found it to be acceptable.

For the attribute "uncontrolled coatings," the record plan identifies calculation WBN-OSG4-196 as a primary QA record to demonstrate the acceptability of square footage for uncontrolled coatings. This calculation redefined the area of influence of uncontrolled coatings. In that calculation, the "zone of influence" of uncontrolled coatings was determined to be limited to the 15 feet immediately adjacent to the trash racks of the containment sump. Beyond that zone, any failed coatings would have no effect on the sump screens. A maximum of 66 square feet of uncontrolled coatings was allowable within the defined "zone of influence." The actual amount of uncontrolled coatings in the "zone of influence" is determined via walkdowns and documented in the "Annual Status Report for Uncontrolled Coatings." This document is also identified as a primary QA record for this attribute on the record plan. The inspection team reviewed the calculation, the walkdown data, and the status report and agrees that these documents adequately envelope the attribute.

b. Retrievability

Section 6.2.1 of QCP 2.12 Rev. 4, Protective Coating-Inspection and Documentation, defines the documentation requirements for the surface preparation of concrete, specifically:

"Concrete surfaces shall be prepared to receive protective coatings in accordance with reference 3.6 (TVA General Construction Specification No. G-42, Preparation of Concrete Surfaces for Special Protective Coatings for Nuclear Plants). These activities shall be documented utilizing Attachment C, "Concrete/Masonry Surface Preparation Record." Attachment C, together with the TVA drawing indicating the exact area, shall be filed as DOC (Duration of Construction) documents in temporary records storage vault."

The inspection team was not able to verify that the TVA drawings were filed with the Attachment C documents. In addition, the inspection team could not locate the Attachment C records for the concrete surface preparation for the inside surface of the crane wall at elevation 702, inside the "zone of influence." This was pointed out to TVA for followup. TVA responded with the following explanation. When the coating application first began on the inside surface of the crane wall in November 1977, the documentation was governed by QCP-2.12, Rev. 4, dated 5-18-77. That procedure categorized the surface preparation record and the associated TVA drawing as a "DOC" (Duration of Construction) document. Procedurally, "DOC" documents were not required to be retained after transfer of systems or areas to the plant. In that this transfer was initially completed in 1985, it is unlikely that these type records are retrievable. However, although the surface preparation record is not available, the coating application record does have a signoff to document that the surface preparation was complete. The inspection team verified that on the coating application record for the surface in question, the inspector's signoff was complete thereby providing evidence of satisfactory completion of the surface preparation. The inspection team concluded that procedures were followed properly and adequate documentation exists to verify both the proper preparation and application of the subject coating.

The inspection team noted that two QCP-2.12 Attachment F-2 sheets referenced coating application data records with an "A" suffix designation number (No.290A and No.14A). TVA was unable to retrieve those two application records. Further research by TVA determined that these "A" suffix designation numbers were the result of input error in the Civil Tracking System. This input error was subsequently transferred to the Attachment F-2. TVA has generated a supplemental record to the Attachment F-2 sheets, in accordance with SSP-2.A Rev. 1, Guidelines For Integration of Records Generated by Corrective Action Programs and Special Programs, to delete the reference to any Attachment C's with an "A" suffix. The inspection team agreed with TVA's resolution of this observation.

c. Records Review

From the six surface areas listed in Attachment A, the inspection team selected two surfaces within the "zone of influence" for a detailed technical review of coatings and the associated records. These two surfaces and the specific records reviewed are listed in Attachment B. Specific observations resulting from this review are detailed below:

1B06B "Inside Wingwall, 245 to 270 degrees azimuth" and 1B07C "Ceiling from Cavity Wall to Cranewall, 270 to 315 degrees azimuth"

- For both surfaces, it was difficult to determine how many applications of coating material had been applied. The application records, QCP-2.12, Attachment C, are identified by surface, but there was no way to determine if the entire surface had been coated on a given day or if only a portion of the surface had been coated. Furthermore, the blanks on the form to record DFT had been marked "N/A". This observation was presented to TVA for response. TVA responded as follows: The number of applications of coating is not a critical attribute. However, the final DFT of all the coats is critical. Coatings are qualified based upon their required DFT. In the case of the surfacer compound, the purpose of which is to provide a smooth continuous surface, Specification N3A-932 defines a DFT range of 0-40 mils for the surfacer used (Carboline 295WB). Because the coating application records do not record DFT, the issue had been presented to Engineering in late 1992 for resolution (reference PER 920196). The response to this PER stated, in part:

"...it was standard practice to "N/A" film thickness for the application of concrete surfacer at the time of application. The quality control inspector would verify the film thickness using a Tooke gage after the complete coating system had been installed. This verification was performed on a square foot of applied coatings basis; not on an application by application basis."

- It is TVA's position that the inspections discussed above, together with the broad range of allowable DFTs for surfacer, and the training of the applicators, provide adequate confidence that design requirements were satisfied. The inspection team reviewed Specification N3A-932, the details of WPER 92196 and agreed with TVA's position.
- The field inspection of these walls by the inspection team revealed that there were numerous nicks and scratches on the surfaces inspected. The damage was apparently the result of construction activity in the area. TVA was aware of these damaged surfaces and had previously initiated work orders 92-12839-02 and 92-12839-03 to be completed prior to final release of the area for operation. The inspection team agreed with this action.

d. ASRR Deficiencies And Corrective Actions

RRSS-78, 86, and 130:

- These RRSS's documented minor secondary deficiencies such as document blanks not filled in, illegible procurement stamps, and line-throughs not initialed and dated. In each

instance, the deficiency was determined to be insignificant with regard to the quality of work performed. The inspection team reviewed the details of the resolutions and agreed with the use-as-is dispositions.

ASRR (ordered) technical content review for surface 1B04E:

- For the coating application record type, the following attributes were reviewed:
 - Surface Preparation
 - Coating Material
 - Shelf Life of Coating
 - Application Method
 - Application Environment
 - Dry Film Thickness
 - Defects
 - Applicator Qualification
 - DBA Qualification
- Within the DFT attribute, the ASRR identified that examples existed where the DFT was shown as "N/A" on application records. This item was addressed on WBPER 920196, item #3. This issue was previously discussed in paragraph 5.c of this inspection report. Within the DBA Qualification attribute, the ASRR identified an instance where a PICR (Product Identity Certification Record) documenting qualification of a batch of Phenoline 305 top coat was not retrieved. Subsequent to the original review, the PICR was in fact retrieved, and therefore, no deficiency existed.
- For the annual status report for uncontrolled coatings record type, the square footage attribute was reviewed: Within this attribute, the ASRR identified two issues that were considered significant by the inspection team. The first issue involved the amount of uncontrolled coatings in the reactor building. Maintenance Request MR A509783 indicated that a walkdown of the reactor building identified 3413 square feet of unidentified coatings. This exceeded the 2500 square feet allowable (reference EAI-7.A, Uncontrolled Coatings-Reporting and Evaluating). Subsequent to this observation, calculation WBN-OSG4-196 was issued which defined the "zone of influence." As a result, there is no longer any concern regarding uncontrolled coatings outside the "zone of influence." The second issue was then to substantiate the actual square footage of uncontrolled coatings inside the "zone of influence." Engineering was consulted for this information. A letter, dated August 12, 1987, was provided by Engineering which documented the results of a walkdown of the 15 foot zone of influence. The actual square footage of uncontrolled coatings in the zone of influence is 16 square feet, well within the 66 square

feet allowable per calculation WBN-OSG4-196. The inspection team considered the actions taken by TVA to be acceptable.

ASRR hardware inspection checklists 20-1 through 20-60:

- The inspection performed by the ASRR was conducted prior to the issuance of calculation WBN-OSG4-196 and therefore, involved surfaces throughout the reactor building in addition to those surfaces in the "zone of influence." The deficiencies identified were presented to engineering for resolution by PER 910396, coating deficiencies. Those deficiencies significant to safety, specifically, dry film thickness concerns, and damage to surface coatings, have already been addressed previously in this report and are considered resolved. As noted in paragraph 5.c of this report, the "zone of influence" will be inspected and recoated as necessary to repair any damaged surfaces in accordance with Work Order Nos. 92-12839-01 through 92-12839-04. The inspection team considered this to be an effective plan for assuring the quality of the coatings in that area.

Within the areas examined, no violations or deviations were identified.

6. Exit Interview

The inspection scope and findings were summarized on October 15, 1993, with those persons indicated in Paragraph 1. The team leader 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.

7. List of Acronyms and Abbreviations

ANSI	American National Standards Institute
ASRR	Additional Systematic Records Review
CAP	Corrective Action Program
CAQ	Condition Adverse to Quality
CDR	Construction Deficiency Report
DBA	Design Basis Accident
DCN	Design Change Notice
DCRM	Document Control and Records Management
DFT	Dry Film Thickness
DG	Diesel Generator
EAI	Engineering Administrative Instruction
MSLB	Main Steam Line Break
NCR	Nonconformance Report
NDE	Nondestructive Examination
NRC	Nuclear Regulatory Commission
PICR	Product Identity Certification Record
QA	Quality Assurance
QC	Quality Control

QCI	Quality Control Instruction
QCP	Quality Control Procedure
RRSS	Record Review Summary Sheet
SCAR	Significant Corrective Action Report
SPER	Supplemental Problem Evaluation Report
SP	Special Program
SSP	Site Standard Practice
TSOB	Temporary Storage Office Building
WBNP	Watts Bar Nuclear Plant
WO	Work Order

ATTACHMENT A

RECORDS RETRIEVED FROM RIMS FOR THE INSPECTION TEAM

1. MASONRY WALLS:

A generic listing of the masonry wall records provided by TVA and reviewed by the inspection team was as follows:

- WGC-1-767 Rev. 2, Masonry Block Wall Evaluation
- WCG-1-1419 Rev. 0, Watts Bar Nuclear Plant Seismic/Civil Validation Program Methodology Summary Report
- WGC-1-216 Rev. 0, Unreinforced Masonry Walls
- WBN-QCP-2.11 Rev. 0,1,and 2, Inspection and Documentation of Contract Masonry
- WBN-QCP-2.11 Rev. 3,4,and 5, Inspection and Documentation of Masonry
- WBN-QCP-1.06 Rev. 0 - 6, Receipt, Inspection, Storage and Withdrawal of Permanent Material
- WBN-QCP-2.04 Rev. 0 and 1, Erection and Inspection of Structural and Miscellaneous Steel
- WCG-1-623 Rev. 0, Worst Case Concrete Block Wall Selection
- PER No. WBP910366 Rev. 0
- EAI-8.07 Rev. 1, Documentation and Evaluation for Attachments to Civil Features
- N3C-946 Rev. 2, Attachments to Civil Features

Records for the following walls were requested by the inspection team and were provided by TVA:

- | | |
|------------------------|---|
| - DWG 41N366-1 912 | Block Wall, CS IAA, Auxiliary Building |
| - DWG 16W419-1 0c4 | Block Wall, Diesel Generator Building |
| - DWG 16W419-1 0c4 | Block Wall, Toilet and Fuel Oil Transfer Room |
| - DWG 41N366-1 912 | Block Wall, CS IBB, Auxiliary Building |
| - DWG 41N368-1 12c2 | Block Wall, 692 EL, Room 692-A30 |
| - DWG 41N368-1 12c2 | Block Wall, 692 EL, Room 692-A29 |
| - DWG 41N368-1 12c2 | Block Wall, 692 EL, Room 692-A18 |
| - DWG 41N368-1 10c2 | Block Wall, 692 EL, Room 692-A17 |
| - DWG 41N368-1 1212 | Block Wall, 692 EL, Room 692-A10 |
| - DWG 41N370-1 5c2 6c2 | Block Wall, Room 713-A23 |
| - DWG 41W732-2 211 | Block Wall, Section A2, B2, C2 Reactor 1, 708'9" EL 255 AZ |
| - DWG 46W405-4 612 | Block Wall, Stair #11 |
| - DWG 46W405-4 612 | Block Wall, Stair #9 |
| - DWG 46W405-4 6c2 | Block Wall, Room 755-C16, Control Building, 755 EL, C2 and Corridor C19 |
| - DWG 46W405-4 612 | Block Wall, Spiral Stair 2, Auxiliary Building, 782 EL, A5 and X |
| - DWG 46W405-1 3c2 | Block, Battery Rooms, Control Building, 692 EL |
| - DWG 41N370-1 612 | Block Wall, Room 713-A13 |

2. COATINGS:

A generic listing of the coating records provided by TVA and reviewed by the inspection team was as follows:

- T31 920924929 Manufacturers Test Reports for Coatings
- DCN Q26974-A Design Change Notice for Technical Justification of Temperature Deviations of Coating Qualification
- T33 931004859 Annual Status Report for Uncontrolled Coatings
- WBN-OSG4-196 Calculation for Zone of Influence Regarding Transport of Uncontrolled Coatings
- QCP-2.12 Rev.0 through 12, Protective Coatings Inspection and Documentation
- DCN S17561-A Design Change Notice for acceptance of Dry Film Thickness (DFT) Deviations Into Specification N3A-932
- WBPER 920196 Resolution of an instance of unmeasured DFT
- QCI 2.13 Rev.0 through 7, Qualification of Protective Coating Applicators
- WO Nos. 92 12839-01 through -04, Work Orders To Repair Coating Damage In the Reactor Building

Records for the following surfaces were requested by the inspection team and were provided by TVA:

- Surface 1B06A, Azimuth 180 through 270 degrees, Outside Reactor Cavity Wall
- Surface 1B06B, Azimuth 225 through 270 degrees, Inside Crane Wall
- Surface 1B06A, Azimuth 245 through 270 degrees, Outside Wingwall
- Surface 1B06B, Azimuth 245 through 270 degrees, Inside Wingwall
- Surface 1B07C, Ceiling, Above the Zone of Influence, Approximately 270 through 360 degrees Azimuth
- Surface 1B07E, Sump Surfaces

ATTACHMENT B
DETAILED LISTING OF RECORDS REVIEWED

1. MASONRY WALLS:

Diesel Generator Building, 760.5 Elevation, DWG 16419-1 0c4:

- Architectural Drawings
 - 16W419-1, Rev. 0
 - 16W419-2, Rev. 1
- Masonry Inspection Record DEC-QCP-2.11, Rev. 0. Attachment A
 - 1) Report #DGB-2, Dated 3-28-77
 - 2) Report #DGB-3, Dated 3-29-77
 - 3) Report #DGB-4, Dated 3-30-77
 - 4) Report #DGB-5, Dated 3-31-77
 - 5) Report #DGB-6, Dated 4-1-77
 - 6) Report #DGB-7, Dated 4-4-77
 - 7) Report #DGB-8, Dated 4-5-77
 - 8) Report #DGB-9, Dated 4-6-77
 - 9) Report #DGB-10, Dated 4-7-77
- WBNP-QCP-2.11, Rev. 4 Attachment C
 - 1) Identifier 16W419-1, Rev. 0 Dated 1-14-83
- WBNP-QCP-2.2, Rev. 5 Attachment P
 - 1) Sample 3358, Dated 3-28-77
 - 2) Sample 3361, Dated 3-29-77
 - 3) Sample 3364, Dated 3-30-77
 - 4) Sample 3370, Dated 3-31-77
 - 5) Sample 3373, Dated 4-1-77
 - 6) Sample 3382, Dated 4-5-77
 - 7) Sample 3388, Dated 4-6-77
 - 8) Sample 3392, Dated 4-7-77

Auxiliary Building Wall B, 692 E1, Room 692-A30, DWG 41N368-1 12c2:

- Architectural Drawings
 - 41N368-1 Rev. 12
 - 41N368-3 Rev. 7
- WCG-1-623 Rev. 0 Sheet 371 of 392
- WBNP-QCP-2.11 Rev. 3, Attachment A, ID 41N368-1 12c2
 - 1) Dated 11-5-82
 - 2) Dated 11-8-82
 - 3) Dated 11-9-82Attachment B, ID 41N368-1 12c2
 - 1) Dated 11-10-82
- WBNP-QCP-2.11 Rev. 4, Attachment C, ID 41N368-1 12c2, Room 692-A30
 - 1) Dated 2-10-83
- QA Engineering Unit Personnel Certification Record for Employee # 029-36-4048 and 412-90-2744

Reactor Building, Wall 11, 708' 9" E1, Section A2, B2, C2, 255 AZ, DWG 41W732-2 211:

- Architectural Drawings
 - 41W732-2 Rev. 2
- WCG-1-767 Rev. 2 Sheet 209 of 255
- WCG-1-623 Rev. 0 Sheet 372 of 392

- WBNP-QCP-2.11 Rev. 4 Attachment A, ID 41W732-2 211, Section A2, B2, C2 Dated 10-6-83
- Attachment B, ID 41W732-2 211, Section A2, B2, C2
 - 1) Dated 9-27-83
 - 2) Dated 9-29-83
 - 3) Dated 9-30-83
- WBNP-QCP-2.11 Rev. 3 Attachment B, Sheet 1 and 2, ID 41W732-2 211, Section A2, B2, C2, Note Dated 9-13-86
- WBNP-QCP-2.11, Rev. 4 Attachment C, ID 41W732-2 211, Section A2, B2, C2, Dated 11-15-83

CONTROL BUILDING

Wall C16a, 755 EL, Room 755-C16, DWG 46W405-4 6c2

- Architectural Drawings
 - 46W405-4 Rev. 6
- WCG-1-623 Rev. 0 Sheet 370 of 392
- WCG-1-767 Rev. 2 Attachment H, Walkdown Pkg. No. 5

Wall D2, 692.0 EL, Battery Room, DWG 46W405-1 3c2

Wall C4Q, 692.0 EL, Battery Room, DWG 46W405-1 3c2

- Architectural Drawings
 - 46W405-1 Rev. 5
 - 46W405-2 Rev. 10
 - 46W405-3 Rev. 14
- WCG-1-623 Rev. 0 Sheet 369 of 392 (Wall D2)
- WCG-1-767 Rev. 2 Attachment H, Walkdown Pkg. No. 3 (Wall C4Q)
- DEC-QCP-2.11, Rev. 0 Attachment A, ID 46W405-1 3c2, Block Walls Elevation 692.0
 - 1) Report #CB-1A, Dated 4-14-75
 - 2) Report #CB-1, Dated 4-14-75
 - 3) Report #CB-2, Dated 4-15-75
 - 4) Report #CB-2A, Dated 4-15-75
 - 5) Report #CB-3, Dated 4-16-75
 - 6) Report #CB-4, Dated 4-17-75
 - 7) Report #CB-5, Dated 4-18-75
 - 8) Report #CB-6, Dated 4-21-75
 - 9) Report #CB-7, Dated 4-22-75
 - 10) Report #CB-8, Dated 4-23-75
 - 11) Report #CB-9, Dated 4-24-75
 - 12) Report #CB-10, Dated 4-25-75
 - 13) Report #CB-11, Dated 4-28-75
 - 14) Report #CB-12, Dated 4-29-75
- WBNP-QCP-2.11, Rev. 4 Attachment C, ID 46W405-1 3c2, Block Walls Elevation 692.0 Dated 1-14-83

2. COATINGS:

Surface 1B06B, Azimuth 245 through 270 degrees, Inside Wingwall:

- Architectural Drawing 102N10563-2 Rev. 1
- Inspection Record, WBNP-QCP-2.12 Rev.4, Attachment C, Numbers As Follows:

5,6,7,8,9,10,12,13,14,15,16,17,18,19,21,38,89,100,110,
 115,118,125,131,132,135,142,143,147,148,150,151,152,
 153,154,155,156,162,164,225,227,245,319,375,822,5045,
 5250,7929,7930,8996,8999,9000,9002,9133,9311,9325,
 9326,9513,9534,9548,10541,10627,10628,10629,10635,
 10682,10700,10702,10872,10915,10917,10928,10964,
 11024,11026,11159,11178,11254,11256,11260,11265,
 11337,11347,11459,11468,11511,11694 (86 documents in total)

- Coating System Final Acceptance Report, WBNP-QCP-2.12 Rev.12, Attachment F-2, Dated August 5, 1985, Log # 223
- Manufacture's Product Identity Certification Record for Carbo Zinc 11, Batch 7H5080M and 7E1132M
- Coating Applicator Qualification Certificate Nuclear Grade Coatings, WBNP-QCP-2.13 Attachment A, Records 127, 158, 250, 362

Surface 1B07C, Ceiling from Cavity Wall to Cranewall, 270 through 315 degrees Azimuth:

- Architectural Drawing 102N10563-2 Rev.1
- Inspection Record, WBN-QCP-2.12 Rev.4, Attachment C, Numbered As Follows:
 - 2,3,4,10,13,14,21,5232,5367,7889,7890,7931,8000,8001,
 8305,8307,8309,9311,9312,9326,9328,9333,9334,10060,
 10065,10073,10115,10121,10258,11278 (30 documents in total)
- Coating System Final Acceptance Report, WBNP-QCP-2.12, Attachment F-2, Dated June 6,1985, Log Number 252-B