WATTS BAR NUCLEAR PLANT

QUALITY ASSURANCE RECORDS
CORRECTIVE ACTION PROGRAM PLAN

Revision 4

Prepared _____ (Project Manager) / 11/20/91 Date

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Concurred _____ (Manager, DCRM) / 11/21/91 Date

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Approved _____ (Vice President, Nuclear Projects) / 12/5/91 Date

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QUALITY ASSURANCE RECORDS
CORRECTIVE ACTION PROGRAM PLAN

## REVISION LOG

| Revision Level | Date | Affected Pages | Description of Revision |
|---|---|---|---|
| 2 | 12/21/88 | All | Initial issue to NRC. |
| 3 | 06/27/89 | All | Revised to resolve NRC comments received during the CAP presentation in Rockville, MD, on 02/08/89 as follows: (1) eliminated the term "essential record" and clarified our intent to comply with existing commitments to ANSI N45.2.9, and (2) clarified that current QA program requirements would apply to any reinspections.<br><br>Also revised to make minor changes to clarify that retrievability is the most common records problem, not necessarily more than half; to clarify that engineering records are not within the scope of this CAP; and that a 01/20/89 cutoff date for open CAQs is being used for the review. |
| 4 | 12/06/91 | All | General revision to include the Additional Systematic Records Review (ASRR) within the CAP. Incorporates comments received from the NRC and addresses specific NRC open items related to the CAP. |

QUALITY ASSURANCE RECORDS
CORRECTIVE ACTION PROGRAM PLAN

TABLE OF CONTENTS


| Section | | Page |
|---|---|---|
| 1.0 | INTRODUCTION | 1 |
| 2.0 | OBJECTIVES | 2 |
| 3.0 | SCOPE | 2 |
| 4.0 | PROGRAM DESCRIPTION | 2 |
| 4.1 | Resolution of Records Issues Identified Prior to January 1989 | 3 |
| 4.1.1 | Storage Issues | 3 |
| 4.1.2 | Retrievability Issues | 3 |
| 4.1.3 | Quality Issues | 4 |
| 4.1.4 | Trend Analysis | 4 |
| 4.2 | Additional Systematic Records Review | 5 |
| 4.3 | Resolution Of Record Deficiencies | 5 |
| 4.4 | Recurrence Control | 7 |
| 4.5 | Licensing Assessment | 8 |
| 5.0 | PROGRAM INTERFACE | 9 |
| 6.0 | PROGRAM IMPLEMENTATION | 9 |
| 7.0 | PROGRAM DOCUMENTATION | 9 |
| 8.0 | CONCLUSION | 9 |
| 9.0 | REFERENCES | 10 |

ATTACHMENTS

| | | |
|---|---|---|
| 1. | BASIS OF CAP: EXAMPLE LISTING OF RECORD CAQs (Page 1 and 2) | 11 |
| 2. | FLOW CHART OF QA RECORDS CAP ACTIVITIES | 13 |
| 3. | QA RECORDS CAP FRAGNET | 14 |
| 4. | QA RECORDS REQUIRED BY REGULATIONS APPLICABLE TO WBN | 15 |
| 5. | NRC COMMENTS, OPEN ITEMS, IFIs AND URIs ADDRESSED IN QA RECORDS CAP/ASRR | 16 |
| 6. | ADDITIONAL SYSTEMATIC RECORDS REVIEW | 17 |

QUALITY ASSURANCE RECORDS
CORRECTIVE ACTION PROGRAM (CAP) PLAN

## 1.0 INTRODUCTION

Past reviews of Watts Bar Nuclear Plant (WBN) construction and operations records[1] required for licensing found that some records (1) were not retrievable in a timely manner or were potentially missing, (2) were maintained in improper storage, or (3) had quality problems (e.g., were incomplete, technically/administratively deficient). Examples of records problems have been documented in various reports as shown in Attachment 1.

In 1987, Nuclear Quality Assurance (NQA) performed a review of site construction and operations records to determine the range of problems that may have existed. The review substantiated indications of Quality Assurance (QA) records problems in the areas of retrievability, completeness, and other records attributes. The most common records problems were related to retrievability (potentially missing or misfiled documents). The results of this review were captured in Condition Adverse to Quality (CAQ) Reports and documented in Reference 1.

The QA Records CAP was developed in late 1988 to address the trend of CAQs identified by NQA. This CAP was submitted to the NRC and their review is documented in a Safety Evaluation Report (SER) (Reference 2). The scope of the CAP focused directly on records associated with the CAQs and other records judged at the time to be important. During the course of implementation, additional records issues were identified. Further evaluation and trending conducted in 1990 indicated a need to expand the CAP scope to address the full extent of condition (EOC) by including a broader set of record categories. In early 1991, TVA committed to systematically address all of the ANSI N45.2.9 Appendix A record types through an Additional Systematic Records Review (ASRR)(Reference 3) which is now part of the QA Records CAP. The ASRR described in Attachment 6 incorporates statistical sampling to effect more complete coverage of records and higher confidence that problems with record adequacy are identified and resolved and appropriate recurrence control actions taken.

The scope of this CAP includes the assessment of the storage, retrievability, records quality, and technical content of the ANSI N45.2.9 Appendix A record types that are currently applicable to WBN Unit 1. The QA Records CAP will rely upon input from the ASRR in reaching closure on determination of EOC of previously known records quality discrepancies. Problems identified through the implementation of this CAP will be dispositioned using the established site process for corrective action and recurrence controls. In addition, the application of trend analysis, root cause analysis, and EOC evaluations will provide reasonable assurance of the acceptability of the retrievability, storage, quality, and technical content of WBN QA records.

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[1]As used in this plan, the term "operations records" refers to records of operations, maintenance, and modification activities.

The ASRR portion of the CAP scope (see section 4.2 and Attachment 6) goes beyond the disposition of specific, previously known records quality discrepancies and the associated EOC to include a broader evaluation of record technical content as well as record quality and the consistency of the physical installation with the records. Thus, the revised QA Records CAP will provide confirmatory evidence that discrepancies with WBN Unit 1 records have been identified and resolved and that appropriate recurrence controls are put in place to prevent similar problems in the future. TVA is confident that through the effective implementation of this CAP the necessary QA Records will exist and be retrievable in an acceptable manner with the required quality and technical content to permit the licensing of WBN Unit 1.

The scope of this CAP revision incorporated comments received from the NRC and addresses specific open items as shown in Attachment 5.

## 2.0 OBJECTIVES

The following are the objectives of this CAP:

- Ensure adequate storage and retrievability of required WBN QA records.
- Resolve quality and technical problems related to WBN QA records.
- Ensure that historical workplans (WPs) and maintenance requests (MRs) reflect the proper engineering intent.
- Verify technical content of WBN records by comparing the consistency of design output requirements (i.e., drawings and specifications) with other records produced by the engineering, construction, and testing processes and the physical installation.
- Ensure that programs are established and are adequate to prevent recurrence of record problems.

Completion of this CAP will provide reasonable assurance that WBN QA records satisfy current licensing requirements for record quality, technical content, storage, and retrievability.

## 3.0 SCOPE

This program covers the storage, retrievability, technical content, and quality of WBN Unit 1 QA records generated and stored as specified in ANSI N45.2.9.

## 4.0 PROGRAM DESCRIPTION

This CAP has two principal components focused on evaluation of WBN QA records. The first component (described in section 4.1) addresses known issues identified prior to January 1989 and the second component (described in section 4.2), the ASRR portion of the CAP, provides a confirmatory evaluation addressing the full scope of ANSI record types currently applicable to WBN.

## 4.1 Resolution of Records Issues Identified Prior to January 1989

A QA Records Team (QART) was established to oversee and manage activities required by this CAP to resolve the QA records issues identified prior to 1989 (i.e., corresponding to the time the CAP was initiated).

The QART is chaired by the QA Records Project Manager and includes representatives from Nuclear Modifications (NM), Nuclear Engineering (NE), Document Control and Records Management (DCRM), Plant Operations, and Site Quality Assurance (SQA). Records-related issues open as of January 20, 1989, have been collected by the QART from a review of open CAQs and Employee Concerns Corrective Action Tracking Documents (CATDs). Identified concerns are being addressed by a three-path corrective action approach. The first path represents the steps to resolve identified records storage issues. The second path represents steps to resolve identified records retrievability issues. The third path represents steps to resolve identified quality issues for deficient records. Attachment 2 provides a flowchart of these activities and Attachment 3 provides the fragnet.

### 4.1.1 Storage Issues

Identified records storage concerns include (1) failure to meet the requirements for a fire-rated vault and (2) failure to place construction and operations records in the records vault or in duplicate storage in accordance with the TVA QA Topical Report (TVA-TR75-1A). These issues are being resolved by the following actions:

- Issues relating to records vault fire-rating deficiencies have been resolved through modifications to the vault by Nuclear Modifications and NRC's approval of the WBN 2-hour, fire-rated vault. In addition, Nuclear Engineering has performed the necessary evaluations to assure that the structure containing the vault will withstand the maximum predicted wind loading specified in TVA licensing commitments.

- QA records generated by construction and operations are being indexed and microfilmed for duplicate storage where appropriate. Nonmicrofilmed QA records will be stored in the site vault in accordance with the requirements of the TVA NQA Plan. These actions are being implemented by DCRM.

### 4.1.2 Retrievability Issues

Identified records retrievability issues (e.g., inadequate identification and indexing of records and potentially missing or misfiled documents) have been addressed as follows:

- A substantial volume of backlog construction and operations records has been microfilmed and indexed by DCRM.

- Under the direction of DCRM management, a team of personnel experienced in records control has developed and implemented a systematic approach to records retrieval. Experience in retrieving records for the Vertical Slice Review (VSR) and NRC Construction Assessment Team (CAT) Inspection has demonstrated the ability to find records, but has also shown that the process is highly people dependent. Since records have been filed in a variety of ways at multiple locations and because some components have multiple identifiers, the systematic approach included the preparation of a Record Retrieval Guide. This guide includes computer data bases that contain indices and manual processes as necessary to ensure timely retrieval of records. The Record Retrieval Guide is now available to users.

- An Interim confirmatory review has been conducted by DCRM to determine if this approach to records retrieval facilitates timely and accurate retrieval of QA records. Potential retrievability problems were noted in the review report related to retrieval requests for the ASRR. A final review by DCRM will be performed prior to project completion.

Further recurrence control actions have been and continue to be implemented in the retrievability area as a result of ASRR findings. These are described in Section 4.4.

4.1.3 Quality Issues

Identified QA records-related issues (e.g., missing, incomplete, administratively deficient records) identified prior to 1989 have been collected from a review of open CAQs and CATDs and screened to determine which issues will be resolved through actions of other Special Programs or CAPs. Records issues addressed by other Special Programs or CAPs will be closed in accordance with established WBN procedures controlling the completion and closure of these programs.

Additional records quality issues are being identified during the implementation of this CAP (e.g., ASRR). These discrepancies are being classified to assist in the identification of adverse trends, evaluation of EOC (generic implications), and in the determination of the need and scope for corrective actions.

4.1.4 Trend Analysis

Quality issues that were identified prior to January 1989 have been subjected to a trend analysis. This trend analysis was conducted by NE and included a review of Vertical Slice Review (VSR) identified record issues. It was determined that the reviews only focused on records associated with identified problems and not all records with potential problems.

Further, it was determined that reviews of records performed prior to January 1989 did not cover the scope of record types identified in ANSI N45.2.9 Appendix A that are applicable to WBN. Because the prior reviews did not establish a reasonable confidence in the overall condition of WBN QA records, it was determined that there was a need to perform a comprehensive systematic review of WBN QA records. Hence, the scope of this CAP was expanded through the ASRR to include an evaluation of records quality and technical content for ANSI N45.2.9 Appendix A record types currently applicable to WBN.

4.2 Additional Systematic Records Review

In late 1990, the ASRR was developed to provide an additional assessment of the condition of WBN QA records after TVA determined that a more systematic approach was required to provide the necessary level of assurance. As previously submitted to the NRC (Reference 3) the ASRR included a statistically based review of record quality attributes for ANSI N45.2.9 Appendix A record types currently applicable to WBN and a statistically based physical reinspection of hardware to compare the consistency of the installation records with the physical configuration. The ASRR provides for the evaluation of extent of condition (EOC) as necessary for each record type population and the establishment of recurrence controls. This assures that the entire record type population will satisfy the established acceptance criteria for unresolved defects.

Later in 1991, TVA further expanded the scope of the ASRR to address the technical content of records sampled with particular emphasis on the review of workplans (WPs) and maintenance requests (MRs). The review of the technical content of records focuses on verification of the consistency of records with engineering output requirements (Reference 8). Thus, the technical content reviews coupled with the hardware reviews will enable a more complete perspective on the content consistency of the overall records package and the congruence of records and the physical configuration with engineering drawings and specifications.

The ASRR has been revised to reflect its enhanced scope and to incorporate comments previously discussed with NRC (References 4, 5, and 6). The ASRR has been incorporated as Attachment 6 to this CAP. The closure of the ASRR activities will include an integrated assessment of records technical content and the consistency of the physical installation with that depicted within the records.

4.3 Resolution of Record Deficiencies

4.3.1 Missing, incomplete, or otherwise deficient records are being evaluated and dispositioned in a manner consistent with the purpose and significance of the record. Approaches for disposition may include one or more of the following with the options shown in the order of priority:

- Retrieval of information from alternative and/or redundant source documents which attest to or substantiate the quality of the feature.

- Use of information generated by WBN programs (including other CAPs and SPs) that provide new or superseding information.

- Use of testing and other performance data.

- Use of reinspection, re-testing, re-analysis, re-work, or replacement of the plant feature in accordance with the current QA program. Reinspections are being performed using current procedures and acceptance criteria. If there are cases where current inspection requirements and acceptance criteria are less stringent than the original or an inspection attribute is inaccessible, then justification is provided.

4.3.2 The following guidelines govern the approach of applying dispositions for record problems. Dispositions vary based upon the significance of the record(s) consistent with NRC guidance provided in reference 11:

1. **Records required by NRC Regulations** - Implement corrective actions to replace the records, or modify the existing records to bring into conformance, or justify an exemption (not generally to be considered except in extreme circumstances). TVA has defined the specific sets of records in this category (see Attachment 4).

2. **Records required to demonstrate qualification of safety related features, attributes, and functions of the plant or activities** - Implement any of the above corrective actions, or creation of alternative records, or development of alternative technical bases demonstrating qualification.

3. **Records required to demonstrate qualification of quality related items or activities** - Implement any of the above corrective actions, or demonstrate (by providing alternative information) that the requirements are met, or justify changing the requirements.

4. **Records required by TVA procedures (but not falling in any of the above categories)** - Implement any of the above corrective actions if the record supports future operational support, or justify leaving the situation "as-is," or justify changing the procedure (eliminate/modify the records requirement).

Records may be eliminated from consideration if they represent intermediate documentation that was evolutionary to other final documentation and/or have been superseded.

4.3.3 The results of these disposition and corrective action activities will be documented. For those plant features that are confirmed to be adequate as described above, the associated QA records will be superseded or supplemented to reflect the resolution of the issue. A cross reference will be added to the record index to supplement the original record with the appropriate documentation that demonstrates acceptability of the hardware.

4.3.4 Issues will be considered design significant if, after an engineering evaluation, they are found to be in nonconformance with appropriate codes, standards, or licensing requirements. Issues determined to be design significant will (1) have a root cause analysis performed, (2) have an extent of condition evaluation, (3) have recurrence controls implemented, and (4) be resolved by corrective actions such as rework, repair, or commitment revision if technically justified. Documentation of completed corrective actions will replace or supplement the deficient records.

4.3.5 Record issues will be dispositioned as appropriate in accordance with the established WBN corrective action processes.

4.4 Recurrence Control

Identified records retrievability and record quality issues have been caused by the following:

- Records never created,
- Records incorrectly prepared or completed,
- Records never turned in,
- Records turned in but not adequately indexed,
- Records not properly microfilmed,
- Records checked out and not returned.

Steps have been taken to address the above causes and prevent recurrence of these problems in the future.

- Programmatic control and retrievability has been improved by issuance of:

  SSP-2.07 Document Control
  SSP-2.08 Controlled Drawings
  SSP-2.09 Records Management

- Site-wide training in the Document Control Records Management procedures is being conducted. DCRM personnel have conducted this training for essentially all site personnel, including TVA and contract personnel, in a classroom setting. This training, which will continue for newly assigned personnel, emphasizes the need for proper preparation and completion of records and the correct process for handling and processing controlled documents and records.

- A records management and control process has been enhanced (SSP-2.09). This process controls records creation, completion, and transmittal to DCRM, and temporary storage of in-process records.

- A records list has been prepared for WBN records. This list is required by SSP 2.09 and is maintained by the DCRM Manager. This list includes WBN records procedurally required to be created. Record types must be on this list prior to being transmitted to DCRM. This list is continually being updated to indicate new records required by new or revised procedures.

- Improvements to the indexing process are also being implemented. Four existing records retrieval data bases are being consolidated. In the future, WBN records from organizations at WBN will be filmed and indexed onsite. These actions will provide retrievability to WBN records from one data base and will improve the efficiency and cycle time for processing records. Some key records are being evaluated to determine if additional indexing is justified.

- With the issuance in 1988 of a standardized Nuclear Power procedure for micrographics, quality of the micrographics process improved at the nuclear sites. WBN implemented a requirement to consecutively number and provide the total number of pages in a record. This serves as a double check in the receipt inspection and microfilming process. New equipment has been purchased and operators now receive better training.

- More restrictive requirements have been put in place to prevent unauthorized changes to records or removal of records from the vault. Records in the vault are reviewed in the DCRM area only. Access to this area is controlled (persons must be on an authorization list) and no black pens are allowed in this area. Records approved by the Site Support Manager for checkout must be returned by the end of that shift.

Recurrence controls for records issues previously identified by the CAP and through the ASRR are determined at the time of resolution of the Adverse Condition Report and completion of root cause and trend analysis.

4.5 Licensing Assessment

Completion of this CAP will provide reasonable assurance that WBN QA Records for Unit 1 satisfy current licensing requirements for records storage, retrievability, technical content, and quality. Any changes to licensing commitments will be proposed only when justified.

## 5.0 PROGRAM INTERFACE

Other CAPs and Special Programs provide resolutions for technical problems with WBN plant hardware and documentation. The QA Records CAP (including the ASRR) will make use of these CAP and Special Program resolutions in dispositioning records issues when appropriate. The means to do this are described in Section 6 of the ASRR program description (Attachment 6). In order to assure that records produced by other CAPs and SPs are adequate, the ASRR provides for an evaluation to test the records outputs of these programs.

## 6.0 PROGRAM IMPLEMENTATION

Interface with site organizations for the resolution of previously identified record problems (i.e., pre-1989 CAQs, CATDs, DRs, etc.) will be coordinated by the QART members with their assigned organizations.

Implementation of the ASRR is carried out by a project organization composed of two main elements. One of these elements, the Records Assessment Team (RAT), performs the record reviews and hardware re-inspections. The other element, the Record Response Team (RRT), provides the resolution of identified problems and determines needed recurrence controls. In carrying out these functions, the RRT uses Root Cause Analysis and EOC. They also perform the engineering evaluation for design significance. In some cases the RRT may utilize expertise in the various site line organizations or outside of TVA. Corrective actions such as re-work, repair or replace will generally be carried out by the site line organizations.

Site QA will assure that this CAP, as well as other CAPs and Special Programs, are implemented properly and that the records generated are adequate.

## 7.0 PROGRAM DOCUMENTATION

This CAP is being implemented through the use of project procedures and in accordance with established site standard procedures such as the WBN corrective action procedures.

At the completion of the project a CAP Final Report will be issued to summarize results and provide conclusions about all areas covered by the CAP. This report will provide the results of the statistical evaluation of record type populations relative to the various deficiency categories including a status of missing records and their dispositions. The CAP Final Report will provide the results of Site QA verifications related to QA Records.

## 8.0 CONCLUSION

Through effective implementation of the QA Records CAP, TVA will demonstrate that WBN QA Records have been comprehensively assessed and evaluated and that identified problems have been resolved. This approach provides confidence that the necessary QA Records will exist and be retrievable in an acceptable manner with the required quality and technical content to permit the licensing of WBN Unit 1.

## 9.0 REFERENCES


1. WBN QA Records Verification Summary Report, QWB-S-87-0162, dated November 25, 1987.

2. Safety Evaluation of the Watts Bar Unit 1 Corrective Action Program (CAP) Plan for QA Records (TAC 71923), dated December 8, 1989.

3. Letter from TVA to NRC, Quality Assurance (QA) Records Additional Review, RIMS L44 910128 806, dated January 28, 1991.

4. Letter from NRC to TVA, Corrective Action Program on Quality Assurance (QA) Records, dated March 20, 1991.

5. Letter from TVA to NRC, Quality Assurance (QA) Additional Records Review, RIMS L44 910510 804, dated May 10, 1991.

6. Letter from TVA to NRC, Quality Assurance (QA) Additional Records Review - Additional Information, dated July 2, 1991.

7. Letter from NRC to TVA, QA Records CAP ASRR, dated August 30, 1991

8. Letter from TVA to NRC, QA Records CAP ASRR, RIMS T04 911016 845, dated October 16, 1991.

9. Letter from TVA to NRC, Revision 3 to Corrective Action Program (CAP) Plan for Quality Assurance Records, dated July 1989.

10. Letter from NRC to TVA, Inspection of the Watts Bar QA Records and Q-List Corrective Action Programs (IR 90-08), dated September 11, 1990.

11. Letter from NRC to TVA, Quality Assurance Records for Watts Bar, dated October 30, 1990.

12. Letter from NRC to TVA, Summary of October 3, 1990 TVA/NRC Meeting on Watts Bar, dated November 19, 1990.

13. Letter from NRC to TVA, Summary of December 12, 1990 TVA/NRC Meeting on Watts Bar Quality Assurance Records, dated January 14, 1991.

Attachment 1

BASIS OF CAP
EXAMPLE LISTING OF RECORD CAQs

| CAQ NUMBER | ISSUE TYPE | ABBREVIATED DESCRIPTION |
|---|---|---|
| WBQ880211 | Retrievability | Surveillance reports not retrievable, pump installation and alignment document not retrievable. |
| WBQ880151 | Quality | Field verification data from physical walkdown not of sufficient degree of accuracy. |
| WBQ880097 | Quality | Unused data blanks on verification sheet not filled in, orientation of solenoid valve in degrees not recorded. |
| WBQ871147 | Quality | Modifications records on CSSC equipment reference incorrect document numbers. |
| WBQ870937 | Quality | Review of N-5 TVA 1-61-1/2/3-P9 revealed two serial numbers not listed on the component appurtenances report. |
| WBQ870712 | Quality | Workplan WP-5086 does not have procurement numbers recorded on the "Modifications Material List," Attachment "G", for the material replaced as a result of work performed. |
| WBQ870698 | Quality | Life of Plant document for two Conax electrical penetrations reflects incomplete NDE examinations. |
| WBP880188 | Quality<br>Retrievability | Weld procedure not recorded, weld documentation not found. |
| WBQ871002 | Retrievability<br>Quality | Retrievability Problems - Examples include: Support variance sheets, grout pour cards, aggregate sieve analysis, concrete placement documentation, proof load test for cable tray anchors, cadweld splice crew certification documentation, lift and transport records.<br><br>Quality Problems - Examples include: Weld map references incorrect tank I.D. number, superseded form 209 not appropriately signed, receipt inspection does not indicate NCR number, receiving report indicates wrong serial number. |

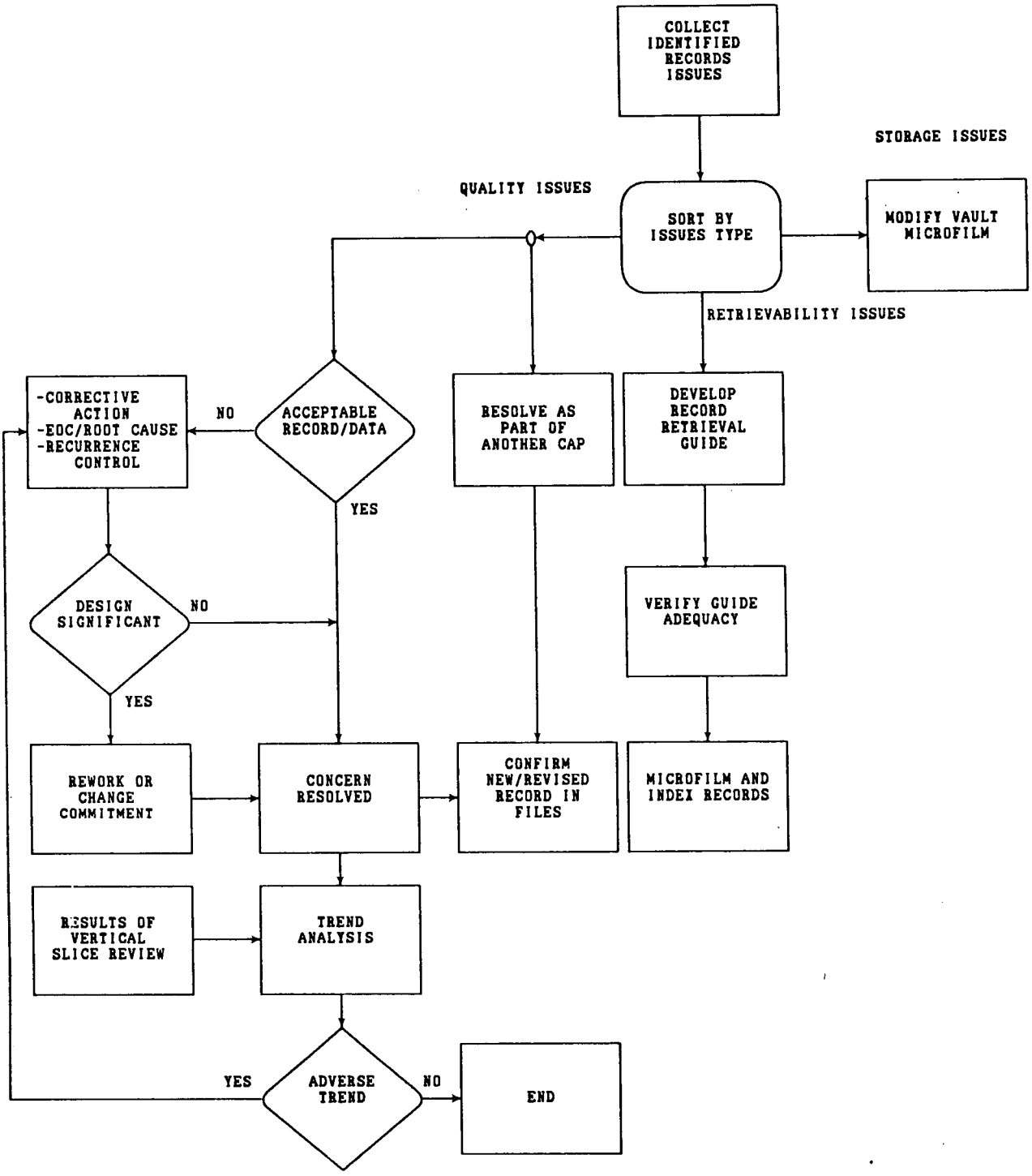
Attachment 1

BASIS OF CAP
EXAMPLE LISTING OF RECORD CAQs

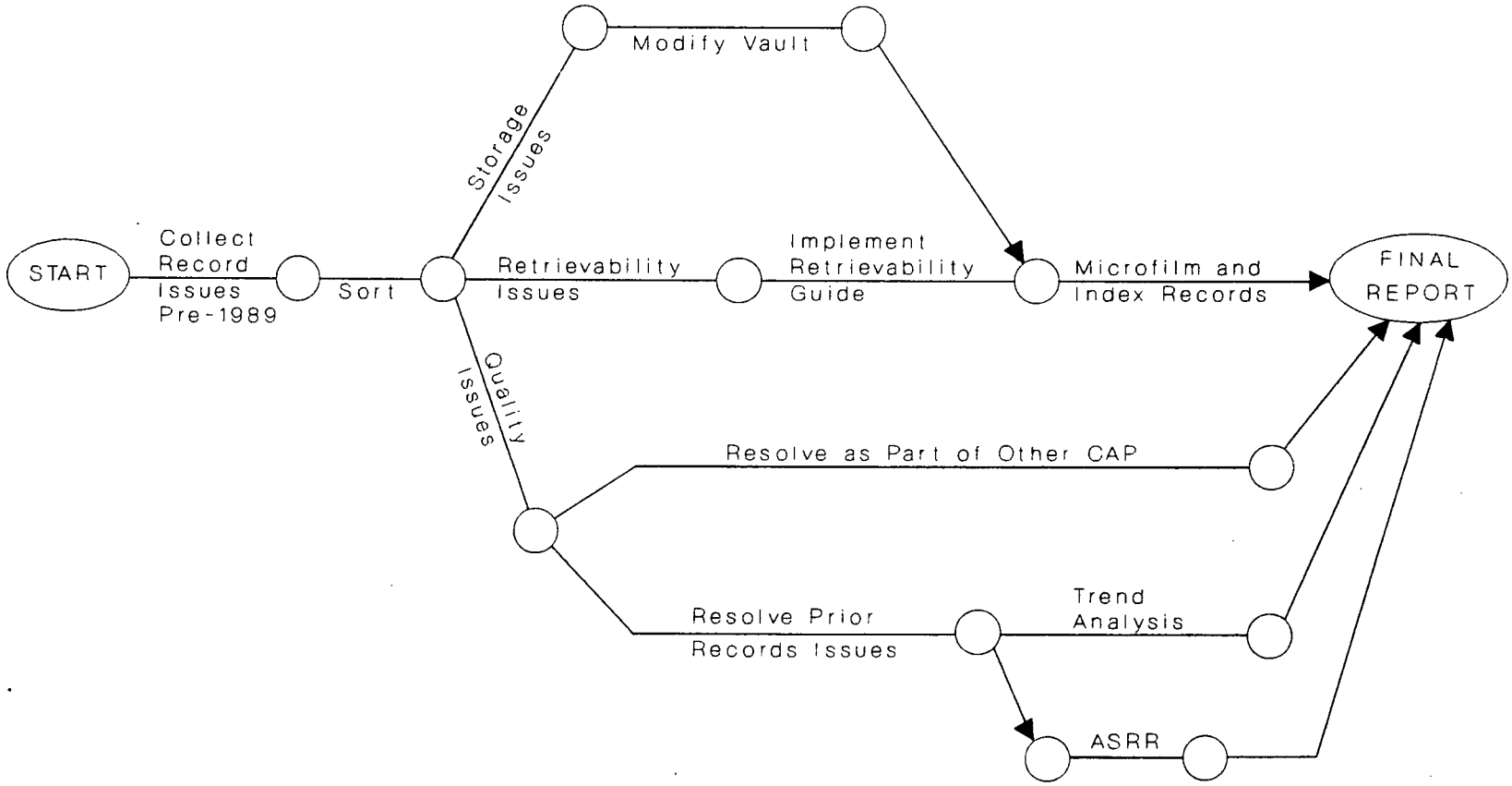
| CAQ NUMBER | ISSUE TYPE | ABBREVIATED DESCRIPTION |
|---|---|---|
| WBP871000 | Retrievability | No documentation could be found in WP-3749 for the Flexibility Verification Data Sheet for the essential control air supplying 1-PCV-3-122 and 1-PCV-132. |
| WBP870036 | Quality Retrievability | Records cannot be located in the vault. Superseded record revisions missing. Two records stored in vault with identical identifiers. Record in vault/no test level indicated. Blanks on records not "N/A." Records have corrections, additions, strikeovers. Illegible records. Test certified by inspector not certified. Revision levels of procedures not entered on record. |
| W-203-P | Storage | Storage vault does not meet fire rating. |

Attachment 2

# Flow Chart of QA Records CAP Activities For Record Issues Identified Prior to January 1989



# Watts Bar Nuclear Plant
# QA Records CAP
# FRAGNET



Attachment 4

QA RECORDS REQUIRED BY REGULATIONS APPLICABLE TO WBN
EFFECTIVE THE DATE OF THE REGULATION

| Regulation | Records |
|---|---|
| 10CFR21 | ° Defects And Noncompliance Reports (Part 21 Evaluations) |
| 10CFR50.34 | ° Preliminary And Final Safety Analysis Reports |
| 10CFR50.44 | ° Post-Accident Combustible Gas Control System Analysis |
| 10CFR50.46 | ° Emergency Core Cooling System Analysis |
| 10CFR50.48 | ° Fire Protection Analysis |
| 10CFR50.49 | ° Environmental Qualification Program Evaluations |
| 10CFR50.54(a) | ° Quality Assurance Plan |
| 10CFR50.54(o) | ° Primary Reactor Containment Leakage Testing Records |
| 10CFR50.55(e)(1) | ° Deficiency Reports During Construction (50.55e Evaluations) |
| 10CFR50.55a | ° Records Demonstrating Conformance To ASME Boiler And Pressure Vessel Code Sections III And XI<br>- Code Data Reports<br>- Radiographs and Radiographic Test Results<br>- Hydro Test Results<br>° Records Demonstrating Conformance To IEEE-279 |
| 10CFR50.61 | ° Fracture Toughness Technical Analysis |
| 10CFR50.62 | ° Anticipated Transients Without Scram (ATWS) Technical Analysis |
| 10CFR50.63 | ° Loss Of All Alternating Current Power Technical Analysis |
| 10CFR50, Appendix B | ° Quality Assurance Plan |
| 10CFR100, Appendix A | ° Final Safety Analysis Report |

Attachment 5

NRC COMMENTS, OPEN ITEMS, IFIs, AND URIs
ADDRESSED IN QA RECORDS CAP/ASRR

In general, closure is provided via the quality records review under the CAP/ASRR program, and via the technical adequacy reviews conducted under the ASRR program. CAP/ASRR sections addressing the open item are provided below:

| NRC Open Items | CAP Section |
|---|---|
| ° NRC Letter dated 12/08/89 - NRC Safety Evaluation of the Watts Bar Unit 1 Corrective Action Program (CAP) Plan for QA Records | Attachment 6: ASRR |
| ° NRC Letter dated 09/18/90 - Inspection of the Watts Bar QA Records and Q-List Corrective Action Programs, NRC Inspection Report Nos. 50-390/90-08 and 50-391/90-08 | CAP 4.0 |
| - URI 90-08-04: Concrete Aggregate/ NCIG-08 | Attachment 6: ASRR 5.c |
| - IFI 90-08-05: Reinspection | CAP Subsection 4.3 |
| - IFI 90-08-06: Quality Issues/ Root Cause | CAP 1.0; Attachment 6: ASRR 2.0, 3.0, 4.0 |
| - IFI 90-08-07: Trend Analysis | CAP 1.0; Attachment 6: ASRR 4.0 |
| - URI 90-08-08: Prompt Corrective Action | CAP; Attachment 6: ASRR |
| ° NRC Letter dated 10/30/89 - Quality Assurance Records for Watts Bar | CAP Subsection 4.3 |
| ° NRC Letter dated 08/30/91 - Watts Bar Unit 1 - QA Records Corrective Action Program Additional Systematic Records Review | Attachment 6: ASRR 2.f, 2.g |
| ° NRC Letter dated 09/05/91 - NRC Inspection Report Nos. 50-390/91-13 and 50-391/91-13 | CAP 4.4 |
| - URI 89-20-03: Storage of Quality Assurance Records | CAP 4.1.1 |
| - URI 86-24-03: Construction Records | CAP; Attachment 6: ASRR |

Attachment 6

ADDITIONAL SYSTEMATIC RECORDS REVIEW

ADDITIONAL SYSTEMATIC RECORDS REVIEW

TABLE OF CONTENTS


| | Page |
|---|---|
| 1. INTRODUCTION AND BACKGROUND | 1 |
| 2. RECORDS REVIEW | 3 |
| a. Record Population Structure | 3 |
| b. Considerations in Record Selection | 3 |
| c. Sample Selection | 5 |
| d. Review Process for Evaluation of Records Quality | 5 |
| e. Population Acceptance Criteria for Records Quality | 7 |
| f. Review Process for Evaluation of Records Technical Content | 8 |
| g. Population Acceptance Criteria for Records Technical Content | 10 |
| 3. HARDWARE REVIEW | 10 |
| a. Hardware Population Structure and Sampling | 11 |
| b. Considerations in Hardware Selection | 11 |
| c. Review Process for Hardware | 11 |
| d. Population Acceptance Criteria for Hardware | 11 |
| 4. TREND ANALYSIS | 12 |
| 5. DISPOSITION OF RECORD DEFICIENCIES | 12 |
| a. Product Records | 13 |
| b. Closely Associated Records | 13 |
| c. Use of NCIG-08 | 13 |
| d. Reinspection Criteria | 13 |
| 6. RECORDING RESOLUTION OF RECORD DEFICIENCIES | 14 |
| a. General | 14 |
| b. CAP/SP Records | 14 |
| 7. INTEGRATED ASSESSMENT | 15 |

FIGURES:

| | |
|---|---|
| 1 - STRUCTURE OF RECORD SPACE | 16 |
| 2 - TREND PROCESS | 17 |
| 3 - DISPOSITION RULES - PRODUCT RECORDS (Page 1 and 2) | 18 |
| 4 - DISPOSITION RULES, CLOSELY ASSOCIATED RECORDS (Page 1 and 2) | 20 |
| 5 - RECORDING RESOLUTION OF RECORD DEFECTS | 22 |

| | |
|---|---|
| APPENDIX A: RECORD DEFICIENCIES FROM PREVIOUS REVIEWS | 23 |
| APPENDIX B: PLANT ELEMENTS AND RECORDS NOT APPLICABLE OR YET UTILIZED AT WBN | 24 |

## 1. INTRODUCTION AND BACKGROUND

The purpose of this document is to describe the Additional Systematic Records Review (ASRR) portion of the Quality Assurance Records Corrective Action Program (CAP). This expansion of the QA Records CAP was initiated by TVA to confirm that a factual, documented basis has been established (through QA records) to demonstrate that WBN is designed, constructed, and tested in conformance with specified requirements and has achieved the requisite level of quality to begin operation. The scope of the ASRR is designed to be comprehensive in breadth by evaluating all ANSI N45.2.9 record types currently applicable to WBN. The review is also designed to have depth with respect to its review of a statistically significant sample of records against record attributes that confirm records quality, technical content, and the consistency of the physical installation with the records. Upon completion, the ASRR will provide confirmation that prior engineering, construction, and testing processes coupled with the ongoing Corrective Action Programs (CAPs) and Special Programs (SPs) have produced adequate records or the QA Records CAP will identify and coordinate any required corrective actions.

This systematic approach enables more complete conclusions and provides a broader framework that goes beyond previously known issues to provide a higher level of assurance that these or other issues do not exist elsewhere.

The QA Records reviews to date utilized the results of three previous reviews of WBN QA records to evaluate the nature and extent of record problems. The three reviews are briefly described below:

### 1987 QA Records Survey

A review of approximately 4500 records verified the attributes of the QA records necessary to substantiate the quality of construction, maintenance, modifications, and testing activities including onsite-generated records supporting the procurement of selected equipment.

### 1988 Vertical Slice Review

An engineering verification of approximately 4000 records to determine the technical adequacy of selected structures, systems, and components, and the associated design process; a construction verification and a verification of the QA/QC records for the selected structures, systems, and components.

### 1990 Operations and Maintenance Records Review

Performed by Site QA to address operations and maintenance activities. Evaluated approximately 4200 records. Of this number, 400 records were reviewed directly as part of this review and an evaluation was made of the results of past Site QA audits and surveys that reviewed 3800 records.

The completion of WBN must be both technically adequate and supported by adequate records. There are three considerations with respect to the adequacy of records. First is the accuracy with which they document the technical adequacy of activities affecting quality. Second is the quality of documentation including: existence, completeness of results and authorization, legibility, accuracy of references, and correctness of changes. Third is the availability of records, including retrievability and storage. For each aspect of record adequacy there is an effective review method to define the necessary corrections.

- Record accuracy may be determined by first evaluating work to requirements to determine technical adequacy; then comparing that conclusion to the conclusion documented in records. This approach confirms both technical adequacy and record accuracy. This approach was employed by the construction and records segments of the 1988 Vertical Slice Review (VSR) and will be incorporated within the various ASRR reviews of records technical content.

- Record quality can be determined by evaluation of records against record keeping requirements contained in TVA standards and procedures. This approach was employed by several previous reviews including the 1987 QA survey, the records segment of the 1988 VSR, and the 1990 operations and maintenance records review and will be incorporated within the ASRR reviews of records quality.

- Record availability is a combination of storage and retrieval. The retrieval system was tested during the aforementioned 1987, 1988, and 1990 reviews. Record storage adequacy may be determined by review of the storage facility and the extent to which required records are stored therein. Record storage was reviewed in particular by the 1987 QA survey. The completeness of the QA records will be considered within the ASRR technical content and quality reviews.

Results

The results data from previous reviews will not be used in the trend analysis for the ASRR. However, TVA is developing and implementing corrective actions to resolve the problems identified. The dispositions of these deficiencies will be consistent with the NRC Region II letter dated October 30, 1990, and will be processed within the TVA corrective action program.

A tabulation of the types of record quality deficiencies found as a result of these reviews is provided in Appendix A.

Need for Additional Review

Previous reviews for record quality were performed using directed or "engineering" biased sampling methods specifically based on component variety, component importance and unique activities, etc., and therefore, the records reviewed fell into a limited number of the 198 ANSI N45.2.9 record types. In light of this, TVA is supplementing the earlier reviews with a more comprehensive, systematic sampling of records quality and

technical content which addresses the broad range of ANSI record types. This evaluation includes a review of historical workplans (WPs) and maintenance requests (MRs) to verify that these work instructions reflect the proper engineering intent.

Also, to provide additional assurance that the total body of QA records collectively reflects the plant configuration, TVA is performing an additional comprehensive sampling to verify record accuracy. This review compares design outputs (i.e., drawings and specifications) and inspection records with associated hardware components.

## 2. RECORDS REVIEW

The ASRR records review has two principal components: (1) an evaluation of records quality and (2) an evaluation of records technical content. As described previously, the technical content reviews supplemented the QA Records CAP scope after a significant portion of the quality reviews were completed. Accordingly, these two components will be implemented independently in time; however, the technical content reviews will utilize the sampled records from the quality reviews and the conclusions from both will be integrated within the QA Records CAP Final Report. Sections 2.a through 2.e describe details associated with the records populations sampling and the review process for evaluation of records quality. Sections 2.f and 2.g supplement these discussions with a description of the review process for evaluation of records technical content.

### 2.a Record Population Structure

The record population has been structured for the record review by developing a matrix of plant elements versus required record. The structure of the matrix is shown in Figure 1. Required records are defined in the 198 record types specified in ANSI N45.2.9-1974. Plant elements are defined as the 20 elements specified in the Element/Attribute List. The Element/Attribute List also provided a structured basis for the systematic assessment of WBN during 1987 and 1988, and for developing the WBN Nuclear Performance Plan. The element list is provided in Appendix B.

There are two special considerations in the matrix. First, the 198 ANSI record types will be reviewed, except 12 types which are not applicable to the WBN plant type/configuration or are not yet required at WBN (refer to Appendix B for a listing). Second, approximately 100 of the ANSI record types deal with unique records which do not easily tie to the plant elements. These will be reviewed without regard to plant elements.

### 2.b Considerations in Record Selection

(1) Sampling From Existing CAPs/SPs

One consideration in selecting areas for record review is the timing of reviewing those records which have been targeted for

revision as a result of corrective actions. Previous major record reviews have selected record samples from populations already subject to a CAP/SP. These reviews identified some record quality and technical content deficiencies in these areas. Since the CAP/SP will provide a comprehensive evaluation and corrective action and the recording of a new basis for acceptance, it resolves deficiencies with technical adequacy, record accuracy, and record quality. Therefore, it is considered acceptable to resolve these record deficiencies by confirming that the record has been supplemented by records produced by the CAP/SP.

The QA Records CAP will include consideration of CAPs/SPs. The record sample will not exclude areas by virtue of CAPs/SPs planned, in progress, or completed. If the CAP/SP is complete, the records produced are the current configuration records and will be selected for the additional review. If the CAP/SP is not yet complete, an in-process record review will be performed that will select the most recent records which represent the current configuration. This review will focus on the technical attributes of the CAP/SP records to determine whether the CAPs/SPs are producing adequate records. Should a record deficiency be identified, it will be resolved by confirming that when the CAP/SP work is completed, it will supplement the deficient record. As a result, the review will confirm the adequacy of work completed under CAPs/SPs and where deficiencies were identified this review will confirm that these deficiencies will be adequately addressed during the completion of CAPs/SPs.

(2) Currency of Records Reviewed

Another consideration is the age of records reviewed. The ASRR portion of the CAP evaluates records which represent the current configuration/status.

As an example - for a pipe support installed in 1978, modified for IE Bulletin 79-14 in 1982, and modified again as a result of the Hanger Analysis and Update Program in 1990, it would be necessary to review all associated records to assure that when combined they represent the latest configuration.

However, there are situations where an earlier record will not be reviewed. As an example - for a cable splice completed in 1983 and reperformed in 1990 due to new criteria, it would only be necessary to review the 1990 record because it supersedes the previously issued record.

CAP records will be one of the types of records that are reviewed for elements where they apply. They will be reviewed for the specific attributes they cover. Other previous records will be reviewed as necessary for other attributes.

The approach of reviewing current configuration has two advantages. It focuses on the records relied on for licensing. It also reviews records generated during different timeframes in the same proportion as they support the current configuration and hence WBN's reliance on them.

2.c Sample Selection

Method

The method used for determining which specific items are reviewed is as follows:

(1) Sixty required samples from each record type are evenly distributed across the plant elements contributing to the ANSI record type. If the record type population is less than 60, TVA will perform a 100 percent review of that record type.

(2) Within each ANSI type the additional sample will be distributed across TVA record types.

(3) Within the plant element, components are selected randomly.

(4) For each selected component, the TVA records which represent the current configuration and status are reviewed except where the ANSI record type in question has already been sufficiently sampled.

Significance of Hardware

It is desirable to direct sample selection by the safety significance of the hardware associated with the records sample. The objective is to provide a greater proportion of the more important items in the sample, while including some of the less important items. Two categories of significance are defined in the Q-List: primary safety related and quality related. The sample is directed to ensure it includes more items which are primary safety related than quality related.

2.d Review Process for Evaluation of Records Quality

The sample review process contains the following steps:

(1) Once the samples are selected, the records supporting the current configurations are retrieved. This includes the supplementing or superseding records generated by CAPs and SPs where available.

(2) A checklist is developed which considers the site activity procedures which require the production of QA records and which is sensitive to the following deficiency categories:

| CATEGORY | EXAMPLES |
|---|---|
| **Primary** | |
| Existence | Record missing |
| Incomplete Results Data | Results blank, N/A in error |

| CATEGORY | EXAMPLES |
|---|---|
| **Secondary** | |
| Incomplete References/ Authorization | Authorization not signed, not initialed, not dated, referencing blank or N/A in error |
| Legibility | Results, authorization, referencing illegible |
| Referencing | Reference incorrect procedure, revision level, or component identifier |
| Incorrect Changes | Results, references, or authorizations changed by white-out, cross-out not initialed and dated |

A primary record deficiency is one in which the acceptability of the recorded activity is not documented. Primary deficiencies include missing records and those which do not document the results of verifications. These are considered primary because their existence results in little or no basis for confidence in the acceptability of the work.

Secondary record deficiencies encompass the remaining record quality deficiencies. They include incompleteness of references or authorization, illegibility, incorrect referencing, or incorrect changes. These are considered to be of secondary importance because the deficient record still provides a reasonable measure of confidence in the adequacy of the recorded activity.

There can be extreme cases of secondary deficiencies which have the same adverse affects as primary deficiencies. Because of this, secondary deficiencies that adversely affect important data or information on the record necessary to substantiate the quality of work or material will be evaluated to determine if they are primary deficiencies.

2.e Population Acceptance Criteria for Records Quality

Sampling of the records will assure there is at least a 95 percent confidence level for each ANSI record type as follows:

| Deficiency Type | Acceptance Criteria |
|---|---|
| primary | 5% |
| secondary | 10% |

Sample results such as 1/60, 2/60, 3/60, etc., can be translated into terms of confidence in the fraction of deficiencies in the underlying population through the use of probability curves. A 95 percent confidence that there are less than 3 percent deficiencies in the remaining population (95/3) could be established by finding no deficiencies in a sample of 60. Similarily, satisfying 95/5 could be established by finding less than or equal to one deficiency in a sample of 60. A 95/10 could be satisfied by less than or equal to three deficiencies.

The distinction between the acceptance criteria for primary and secondary deficiencies is based upon the degree to which each type of deficiency reduces confidence in activities affecting quality. Since primary deficiencies result in a greater reduction in confidence, there will be a more stringent acceptance criteria for this type of deficiency. Secondary deficiencies affecting multipage records will be evaluated on a page basis, in order to calculate the deficiency rate for determining record type acceptability.

Design significant deficiencies are conditions found to be in nonconformance with the appropriate code, standard, or licensing requirements. Individual design significant hardware deficiencies related to identified record deficiencies will be subjected to a hardware extent of condition (EOC) evaluation. Also, in cases where this type of hardware deficiency is discovered, a re-evaluation of the population acceptance criteria will be made.

The following describes the procedure for evaluating sampling results against acceptance criteria. For each ANSI type, as described in section c, item (1), the sample of size 60 is distributed evenly across the element types contributing to that ANSI type. This is called "stratified sampling." It is done to ensure "coverage" of the different element types, and to gain confidence that there are no "bad spots" within the population structure of Figure 1.

In evaluating the results of the record sampling process against the acceptance criteria shown above, recognition is taken of the stratified nature of the sample. This is done using a simple weighting procedure as follows:

Let $f_A$ = the deficiency fraction for the ANSI type.
$f_i$ = the deficiency fraction for the $i^{th}$ element within the ANSI type.

Let $N_A$ = the size of the population (records or pages) in the ANSI type.
$N_i$ = the size of the population (records or pages) in the $i^{th}$ element type within the ANSI type.

Then, of course,

$$N_A = \sum_i N_i \tag{1}$$

and also

$$f_A = \frac{1}{N_A} \sum_i N_i f_i \tag{2}$$

$f_A$ is the parameter that is compared with the acceptance criteria above. The procedure used is to obtain probability curves for $f_i$ from the samples of the individual elements and then combine these curves through equation (2) to obtain a curve for $f_A$. This curve is then compared to the acceptance criteria above.

2.f <u>Review Process for Evaluation of Records Technical Content</u>

The technical content evaluation provides assurance that the following five phases (or categories) of records development are addressed:

- Records generated by the design/engineering processes (original and CAPs/SPs) to define the design,
- Records generated by the work management and control processes to translate engineering intent into work instructions,
- Records generated by the manufacturing processes,
- Records generated by the construction and installation processes to document that the physical plant meets engineering and quality requirements,
- Records generated by the preop and startup testing processes and records associated with the transition to operations.

The review utilizes the records sampled for the quality reviews described in section 2.d. These records are evaluated against technical attributes that are critical to the purpose for which the record was created. In addition, as confirmation of how technical output is maintained from the design criteria to the installed hardware in the field, the review selectively focuses on the compilation and evaluation of sets of records applicable to specific hardware elements. This provides verification that the records collectively demonstrate qualification to requisite requirements.

Reviews will be conducted considering the following attributes:

- Substance - The record content conforms with requisite industry practice (at the time of initiation) necessary to demonstrate qualification to specified requirements and acceptance criteria or to document the results of an activity.

- Accuracy - The specific values, parameters, observations, or other data recorded are congruent with that measured, calculated, or visually observed and/or are congruent with that transferred as inputs from validated source information.

- Integration - The collective set of records provides completeness in coverage and are interfaced to demonstrate that all features, attributes, functions, or activities are addressed, appropriately bounded, and demonstrated to be within specified tolerances or acceptance criteria.

Outputs of the engineering process (e.g., drawings and specifications) serve as acceptance criteria for judging the adequacy of record technical content for records developed by the work management, construction, modification, and testing processes. Engineering records developed by CAPs and SPs are evaluated by testing the completeness and adequacy of records generated by these programs. The adequacy of documentation for specific values or parameters will be confirmed through the evaluation of outputs of related records.

Screening criteria are applied (with justification) to eliminate document categories that:

- Do not contain technically significant information,

- Contain information that was evolutionary to other information that now represents the "qualifying" documentation of interest, and

- Contain old information that will be superseded by new documents.

Given TVA's intent to conduct a new Regulatory Guide 1.68 testing program, the prior testing records associated with this program will not be reviewed; however, the ASRR will overview the process for development of records by the new program and selectively verify record outputs to assure that these are complete and meet quality and technical requirements. Test records associated with the construction, modification, or maintenance processes (e.g., hydros) will be evaluated.

The quality and technical content of historical workplans (WPs) and maintenance requests (MRs) is being reviewed to verify that the engineering intent is properly reflected and to verify the acceptability of recorded information that is critical to the qualification of the hardware and maintaining configuration control. Attributes verified by the hardware review (refer to section 3) can be eliminated from the WP/MR reviews.

The WPs/MRs generated during the timeframe of the CAPs/SPs (i.e., after 1987) will be evaluated. WPs/MRs generated prior to 1988 will be sampled from several sub-populations established through consideration of organizational responsibility, process/procedure applied, and/or timeframe as may be important to maintaining reasonable homogeneity of the sub-populations.

2.g Population Acceptance Criteria for Records Technical Content

Discrepancies in technical content will be classified to assist in the identification of adverse trends, evaluation of extent of condition (generic implications) and in the determination of the need and scope for corrective actions. Discrepancies that are design significant are considered primary deficiencies. Any other discrepancies are considered secondary.

The review of technical content will assure that there is a 95 percent confidence level for each ANSI record type as follows:

| Deficiency Type | Acceptance Criteria |
|---|---|
| primary | 3% |
| primary plus secondary | 10% |

The distinction between the acceptance criteria for primary and secondary deficiencies is based upon the degree to which each type deficiency reduces confidence in activities affecting quality. Since primary deficiencies result in a greater reduction in confidence, there will be a more stringent acceptance criteria for this type deficiency. Secondary deficiencies will be evaluated on a page basis in order to calculate the deficiency rate for determining record type acceptability.

If the discrepancy represents a safety significant condition affecting the capability of specific components to perform an intended safety function, corrective actions are required including an extent of condition evaluation.

Trends of design significant discrepancies (i.e., deviations from codes, standards, or licensing requirements) that are not safety significant will be evaluated to determine if these collectively represent an adverse condition that could be safety significant (refer to section 4).

3. HARDWARE REVIEW

A review is being performed to assess the hardware as it relates to records accuracy for construction installations.

3.a Hardware Population Structure and Sampling

The hardware population is selected from the 20 plant elements specified in the Element/Attribute Matrix. The element list is provided in Appendix B. Sixty components/features are selected from each element to be reviewed.

3.b Considerations in Hardware Selection

Considerations utilized in hardware selection will include;

- Accessible components/features,
- Components/features not requiring destructive testing,
- Components/features both within and outside the scope of the CAPs/SPs.

Components/features are reviewed to assure that the records adequately reflect the installed configuration.

This review is not directed toward specific timeframes; instead the plant elements represent components/features which reflect all phases of construction installation.

3.c Review Process for Hardware

Inspections are performed to the procedures/criteria in effect at the time of the latest installation. This inspection verifies those attributes that can be inspected in the current configuration. As an example - for a cable installation the only accessible attributes may be mark number, cable identification, and routing. The inspection attributes reviewed and the results will be documented in accordance with project procedures.

3.d Population Acceptance Criteria for Hardware

A hardware deficiency may be derived from a record that does not accurately reflect the actual installation or where the hardware fails to meet design requirements. For the hardware review, a primary hardware deficiency is a discrepancy which is design significant. A secondary hardware deficiency is a discrepancy where the hardware does not match the drawing/record but is not design significant.

Sampling of the hardware will assure that there is at least a 95 percent confidence level for each element that:

| Deficiency Type | Acceptance Criteria |
|---|---|
| primary | 3% |
| primary plus secondary | 10% |

Elements exceeding this acceptance criteria are subjected to trending in accordance with section 4 of this enclosure.

Individual design significant or safety significant hardware deficiencies related to identified record discrepancies are subjected to a hardware EOC evaluation.

4. TREND ANALYSIS

The purpose of the trend analysis process is to identify and bound unacceptable quality trends and provide a basis for concluding that populations are acceptable. Figure 2 provides an overview of the trend analysis process.

4.a When the population acceptance criteria for record or hardware reviews are exceeded, the extent of the condition will be bounded and resolved. EOC evaluations are performed to determine the bounds of unacceptable deficiency trends. These type of evaluations are accomplished through directed sampling in areas associated with the identified deficiencies. The size and distribution of EOC samples will be determined from review of the nature of the defect and analysis of the deficiency data obtained up to that time. In some cases, this may lead to a 100 percent review of the suspect area.

4.b Confirmatory sampling may be performed on the residual population (i.e., excluding the area bounded by the EOC evaluation) if there is remaining uncertainty that the discrepant attributes may not have been fully bounded and corrected. The purpose of the confirmatory sample will be to provide additional and sufficient confidence in the quality of the residual population.

4.c The results of confirmatory sampling will be evaluated to determine if the population meets the established acceptance criteria. If the acceptance criteria is met, the population is accepted. If the acceptance criteria was not met, the results will be reviewed to determine the additional EOC evaluation required and the process reiterated until the population is accepted.

5. DISPOSITION OF RECORD DEFICIENCIES

Individual record deficiencies are identified by the record review, including EOC reviews for adverse trends. These deficiencies are recorded in accordance with the WBN corrective action process and will be dispositioned in accordance with the NRC Region II letter on QA records dated October 30, 1990. Associated hardware deficiencies, if any, will be corrected including generic corrections for design significant deficiencies.

Dispositioning of record quality deficiencies will be based upon re-establishing confidence in the quality of the work. The approaches include reconstituting the record or justifying that the record deficiency can be "use-as-is." Alternatively, a direct re-examination of the hardware may be performed. Should the quality of the work be

indeterminate or unacceptable, it will be corrected including the generation of appropriate records. Should there be a design significant deficiency with the associated hardware, an EOC review and appropriate corrective action will be performed.

5.a Product Records

To ensure consistent disposition results, logic diagrams have been developed to guide the evaluator to disposition two broad record categories, "product records," and "closely associated records." Product records directly relate to the quality of the hardware. The disposition rules for product records and examples of these dispositions are shown in Figure 3.

5.b Closely Associated Records

Closely associated records support the product records. They include records such as training, certification, qualification, and calibration records. Because a support type activity may apply to several hardware elements, problems with these kinds of records may also require a hardware EOC evaluation. Deficiencies with closely associated records which relate to design significant hardware deficiencies require evaluation of EOC in the records as well as in the hardware affected. The disposition rules for closely associated records and examples of these dispositions are shown in Figure 4.

5.c Use of NCIG-08

To address a previous NRC concern, TVA has reviewed the use of EPRI/Nuclear Construction Issues Group document, "Guidelines for the Content of Records to Support Nuclear Power Plant Operations, Maintenance, and Modifications" (NCIG-08). This document was one of the inputs used as a guide by TVA's contractor, Sargent & Lundy, for determining recommendations for TVA's disposition in 1988. Its use was limited to the proposed disposition of nonessential data which included 57 problem units. In June 1990, TVA redispositioned all 57 category problem units so that there were no items dispositioned as non-essential records or data. Therefore, there is no longer any reliance on NCIG-08 in performing the ASRR scope of the CAP.

5.d Reinspection Criteria

In April 1990, during the NRC audit, TVA committed to provide a comparison of current inspection criteria to original criteria in those areas where reinspection is being performed to resolve deficiencies revealed by previous reviews. Differences in inspection criteria will be evaluated and justified in project files or the reinspection will be re-performed.

## 6. RECORDING RESOLUTION OF RECORD DEFICIENCIES

### 6.a General

As a result of either the ASRR for the QA Records CAP or other CAPs/SPs, record deficiencies will be resolved by correcting or supplementing the original record. For supplemented records, the records indexing system will identify records used to disposition the record deficiencies to ensure that all qualifying records would be available to a user or inspector of plant records.

The disposition of record deficiencies will be recorded so that the basis is clear and readily retrievable. To accomplish this objective:

- The corrective action document will specify the disposition,
- A supplemental or replacement record will be filed which either provides or references the basis for resolving the deficiency,
- The record retrieval process will identify both the deficient record and the supplemental or replacement record.

Figure 5 illustrates how records will be corrected or supplemented for different types of dispositions. It also shows the requirements for the record's index and the information required to be included in the condition adverse to quality report which record the defects and their disposition.

### 6.b CAP/SP Records

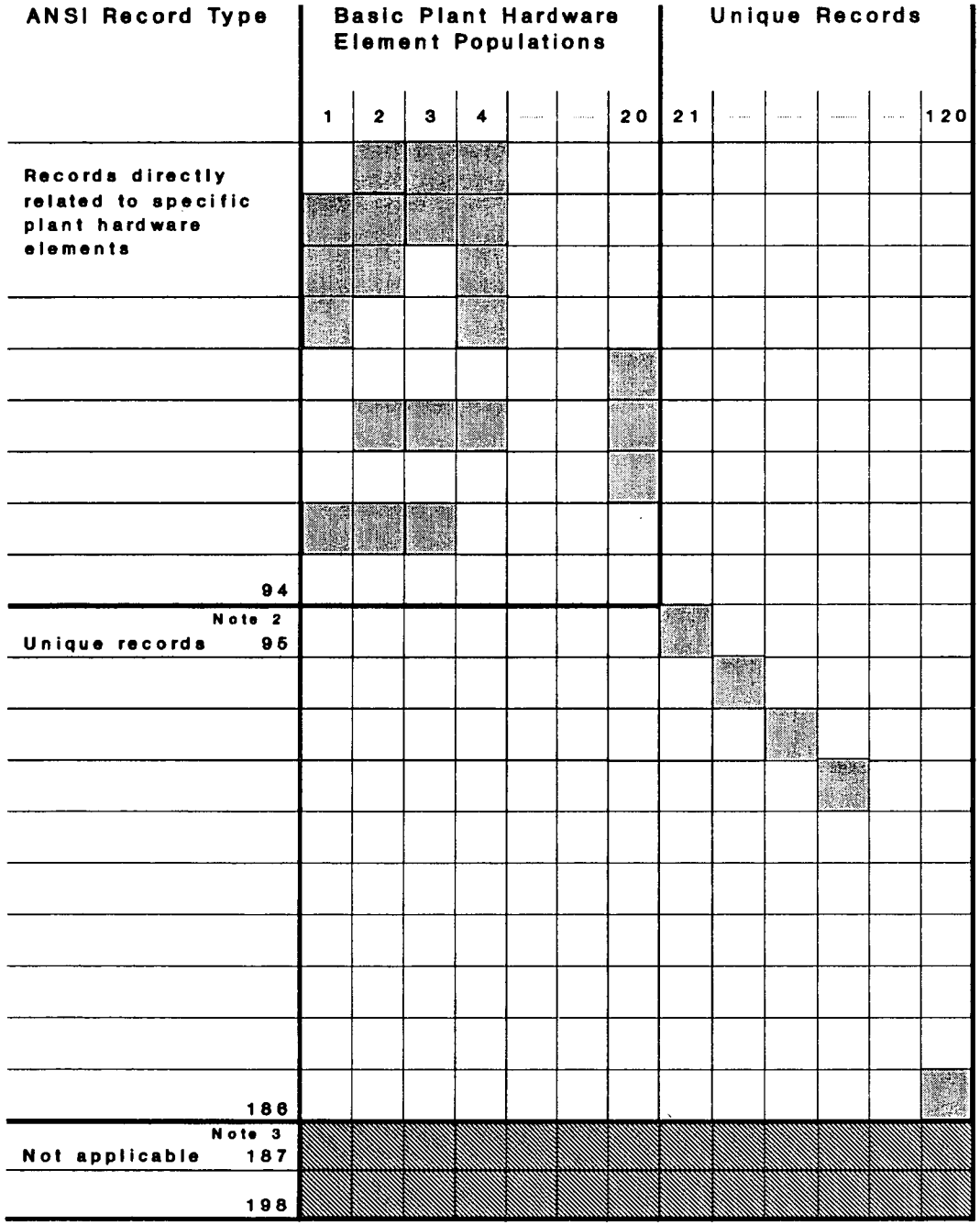
The CAPs/SPs will provide a comprehensive evaluation and corrective action and recording of a new basis for acceptance of large work populations. Special consideration is required for records produced by some CAPs/SPs. If the CAP/SP employs an evaluation method which qualifies items generically, the CAP/SP records need to be structured to ensure qualification for licensing is complete and retrievable in a user friendly manner. To accomplish this objective, a record plan is developed for each CAP/SP which meets the following criteria:

- record retrievability, starting with design or installation data,
- records demonstrate qualification of the hardware,
- if installations do not conform to design drawings, the deviation must be referenced directly to the evaluation which justifies its acceptability,
- evaluations must identify acceptance criteria, their basis and assumptions.

## 7. INTEGRATED ASSESSMENT

The ASRR results and associated corrective actions will be assessed on a collective basis with previous QA records reviews to demonstrate with reasonable assurance that critical records (i.e., records generated by both the CAPs/SPs and the prior/original processes) exist, quality and technical content has been verified, and the physical configurations and records are consistent. The bases for these conclusions will be documented as discussed in Section 7 of the QA Records CAP.

# Structure of Record Space [Note 1]




Notes:

1. Shaded records boxes required for each element

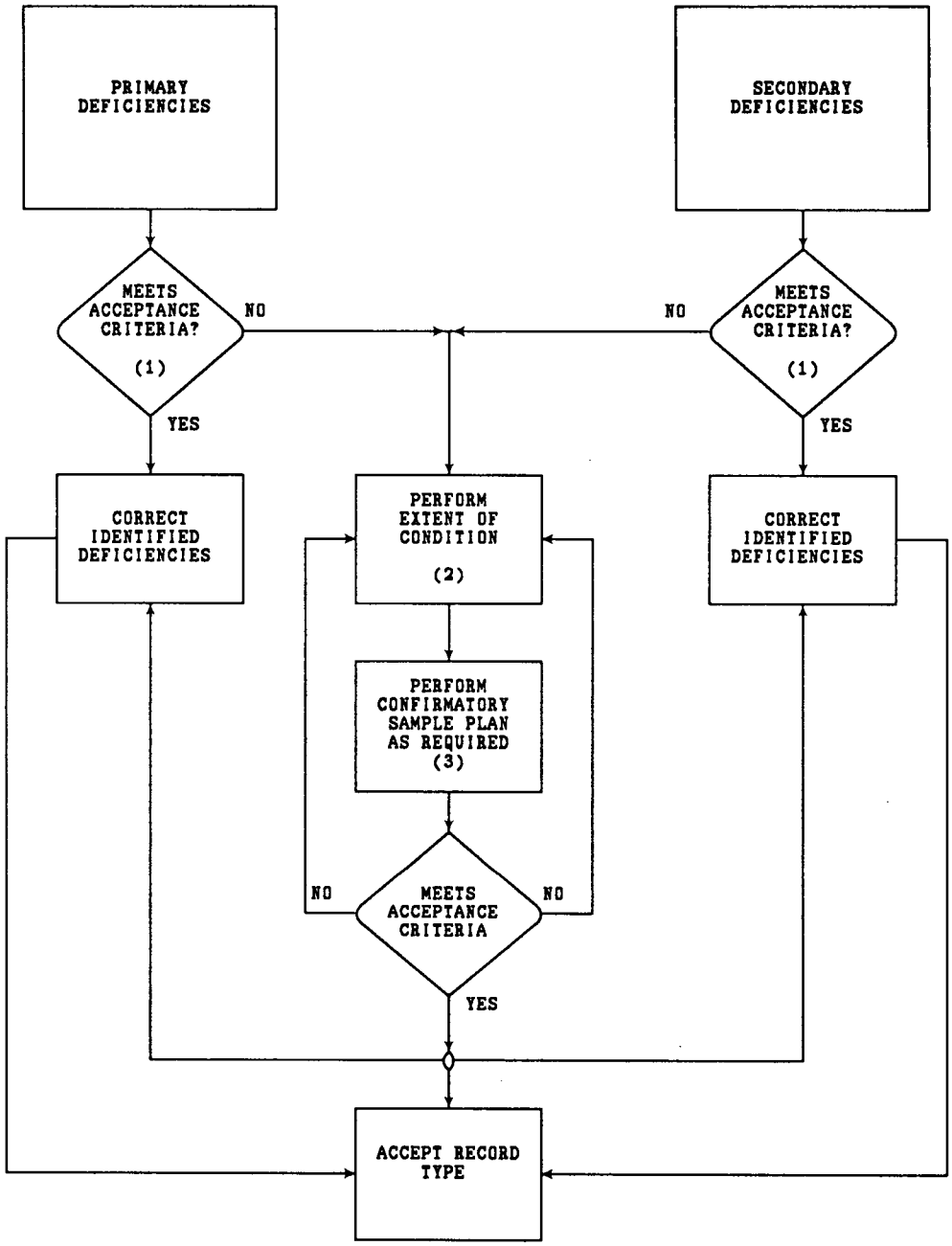
2. These records are not generally related to specific plant hardware elements and/or are represented by small populations best reviewed through direct sampling of ANSI record types

3. Either not applicable to WBN plant type/configuration or not as yet generated (example: Startup Logs)

Figure 1

Figure 2

# Trend Process



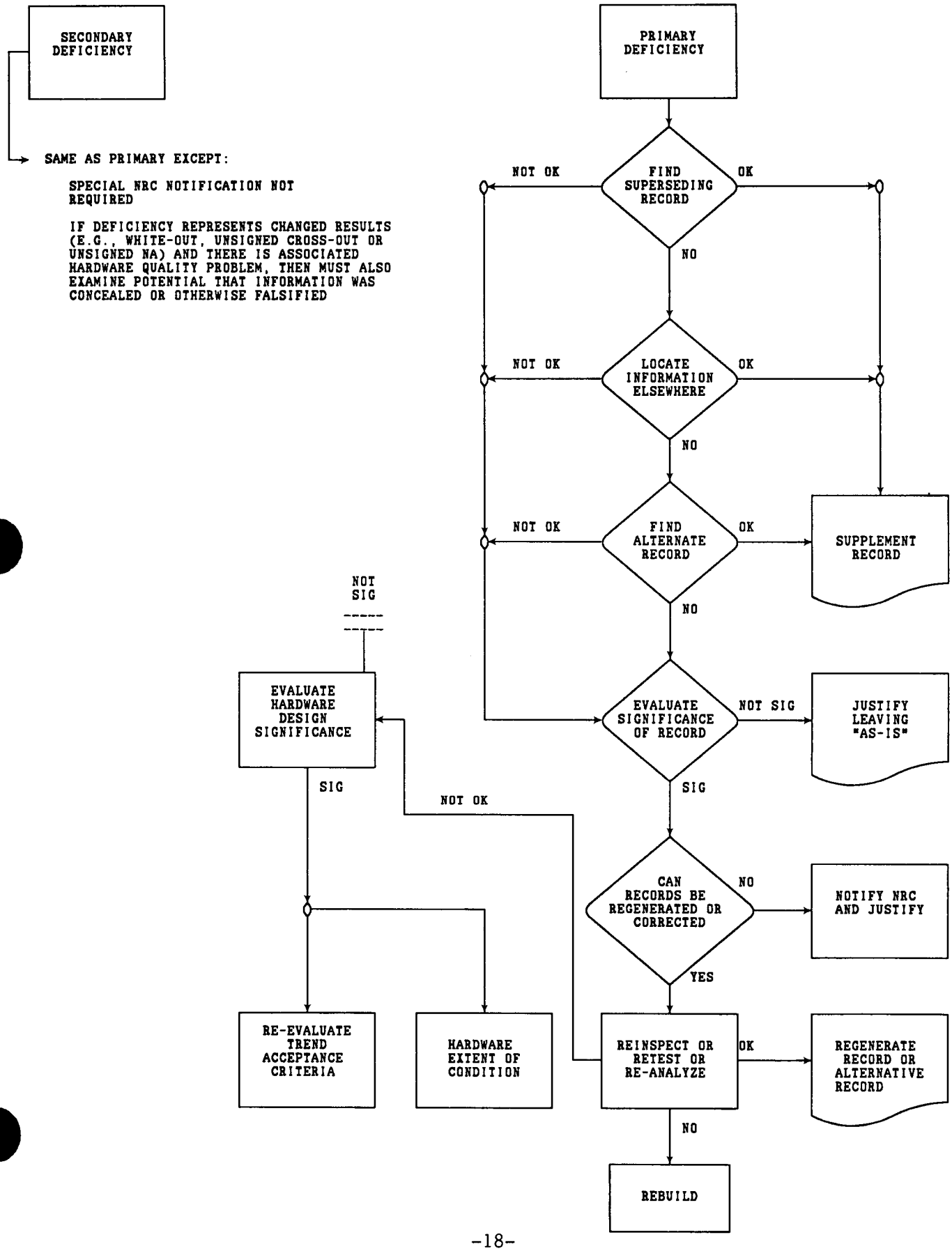

(1)FOR EACH ANSI RECORD TYPE

(2)BOUND USING SAMPLING, ROOT CAUSE ANALYSIS OR 100 PERCENT REVIEW

(3)INCREASED CONFIDENCE IN STATE OF REMAINING POPULATION

Figure 3

# Disposition Rules, Product Records



# Example Dispositions for Product Record Deficiencies

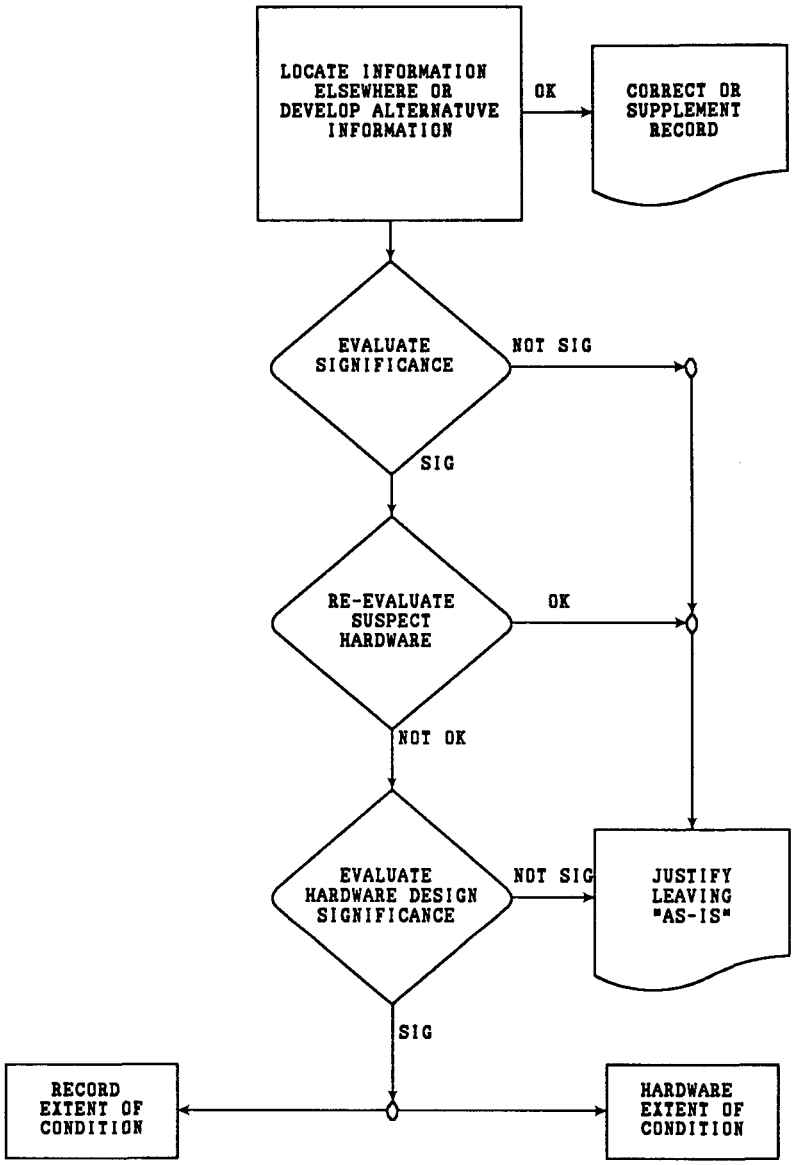
| Deficiency Category | General Disposition | General Examples |
|---|---|---|
| Existance | Reinspect/Retest | Reinspect to current QC acceptance criteria which are demonstrated to be equivalent or better than original inspection requirements. |
| Incomplete References/ Authorization | Locate information and add | Locate inspector and inspection logs |
| Missing Record | Superceding record exists | Test 57B is missing but a subsequent reperformance Test 57C is on file |
| Missing Record | New alternate record | Evaluation of conduit support critical case attributes to provide confidence in a larger portion |
| Missing Record | Old alternate record | Concrete strength record provides confidence in lieu of missing concrete aggreate record |
| Referencing | Lesser safety significance | The procedure revision level in effect was not significantly different from the referenced incorrect revision |
| Incorrect Changes | Lesser safety significance | Data other than results or authentication revised by white-out, then write over. |

Figure 3

Page 2 of 2

Figure 4

# Disposition Rules, Closely Associated Records




IF DEFICIENCY REPRESENTS CHANGED RESULTS (E.G., WHITE-OUT, UNSIGNED, CROSS-OUT OR UNSIGNED N/A) AND THERE IS ASSOCIATED HARDWARE QUALITY PROBLEMS, THEN MUST ALSO EXAMINE POTENTIAL THAT INFORMATION WAS CONCEALED OR OTHERWISE FALSIFIED

# Example Dispositions for Record Quality Deficiencies

| Deficiency Category | General Disposition | General Examples |
|---|---|---|
| Existance | New alternate record | Statements of those conducting and participating in retraining provide confidence retraining was performed. |
| | Old alternate record | Class training logs. |
| | Reinspect/test sample of affected product | Reinspect cable terminations to current criteria better than or equal to original criteria. Disposition quality problems. |
| Incomplete References/ Authorization | Correct or supplement record. | Inspector retraining record not signed. However, trainer reviews class training logs and then corrects retraining record by signing and dating. |
| Incomplete Results Data | Lesser safety significance | Inspector retraining record incomplete. However, the procedure revision level in effect was not significantly different from the retraining level documented. |
| Incorrect Changes | Lesser safety significance | Data other than results or authentication revised by white-out, then write over. |
| Existance | Regenerate Record | Tube bender qualification record missing. However, a qualification test was run on tube bender. |

Figure 4

Page 2 of 2

# Recording Resolution of Record Defects

| | Deficient Record | Supplemental/ Replacement Records | Record Index | Condition Adverse to Quality |
|---|---|---|---|---|
| Regenerate Record | No change | Replacement record provides new baseline information | Identifies both deficient and replacement record | Specifies replacement |
| Correcting Records | Correct original record | Supplement provides basis for correction | Identifies both deficient and supplement | Specifies record corrected |
| Supplementing Records | No change | Supplement specifies additional info and relates to initial record | Identifies both deficient and supplement | Specifies record supplimented |
| Engineering Evaluation | No change | Supplement specifies justification and relates to deficient record | Identifies both deficient and supplement | Specifies justification |

Figure 5

## APPENDIX A

## RECORD DEFICIENCIES FROM PREVIOUS REVIEWS

Of the three major previews, the ones most likely to be successfully validated for trend application are the Vertical Slice Review and a portion of the Operations and Maintenance Review. These include the review of 5,913 records for which 712 deficiencies were identified.

The deficiency fractions found in these reviews are as follows:

* 7.1% Primary

    2.5% Existence

    4.6% Incomplete Results Data

  5.0% Secondary

    2.1% Incomplete References/Authorization

    0.1% Legibility

    2.1% Referencing

    0.8% Incorrect Changes

LIMITATIONS:

- The deficiency rate will vary from record type to record type.
- There is little or no previous sample from 156 ANSI record types.
- For ANSI record types spanning many plant elements, the previous sample was not distributed across plant elements.

* Missing or incomplete design calculations and system descriptions constitute 85 percent of this error rate. Other records reviewed had a 1 percent primary deficiency rate.

## APPENDIX B

### PLANT ELEMENTS

A. The following plant elements are used for the ASRR:

( 1) Cable
( 2) Cable Raceway
( 3) Cable Raceway Supports
( 4) Electrical Equipment
( 5) HVAC Duct and Equipment
( 6) HVAC Supports
( 7) Instruments
( 8) Instrument Lines
( 9) Instrument Line Supports
(10) Large Bore Piping
(11) Large Bore Piping Supports
(12) Small Bore Piping
(13) Small Bore Piping Supports
(14) Valves
(15) Mechanical Equipment
(16) Concrete Structures
(17) Foundations
(18) Structural Steel/Miscellaneous Steel
(19) Masonry Walls
(20) Coatings

### RECORDS NOT APPLICABLE OR YET UTILIZED AT WBN

B. The following 12 record types are either not applicable to the WBN plant type/configuration or have not yet been utilized at WBN, and therefore, are excluded from the records review:

( 1) Material Property Reports on Containment Liner and Accessories
( 2) Safety Valve Response Test Reports
( 3) Normal Nuclear Unit Operation, Including Power Levels and Periods of Operation at each Power Level
( 4) Radioactivity Levels of Liquid and Gaseous Waste Released to Environment
( 5) Reactor Coolant System In-Service Inspection Records (Operations records only)
( 6) Flushing Procedures and Results (Operations records only)
( 7) Hydrostatic Pressure Test Procedures and Results (Operations records only)
( 8) Initial Plant Loading Data
( 9) Plant Load Ramp Change Data
(10) Plant Load Step Change Data
(11) Startup Logs
(12) Startup Problems and Resolutions