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JAN 28 1991

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of the Application of	)	Docket Nos. 50-390
Tennessee Valley Authority	)	

WATTS BAR NUCLEAR PLANT (WBN) - UNIT 1 - QUALITY ASSURANCE (QA) RECORDS ADDITIONAL REVIEW

TVA representatives met with NRC management on December 12, 1990, at the Region II office to discuss QA records at WBN. The purpose of this letter is to document the information presented at that meeting and to provide additional information regarding topics that arose during the discussions.

Under its QA Records Corrective Action Program (CAP), TVA has to date reviewed a sample of approximately 12,000 records. This sample, however, provided only limited coverage of the 209 American National Standards Institute (ANSI) record categories and plant element types. Accordingly, TVA management has recently directed the performance of an Additional Systematic Record Review (ASRR) to comprehensively cover applicable ANSI categories and plant element types. It is anticipated that this review will comprise a new sample of approximately 13,000 records. Enclosure 1 to this letter provides a description of the ASRR plan as proposed on December 12, 1990.

The use of a graded sampling approach based on nuclear safety was also discussed in the meeting. TVA has decided to adopt this approach. It involves allocating greater sampling efforts to items of greater safety significance. It also involves adjusting population acceptance criteria to reflect the significance of various types of records.

Until now the QA Records CAP has been primarily concerned with re[illegible]ds quality and availability issues. It addressed re[illegible]ords accuracy [illegible] connection with new records being generated in t[illegible] hardware) CAPs/Special Programs.

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In order to provide additional assurance that the total body of QA records accurately reflects the plant configuration, TVA will perform a comparison of installation records to the specific hardware component associated with it. The focus of this review will be the comparison of installed configuration, design drawings, and Quality Control inspection records. Each of the 20 plant element types used at WBN will be statistically sampled for record accuracy in these areas. The ASRR plan in Enclosure 1 has been modified to include this concept. This additional hardware review, combined with the other data, will provide TVA with further assurance in regard to all three aspects of records adequacy; namely, records "quality" (i.e., conformity with record keeping requirements, records "availability" (i.e., retrievability and storage), and records "accuracy" (i.e., reflecting the actual condition of plant hardware).

Enclosure 2 provides responses to the specific NRC comments and recommendations provided to TVA at the December 12, 1990 meeting.

The commitments in this letter are summarized in Enclosure 3.

Should there be any questions on this information, please telephone P. L. Pace at (615) 365-1824.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

Mark O. Medford

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Enclosures
cc: See page 3

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U.S. Nuclear Regulatory Commission

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ENCLOSURE 1

WATTS BAR NUCLEAR PLANT

ADDITIONAL SYSTEMATIC RECORD REVIEW

December 1990

ENCLOSURE 1

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ENCLOSURE 1

1. INTRODUCTION AND BACKGROUND

The purpose of this document is to describe the Additional Systematic Records Review (ASRR) which will provide additional confirmation of the adequacy of WBN QA Records. The information in this enclosure is provided to describe the actions TVA is taking to resolve TVA management and NRC concerns with the QA Records Corrective Action Program and to demonstrate improvements in standardizing the program for selecting, reviewing and evaluating records.

The QA Records CAP has 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).

- 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.

- 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.

Results

As a result of the evaluations of results of these reviews TVA is developing and implementing corrective actions to resolve the problems identified to date with QA records. 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

Because these 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., the records reviewed fell into a limited number of the 209 ANSI N45.2.9 record types. In light of this, TVA has decided to conduct an additional comprehensive systematic sampling of record quality which addresses the broad range of ANSI records in combination with the results of previous reviews. Prior to using the results of the previous reviews in the additional sampling and trending, the reviews will be validated as described in Section 2.b.(3).

Also, to provide additional assurance that the total body of QA records accumulated reflects the plant configuration, TVA has decided to perform an additional comprehensive sampling of record accuracy. It will compare inspection records to the specific hardware component associated with it.

2. RECORD REVIEW

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 209 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 structural basis for the systematic assessment of WBN during 1987-88, 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 209 ANSI record types will be reviewed except 10 types which are not yet required at WBN. Second, approximately 25 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. A listing of the 10 types not applicable and the 25 unique types is also provided in Appendix B.

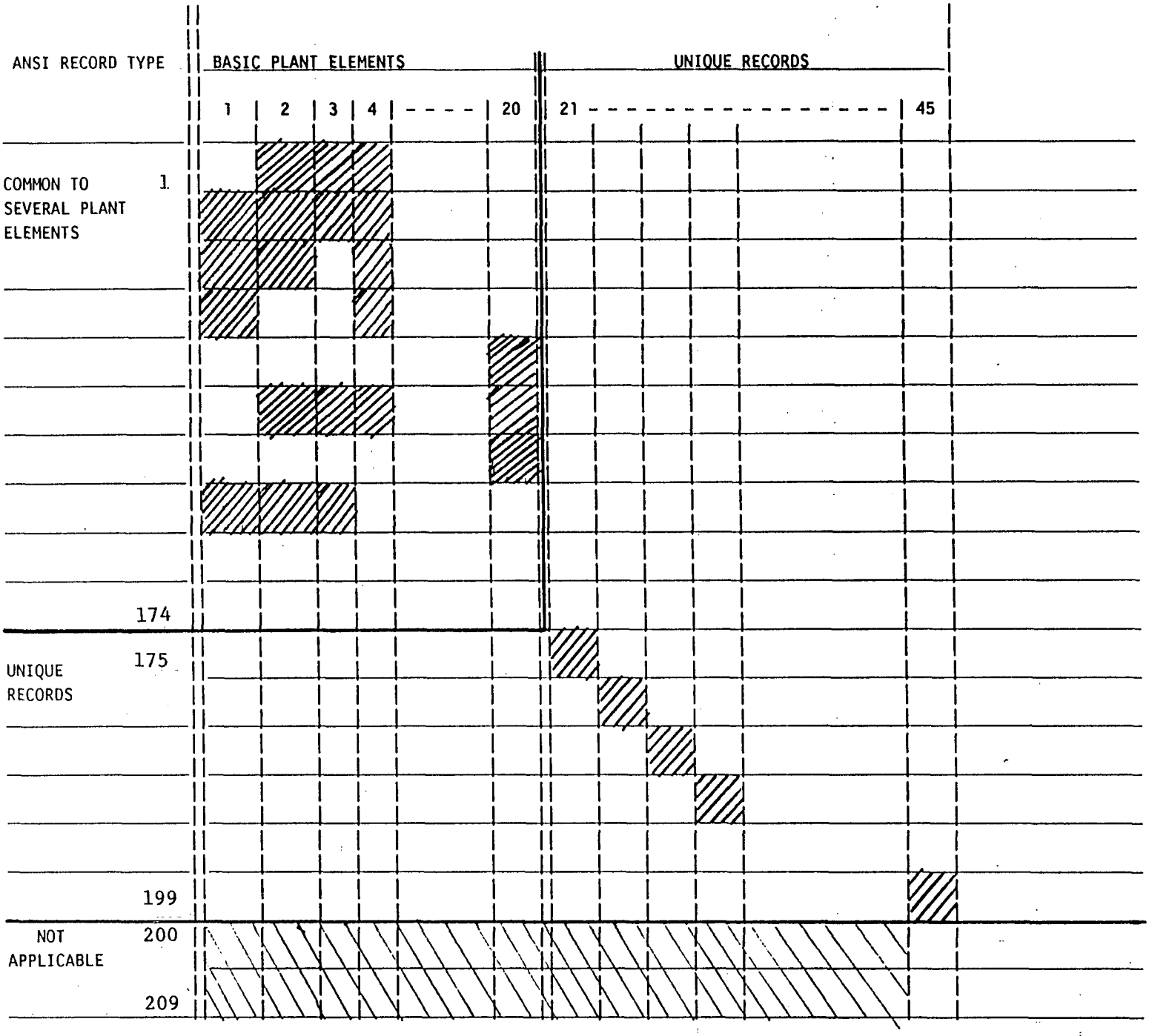
b. Considerations in Record Selection

(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 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 quality deficiencies by confirming that the record has been supplemented by records produced by the CAP/SP.

STRUCTURE OF RECORD SPACE



- Cross-hatched records required for element
- 20 elements have much record commonality
- 25 unique records not tied to elements
- 10 record types not yet required

Figure 1

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The Record Review will be performed with similar 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 will be the current configuration records and will be selected for the additional review. If the CAP/SP is not yet complete, the Record Review will select the most recent records which represent the current configuration. This process will result in evaluating some records for record quality when that record may be associated with technical inadequacy or record inaccuracy. Should a record quality deficiency be identified, it will be resolved by confirming when the CAP/SP work is completed, that is has supplemented the deficient record. As a result, the review will confirm the adequacy of work completed under CAPs/SPs and where deficiencies are identified will confirm the continued need for completion of CAPs/SPs.

(2) Currency of Records Reviewed

Another consideration is the age of records reviewed. The ASRR will evaluate 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 only would be necessary to review the 1990 record because it supersedes the previously issued record.

The approach or reviewing curent 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.

(3) Data From Previous Reviews

One consideration in sample selection is the extent to which previous review data will be utilized. In determining the record deficiency error rate, it is desirable to utilize all available information, including the results of previous reviews in the trend conclusions. However, it has not been determined that there is sufficient consistency in previous review methods to support their use in relation to current acceptance criteria. Therefore, the previous reviews will be validated as a prerequisite to their use in the additional sample and trending.

The previous record reviews identified above will be evaluated by Site Quality Assurance. A plan containing appropriate criteria will be used to evaluate how the previous review was performed relative to sampling methodology and acceptance criteria, documentation of methodology and results, and the qualification of reviewers. Based on the evaluation performed, a determination will be documented about the useability of the results of the previous reviews as part of the Record Review. Should data be deemed not valid for trending purposes, it will not be applied in the additional review. However, the deficiencies identified will be dispositioned in accordance with the Condition Adverse to Quality (CAQ) process and the dispositioning requirements of paragraph 5.

c. Sample Selection

Method

The method to be used for determining which specific items will be reviewed is as follows:

(1) Sixty required samples from each record type will be evenly distributed across the plant elements contributing to the ANSI record type.

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

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

(4) For each selected component, all TVA records will be reviewed except where the ANSI record type in question has already been sufficiently sampled.

Significance of Hardware

It is desireable 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 will be directed to ensure it includes more items which are primary safety related than quality related.

Significance of Record Types

It is also desireable to adjust population acceptance criteria based upon the significance of record types reviewed. Three categories of significance have been established: records required by NRC regulation, permanent records specified in ANSI N45.2.9-1974, and non-permanent records specified in ANSI N45.2.9-1974. The graded acceptance criteria are specified in Section 2e.

d. Sample Review Process

The sample review process will contain the following steps:

(1) Once the samples have been selected, the records supporting the current configurations will be retrieved.

(2) A checklist will be 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.

e. Population Acceptance Criteria

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

Record Category	Deficiency Type	Acceptance Criteria
Required by regulation	primary	< 3%
	secondary	< 5%
Permanent	primary	< 5%
	secondary	< 10%
Non-permanent	primary	< 10%
	secondary	< 15%

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, and a 95/15 could be satisfied by less than or equal to five deficiencies, in a sample of 60.

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 affecting multipage records will be evaluated on a page basis, in order to calculate the deficiency rate for determining record type acceptability.

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 reevaluation of the population acceptance criteria will be made.

3. HARDWARE REVIEW

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

Hardware Population Structure

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

Consideration in Hardware Selection

Considerations to be 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 will be reviewed to assure that the records adequately reflect the installed configuration.

This review will not be directed toward specific timeframes, but the plant elements will represent components/features which reflect all phases of construction installation.

Hardware Review Process

Inspections will be performed to the procedures/criteria in affect at the time of the latest installation. This inspection will verify those attributes that can be performed 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 performed and the results will be documented in accordance with the program.

For the hardware review, a primary hardware deficiency is one which is design significant.

A secondary hardware deficiency is one which the hardware does not match the design drawing/record but is not design significant.

Hardware Population Acceptance Criteria

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

(1) primary deficiencies <3%
(2) secondary deficiencies <10%

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

Individual design-significant hardware deficiencies related to identified record deficiencies will be subjected to a hardware extent of condition (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.

a. When the population acceptance criteria for Record or Hardware Reviews are exceeded, the extent of the condition will be bounded and resolved. Extent of condition (EOC) evaluations are performed to determine the bounds of unacceptable deficiencies 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.

b. Confirmatory sampling will be performed on the residual population (i.e., excluding the area bounded by the extent of condition evaluation). The purpose of the confirmatory sample will be to provide additional and sufficient confidence in the quality of the residual population.

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 extent of condition evaluation required and the process reiterated until the population is accepted.

d. It is desirable to use applicable information from previous record reviews, while avoiding an inappropriate bias of results. The use of previous review samples has the potential to produce a very uneven distribution of sample across the contributing plant elements.

Example:

- A sample of 6 records from each of 10 plant elements is required.

- Previous review provided 300 records from one of the 10 plant elements.

- Resultant sample distribution is 6 records from 9 elements plus 300 records from one element.

To ensure appropriate trend conclusions regarding the record type, the uneven data will be utilized through a weighted average technique. This will consider both the size of the populations contributing to the ANSI record type and the deficiency rate found in each element sampled.

TREND PROCESS

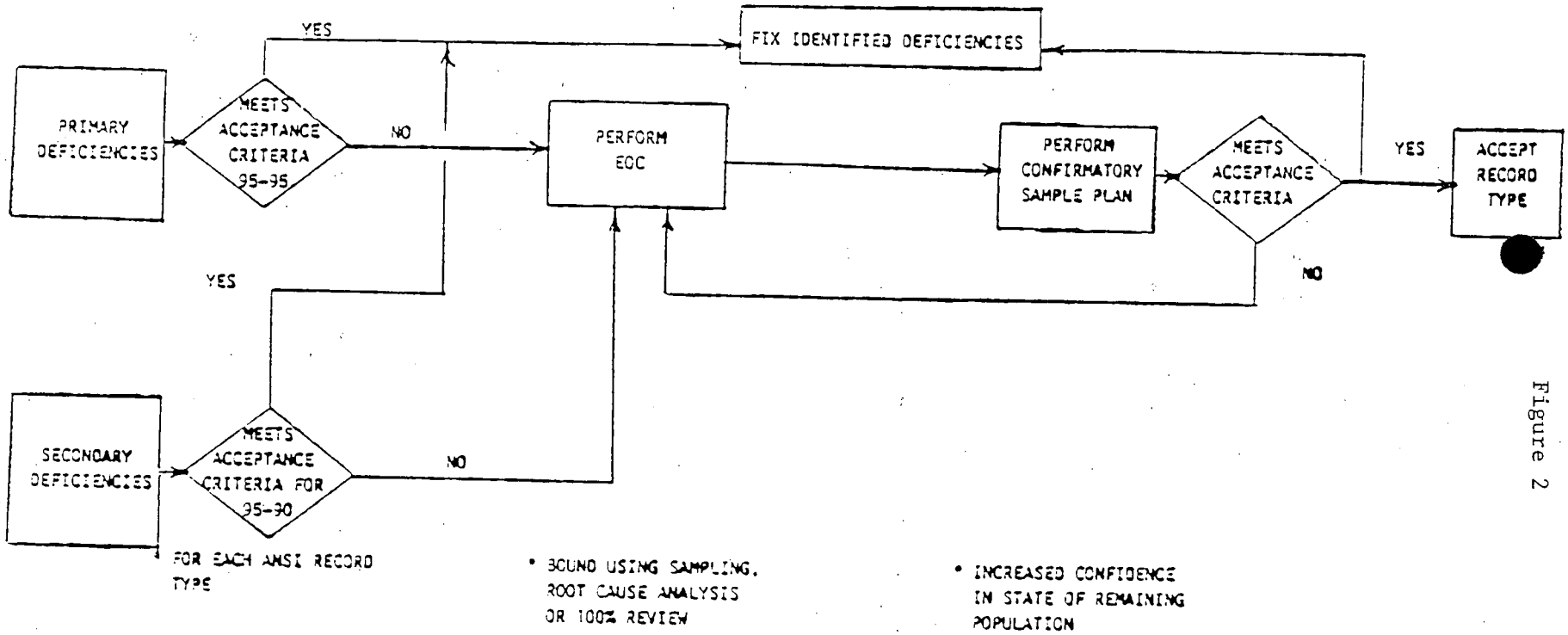

Figure 2

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5. DISPOSITION OF RECORD QUALITY DEFICIENCIES

Individual record quality deficiencies are identified by the Record Review, including extent of condition reviews for adverse trends. These deficiencies will be recorded in accordance with the WBN CAQ 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 reestablishing 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 reexamination 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 extent of condition review and appropriate corrective action will be performed.

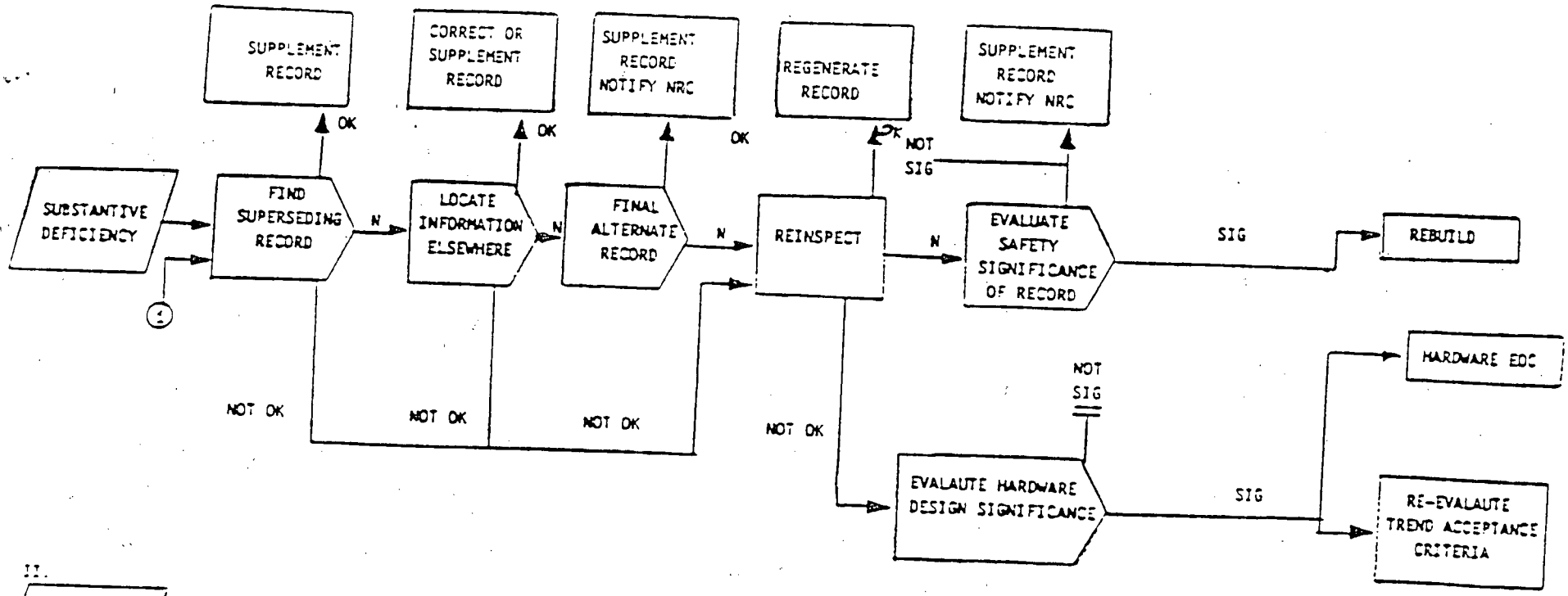
Product Records

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.

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 extent of condition evaluation. Deficiencies with closely associated records which relate to design significant hardware deficiencies require evaluation of extent of condition 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.

DISPOSITION RULES - PRODUCT RECORDS



II.

ADMINISTRATIVE DEFICIENCY

SAME AS I. EXCEPT:

- PREFERENTIALLY ORDER SAFETY SIGNIFICANCE BEFORE ALTERNATE RECORD OPTION
- SPECIAL NRC NOTIFICATION NOT REQUIRED

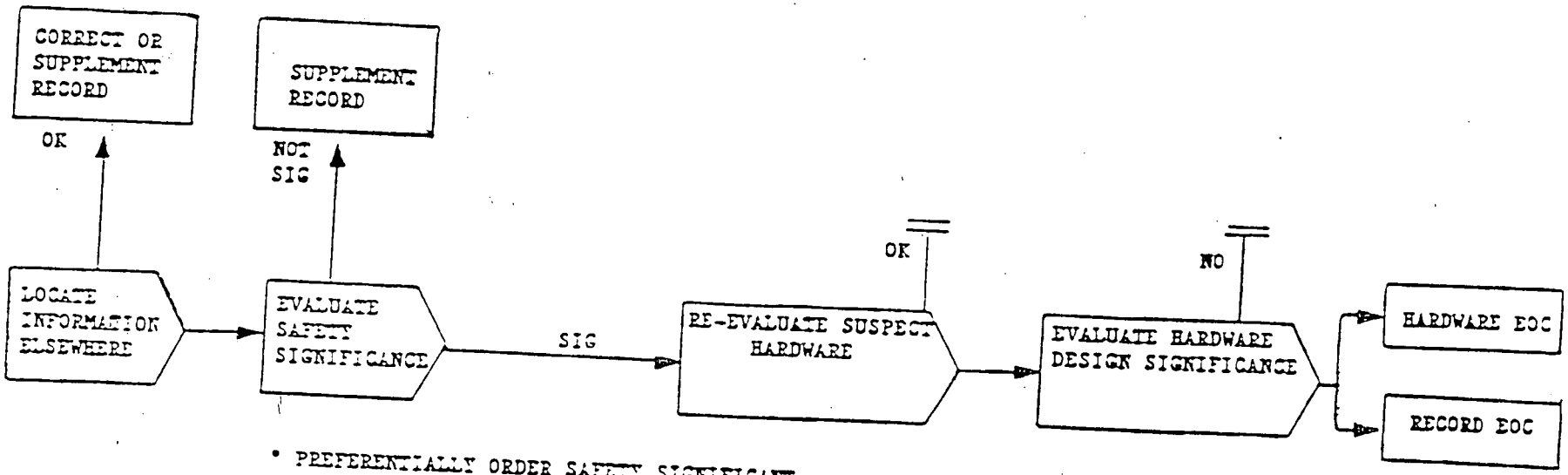
- IF DEFICIENCY REPRESENTS CHANGED RESULTS (e.g., WHITE-OUT, UNSIGNED CROSS-OUT OR UNSIGNED N/A) AND THERE IS ASSOCIATED HARDWARE QUALITY PROBLEM, THEN MUST ALSO EXAMINE POTENTIAL THAT INFORMATION WAS CONCEALED OR OTHERWISE FALSIFIED

Figure 3 Page 1

EXAMPLE DISPOSITIONS

DEFICIENCY CATEGORY	GENERAL DISPOSITION	GENERAL EXAMPLE
Missing record	Reinspect/Retest	Reinspect to current QC acceptance criteria which are demonstrated to be equivalent or better than original inspection requirements
Authenticity	Locate information and add	Locate inspector and inspection logs
Missing record	Superseding record exists	Test 25 A is missing but a subsequent reperformance Test 25 B 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 aggregate record
Referencing	Lesser safety significance	The procedure revision level in effect was not significantly different from the referenced incorrect revision
White-out	Lesser safety significance	Data other than results or authentication revised by white-out, then write over

DISPOSITION RULES, CLOSELY ASSOCIATED RECORDS (CAR)



- PREFERENTIALLY ORDER SAFETY SIGNIFICANT BEFORE LOCATE INFORMATION OPTION
- IF DEFICIENCY REPRESENTS CHANGED RESULTS (e.g., WHITE-OUT, UNSIGNED CROSS-OUT OR UNSIGNED N/AA) AND THERE IS ASSOCIATED HARDWARE QUALITY PROBLEM, THEN MUST ALSO EXAMINE POTENTIAL THAT INFORMATION WAS CONCEALED OR OTHERWISE FALSIFIED

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EXAMPLE DISPOSITIONS

DEFICIENCY CATEGORY	GENERAL DISPOSITION	GENERAL EXAMPLE
Existence	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.

5. DISPOSITION OF RECORD QUALITY DEFICIENCIES (continued)

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) in the QA Records CAP. 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.

Reinspection Criteria

In April 1990, during the NRC audit, TVA informally 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 re-inspection will be reperformed.

6. RECORDING RESOLUTION OF RECORD DEFICIENCIES

a. General

As a result of either ASRR 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 CAQ 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.

6. RECORDING RESOLUTION OF RECORD DEFICIENCIES (continued)

Figure 5 provides an explanation of 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.

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 will be developed for each CAP/SP which meets the following criteria:

- record retrievability, starting with design or installation data.
- records demonstrate qualification on an item by item basis.
- 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.

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 supplemented
Engineering Evaluation	No change	Supplement specifies justification and relates to deficient record	Identifies both deficient and supplement	Specifies justification

Figure 5

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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% of this error rate. Other records reviewed had a 1% primary deficiency rate.

APPENDIX B

PLANT ELEMENTS, UNIQUE RECORD TYPES AND RECORDS NOT YET UTILIZED AT WBN.

A. The following plant elements will be 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

B. The following 10 record types have not yet been utilized at WBN, and therefore, are excluded from the Records Review:

(1) Initial Plant Loading Data
(2) Plant Load Ramp Change Data
(3) Plant Load Step Change Data
(4) Offsite Environmental Monitoring Survey Records
(5) Radioactive Levels of Liquid and Gaseous Waste Released to Environment
(6) Transient or Operational Cycling Records for those Plant Components That Have Been Designed to Operate Safely for a Limited Number of Transients or Operational Cycles
(7) Reactor Coolant System In-Service Inspection Records
(8) Normal Nuclear Unit Operation, Including Power Levels and Periods of Operation at each Power Level
(9) Abnormal Occurrence Records
(10) Special Reactor Test or Experiment Records

C. The following 25 record types do not uniquely relate to the plant elements used for the Record Review:

(1) Automatic Emergency Power Source Transfer Procedures and Results
(2) Final Systems Adjustment Data
(3) Flushing Procedures and Results
(4) Hydrostatic Pressure Test Procedures and Results
(5) Initial Heatup, Hot Functional and Cooldown Procedures and Results
(6) Initial Reactor Criticality Test Procedures.
(7) Instrument AC Systems and Inverters Test Procedures and Reports
(8) Main and Auxiliary Power Transformer Test Procedures and Results
(9) Offsite Power Source Energizing Procedures and Test Reports
(10) Onsite Emergency Power Source Energizing Procedure and Test Reports
(11) Power Transmission Substation Test Procedures and Results
(12) Preoperational Test Procedures and Results
(13) Primary and Secondary Auxiliary Power Test Procedures and Results
(14) Reactor Protection System Test and Results
(15) Startup Logs
(16) Startup Problems and Resolutions
(17) Startup Test Procedures and Results
(18) Station Battery and DC Power Distribution Test Procedures and Reports
(19) System Lubricating Oil Flushing Procedures
(20) Water Chemistry Results
(21) Records and Drawing Changes Reflecting Plant design Modifications Made to Systems and Equipment Described in the Final Safety Analysis Report
(22) New Fuel Inventory
(23) Current Individual Plant Staff Member Qualification Experience, Training and Retraining Records
(24) Minutes of Meetings of the Plant Nuclear Safety Committee and Company Nuclear Review Board
(25) Principal Maintenance Activities, Including Inspection Repair, Substitution or Replacement of Principal Items of Equipment Pertaining to Nuclear Safety

ENCLOSURE 2

Response to specific NRC Comments and Recommendations from the December 12, 1990 meeting.

Comment 1

It will be extremely useful to have an interim report.

TVA Response

TVA will provide an interim report giving results of the initial sample of the first completed record type and the first completed plant element. Further, as requested in the NRC letter of October 30, 1990, TVA will provide a final report upon completion of the project.

Comment 2

Certain types of record deficiencies that may meet criteria will still be unsatisfactory. (e.g. a missing class 1 piping hydro) There appears to be a lack of safety significance in the 95/95 acceptance criteria. NRC will focus on cells or blocks for the same confidence levels.

TVA Response

TVA agrees with this concern and has modified the acceptance criteria based on safety significance. In particular no design significant hardware deficiencies or missing code required records would be considered acceptable. See sections 2e and 3 of Enclosure 1.

Comment 3

NRC will be interested in the vertical element confidence.

TVA Response

TVA has modified the sampling plan to include a review of hardware for conformances to construction installation QC inspection and design drawings for each plant element. This should provide adequate confidence in the element population. See section 3 of Enclosure 1.

Comment 4

There is confusion on the use of the old data, and how it might skew the data. Maybe the old data should not be used.

TVA Response

As described in Section 2 b (3) of Enclosure 1, only the previous review data which can be validated will be used in the final conclusions of the review.

Comment 5

NRC is interested in the 12,000 samples and would like to review the results.

TVA Response

Attachment A to Enclosure 1 provides the results of the previous reviews which are most likely to be validated.

Comment 6

In the submittal, TVA needs to discuss the significance of the results in a single cell (i.e. one hit in a critical area may be much worse than several hits in a lesser significant area.

TVA Response

A graded approach to the safety significance of the element and the significance of the record on the acceptance criteria have been added to the plan and are discussed in Sections 2 c and 2 e of Enclosure 1.

Comment 7

TVA may want to consider expanding the first sample size for each record type from 60 to 100 to increase confidence in the sample. This increased size may not need to continue as samples are expanded.

TVA Response

The sample size of 60 is based on industry accepted method for sampling large portions. Sample size will be adjusted as necessary to establish the required confidence in the population. Further, to maintain a valid statistical basis for this review, TVA does not plan to reduce the sample size below 60 for records of lesser significance.

ENCLOSURE 3

SUMMARY OF COMMITMENTS

1. TVA will conduct an additional review of ANSI N45.2.9 record types to obtain a high level of confidence that record problems are identified and dispositioned. This review will include a statistical review of record accuracy and will be biased by safety significance. Completion of this review will be required prior to notifying the NRC that the QA Records CAP is complete.

2. TVA will provide an interim report upon completion of the review of the first record type and the first plant element.