

ENCLOSURE 1

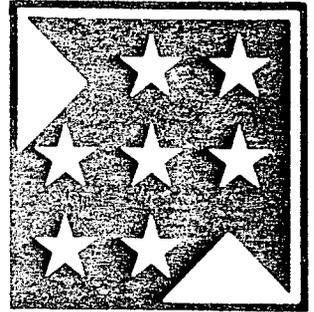
WATTS BAR NUCLEAR PLANT  
REPLACEMENT ITEMS PROGRAM (PIECE PARTS)

Corrective Action Program Plan

Revision 1

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TVA NUCLEAR

WATTS BAR NUCLEAR PLANT

REPLACEMENT ITEMS PROGRAM  
(PIECE PARTS)

CORRECTIVE ACTION PROGRAM PLAN

REVISION 1

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REPLACEMENT ITEMS PROGRAM  
(PIECE PARTS)  
CORRECTIVE ACTION PROGRAM PLAN

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REPLACEMENT ITEMS PROGRAM  
(PIECE PARTS)

CORRECTIVE ACTION PROGRAM PLAN

1.0 INTRODUCTION

The Replacement Items Program (RIP) Corrective Action Program (CAP) plan describes the program for resolving deficiencies involving the procurement of safety-related replacement items. These deficiencies were initially identified in TVA's Nuclear Safety Review Staff (NSRS) Reports R-84-17-NPS, I-83-13-NPS, and R-85-07-NPS. The NRC cited similar deficiencies at Sequoyah Nuclear Plant (SQN) and classified them as a Potential Enforcement Finding (50-327, 328/86-61-01) because of TVA's failure to take corrective action. The NRC also identified similar concerns with control of qualified replacement parts at Watts Bar Nuclear Plant (WBN) (Unresolved Item URI 391/86-21-04). The common issue of these deficiencies and concerns is that TVA's procurement activities could have allowed previously qualified equipment to be degraded by purchasing replacement components and parts as commercial-grade (see Exhibit A).

TVA's procurement procedures were previously deficient in that procurement of commercial-grade items for use in safety-related components did not provide for proper dedication (See Exhibit A) of the item's acceptability for safety-related service.

The root cause of the concern with replacement item qualification is that previous procedures did not adequately control engineering evaluation of replacement item purchases. Documents that illustrate specific or general cases of deficiencies that stem from this root cause and form a basis for this CAP are listed in Attachment 1.

The WBN RIP is modeled after the SQN RIP with adjustments made for lessons learned from that program.

Exhibit A provides a glossary of terms used in this CAP plan.

2.0 OBJECTIVE

The objective of the WBN RIP is to ensure that the procurement of commercial-grade items for use in basic component applications (i.e., safety-related applications; see Exhibit A) has not and will not degrade the ability of the host devices to perform their safety function. This program will adhere to current WBN licensing requirements.

3.0 SCOPE

The scope of RIP covers commercial-grade replacement item procurements for basic component applications and procurements of all replacement items for 10CFR50.49 components. RIP addresses this scope for current and future unit 1 procurements, items in inventory, and items installed in the plant.

#### 4.0 PROGRAM DESCRIPTION

The WBN RIP will evaluate the adequacy of current and future safety-related replacement part purchases and will dedicate commercial-grade items as needed. It will also evaluate the acceptability of previously procured safety-related replacement items currently installed in the plant or stored in inventory.

Four distinct work activities comprise this CAP. These activities address procurement requirements applied to safety-related replacement items in the following four areas:

- ° Current and future procurements
- ° Current warehouse inventory
- ° Plant-installed items via previous maintenance activities
- ° Plant-installed items via previous construction replacements

A flowchart of the major RIP activities is provided in Attachment 2. The procedures to control the activities have been developed except for the procedure for reviewing construction replacements. A fragnet is provided in Attachment 3.

If the evaluation does not verify the adequacy of a replacement part, the condition will be identified as a condition adverse to quality (CAQ) and appropriate corrective action will be taken.

#### 4.1 Program Activities

##### 4.1.1 Current and Future Procurement

The Contract Engineering Group (CEG) and associated procedures were established at WBN in December 1987 to ensure that current and future purchase of replacement parts will not degrade the safety function of the equipment into which they will be installed. The CEG is staffed from Nuclear Engineering (NE) and provides the technical and quality requirements for safety-related spare and replacement part procurements.

This includes the following activities:

- ° Provide technical and quality requirements in the procurement documents.
- ° Identify required testing and inspections.
- ° Perform the dedication of commercial-grade items.
- ° Perform the technical review of bids received.

- ° Perform the technical contract administration.
- ° Provide the technical disposition of items received which are identified as nonconforming.

An overview of the current replacement item procurement process, including the role of CEG, is shown in Exhibit B, WBN Parts Procurement Flow Chart.

#### 4.1.2 Evaluation of Inventory

Current warehouse inventory that could potentially be issued for use in unit 1 safety-related applications will be evaluated by NE including dedication as required. Items in this inventory that are classified for intended use as basic components and were procured as commercial-grade will be reviewed as a part of this CAP. A Quality Release Program (see Exhibit A) will be implemented to assure proper qualification prior to issue from inventory of parts for 10 CFR 50.49 component application and parts procured as commercial-grade for basic components. However, the program will allow procedurally controlled release of items with followup evaluation for special cases when individually authorized by senior plant management. The Quality Release Program will be administered by the site's Material and Procurement Services (MPS) group.

#### 4.1.3 Evaluation of Maintenance Installed Items

The RIP will review previous plant maintenance activities to verify that replacement items currently installed in unit 1 safety-related devices have not degraded the components' ability to perform their intended safety-related functions. The following areas (a total of approximately 75,000 documents) will be reviewed:

- ° Corrective Maintenance
- ° Preventive Maintenance
- ° Maintenance Performed During Surveillance Testing
- ° Maintenance Performed During Plant Modifications

The plant's Maintenance History Group (MHG) will review maintenance records associated with the above areas and perform a screening process to identify installed safety-related replacement items and their associated procurement documentation.

Replacement parts that have been installed in 10 CFR 50.49 devices will be evaluated. Also, QA Level II items recorded on the Conditional Release Log (see Exhibit A) will be evaluated. This log, which was established in February 1987, records QA Level II items that have been released from inventory after that time without being dedicated and identifies their specific application in the plant.

Additionally, a sampling evaluation of other installed replacement parts will be performed. The selection of sample items will be identified and the sampling evaluation implemented in accordance with Watts Bar Engineering Project (WBEP) procedure WBEP 3.15 (Reference 4). This sample selection will take into consideration the results of:

- The 10 CFR 50.49 installed item review.
- The Conditional Release Log evaluation.
- The procurement contracts reviewed during the inventory evaluation (since many of these contracts would have also provided parts which are currently installed).
- ◦ Experience from replacement part reviews of SQN and BFN.

Engineering evaluations will be performed to determine the acceptability of the sampled items as replacement parts in safety-related components. These evaluations will serve to complete the determination of the extent of the potential adverse condition for installed items.

Engineering evaluations of the installed safety-related replacement items under review will be performed in the following manner:

- Determination of the required safety function of the part.
- Verifying or obtaining the documentation needed to prove that the part will not degrade the safety function of the equipment and will meet licensing commitments. Seismic and environmental qualification acceptance criteria will be that specified in References 1 and 2, respectively. The procurement code of record for ASME Section III material is the Section III 1971 Edition through Summer 1973 Addenda. Other Editions and Addenda as identified in Reference 3 have been verified to comply with this code of record. For Section III components, the code of record is the code in effect at the time of the purchase order.

#### 4.1.4 Evaluation of Installed Construction Procurements

Nuclear Construction (NC) procurements provided replacement items for components prior to the time that responsibilities and control of completed systems was transferred from NC to the plant staff. These system transfers for unit 1 were largely made prior to 1983. The Construction Procurements Evaluation activity is an NE review of the NC procurements that may have been used to provide replacement items for unit 1 safety-related equipment.

This review of NC procurements will be performed by the Construction Procurements Review Group (CPRG) of RIP.

The CPRG will review the types and uses of construction procurements, the procedures that controlled those procurements in effect at the time, the testing performed subsequent to installation, the component replacements made for 10 CFR 50.49 compliance, and the identified CAQs written against NC procurements (Attachment 1). Based on this review, a specific scope of NC procurements will be identified for detailed evaluation. The engineering evaluations will be performed in a manner similar to that described in Section 4.1.3.

#### 4.2 Recurrence Control

Procedures have been established or revised to require and define NE activities to assure that appropriate technical and quality requirements are specified for current and future safety-related replacement part procurements. These activities are performed by the Contract Engineering Group (Section 4.1.1 and Exhibit B), a permanent group of engineering procurement personnel assigned to the WBN site. Formation of the CEG and procedural control of their work provides recurrence control for the identified root cause.

#### 4.3 Licensing Assessment

This CAP will assure that previously qualified equipment is not degraded by commercial-grade replacement part procurements. Any changes to licensing commitments will be proposed only when technically justified.

### 5.0 PROGRAM INTERFACES

RIP has production interfaces with the following other WBN special programs:

- ° Design Baseline and Verification Program (DBVP)

The Design Basis Document (DBD) of the DBVP provides design commitments and licensing and code requirements for use as input by RIP in determining a component's function and requirements.

- ° Q-List

The existing Q-List provides item identification and safety classification to RIP. Any deviations in the equipment identifiers or classifications that result from the updated Q-List will be corrected on the RIP evaluation records.

° Environmental Qualification (EQ)

RIP will evaluate previous replacement parts of components covered by the EQ program and will evaluate technical and quality assurance requirements for procurement of new replacement parts.

The WBN RIP also interfaces with the SQN and BFN RIP for sharing procurement requirements for common or similar items and for lessons learned in implementation of the programs.

## 6.0 PROGRAM IMPLEMENTATION

The RIP will be implemented by five distinct groups. These groups and their RIP responsibilities are as follows:

- ° Contract Engineering Group (CEG) - Ongoing procurement review.
- ° Maintenance History Group (MHG) - Identification of replacement parts installed during maintenance activities.
- ° Engineering Evaluation Group (EEG) - Evaluation of inventory items and replacement parts installed during maintenance activities.
- ° Construction Procurements Review Group (CPRG) - Review and evaluation of replacement parts previously procured by NC.
- ° Material and Procurement Services (MPS) - Administration of Conditional Release Log and Quality Release Program.

A site RIP manager provides coordination and specific program direction for the RIP activities of these five groups. The RIP manager of the NE central staff coordinates RIP activities with the other TVA nuclear facilities and provides general program direction.

TVA's Engineering Assurance (EA) organization provides oversight of RIP activities by performing technical audits and review of procedures. The site Quality Assurance (QA) organization reviews the program's output packages (i.e., previous procurements evaluations, new procurement documents, and dedication packages) to verify that appropriate quality assurance requirements are specified.

## 7.0 PROGRAM DOCUMENTATION

The work of the RIP implementing groups will be performed in accordance with approved project procedures and plant instructions. The technical and quality requirements provided by CEG will be documented by CEG output packages and dedication packages for commercial-grade items. The compilation of previous maintenance activities will be documented in a computer data base. The screening review of this maintenance history will be provided in a documentation package to the EEG.

The evaluation of installed replacement parts, the inventory review, and the construction procurements review will be documented in individual

item evaluation QA records for the items reviewed (including dedication documentation for QA Level II items reviewed). Task summary reports for these reviews and a final report will serve as program closure documents for RIP.

## 8.0 CONCLUSIONS

The WBN RIP will evaluate replacement items, both those currently installed and those installed during future activities, for assurance that the components' ability to perform their intended safety-related function is not degraded.

## 9.0 REFERENCES

1. TVA Design Criteria WB-DC-40.31.2, "Seismic Qualification of Category I Fluid System Components and Electrical or Mechanical Equipment."
2. TVA Design Criteria WB-DC-40-54, "Environmental Qualification to 10CFR50.49."
3. TVA General Construction Specification G-62, "Material Documentation and Acceptability Requirements for ASME Section III Applications."
4. Watts Bar Engineering Project Procedure WBEP 3.15, "Reverification/ Reinspection Sampling."

## EXHIBIT A

### GLOSSARY OF TERMS

Basic Component - As defined in 10CFR21, "'Basic component,' when applied to nuclear power reactors means a plant structure, system, component or part thereof necessary to assure (a) the integrity of the reactor coolant pressure boundary, (b) the capability to shut down the reactor and maintain it in a safe shutdown condition, or (c) the capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to those referred to in 100.11 of this chapter."

Commercial Grade Item - As defined in 10CFR21, "'Commercial grade item,' means an item that is (a) not subject to design or specification requirements that are unique to facilities or activities licensed pursuant to Parts 30, 40, 50, 60, 61, 70, 71, or 72 of this chapter and (b) used in applications other than facilities or activities licensed pursuant to Parts 30, 40, 50, 60, 61, 70, 71, or 72 of this chapter and (c) to be ordered from the manufacturer/supplier on the basis of specifications set forth in the manufacturer's published product description (for example a catalog)."

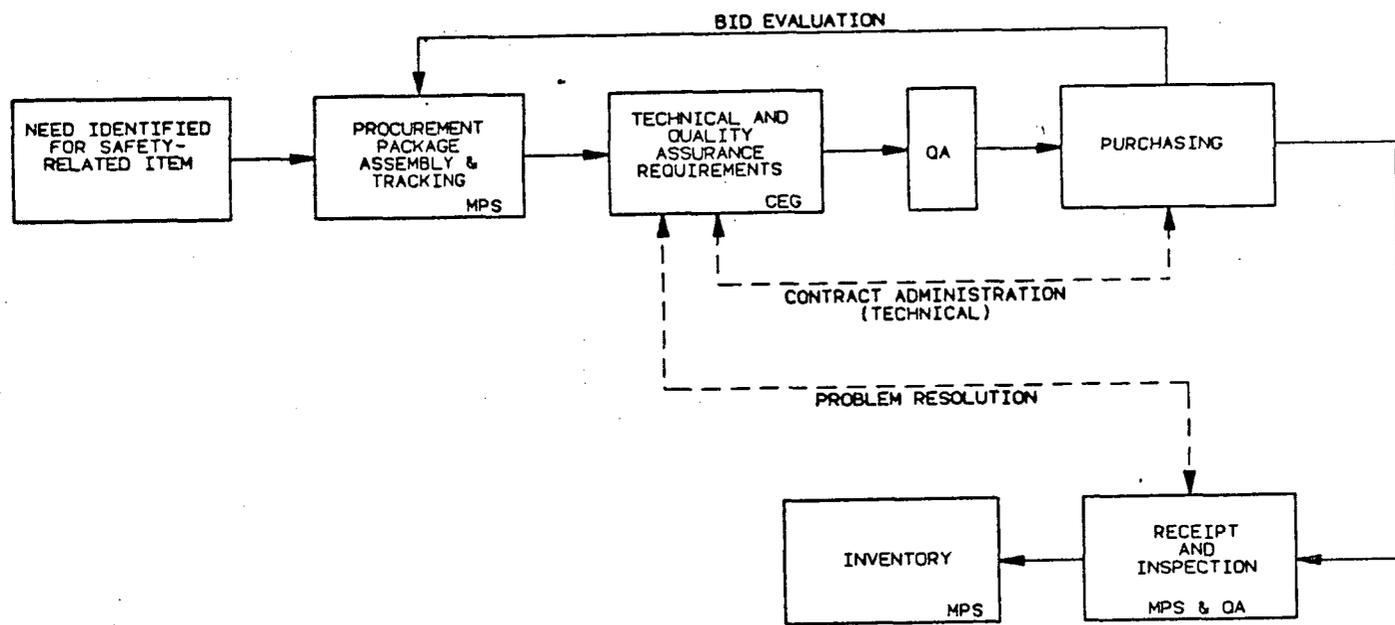
Conditional Release Log - A listing of all QA level II items which have been released from inventory without being dedicated since February 1987.

Dedication - As defined in 10CFR21, "'Dedication' of a commercial grade item occurs after receipt when that item is designated for use as a basic component." As used in this CAP, dedication includes qualification.

QA level II - A category defined to be those materials, components, and spare parts that are basic components and are also commercial grade.

Quality Release Program - A program established within MPS and governed by plant procedures to assure proper qualification prior to issue from inventory of parts for 10 CFR 50.49 component application and parts procured as commercial-grade for basic components. However, the program will allow procedurally controlled release of items with followup evaluation for special cases when individually authorized by senior plant management.

# WBN PARTS PROCUREMENT FLOWCHART



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EXHIBIT B

ATTACHMENT I

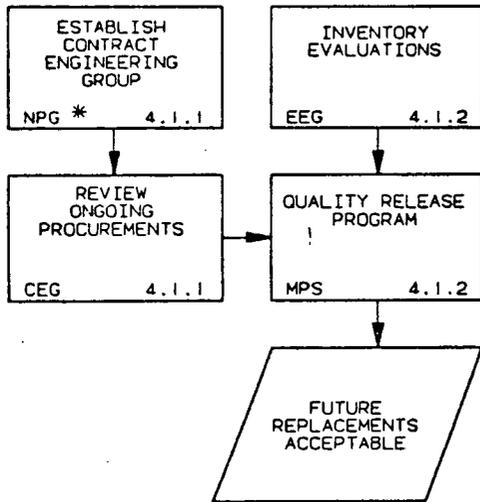
BASIS OF CAP

The following Watts Bar documents form a basis for this CAP and illustrate deficiencies that stem from the root cause of a lack of programmatic requirements for an engineering evaluation of replacement part procurements.

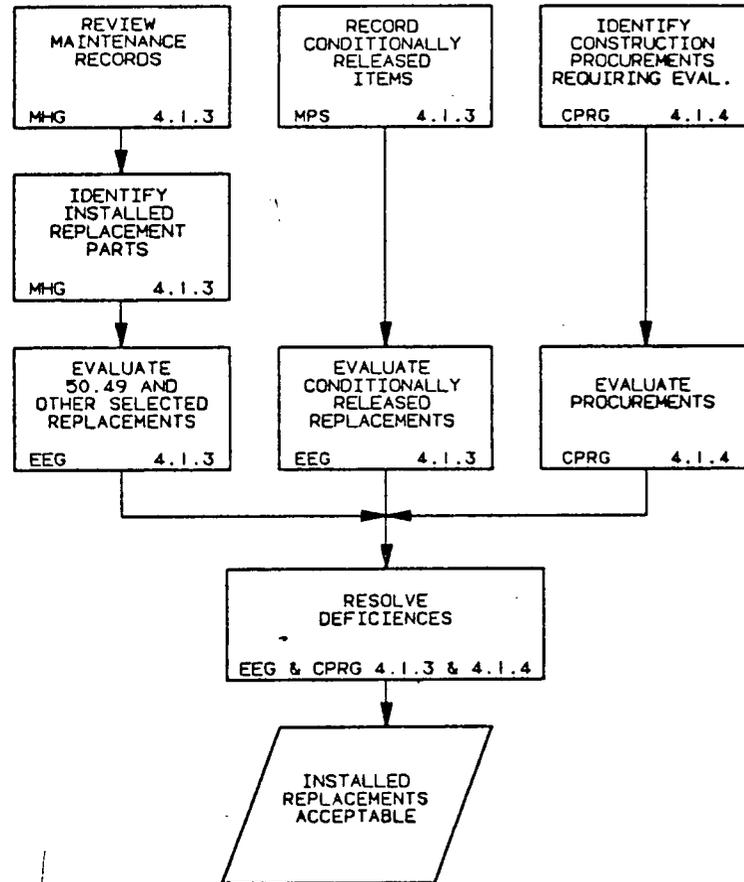
- CAQR WBP871258 - WBN lacked program for engineering evaluation of purchases and dedication of commercial-grade items for use as basic components.
- CAQR WBP870981 - Procurement of replacement parts by NC does not comply with requirements.
- CAQR WBF870069 - Some NC procurements were bought by part number only and lack technical and quality assurance requirements.
- CAQR CHS870105 - Upper-tier procedures allow possible alteration of environmental and seismic qualification without design organization review.
- CAQR WBE880302801- WBEP has not implemented a process to identify and verify critical characteristics for commercial-grade items for use as basic components.
- URI 391/86-21-04- NRC inspector unresolved item concerning control of qualified replacement parts.

# REPLACEMENT ITEMS PROGRAM FLOWCHART

## FUTURE REPLACEMENT ITEM ASSURANCE



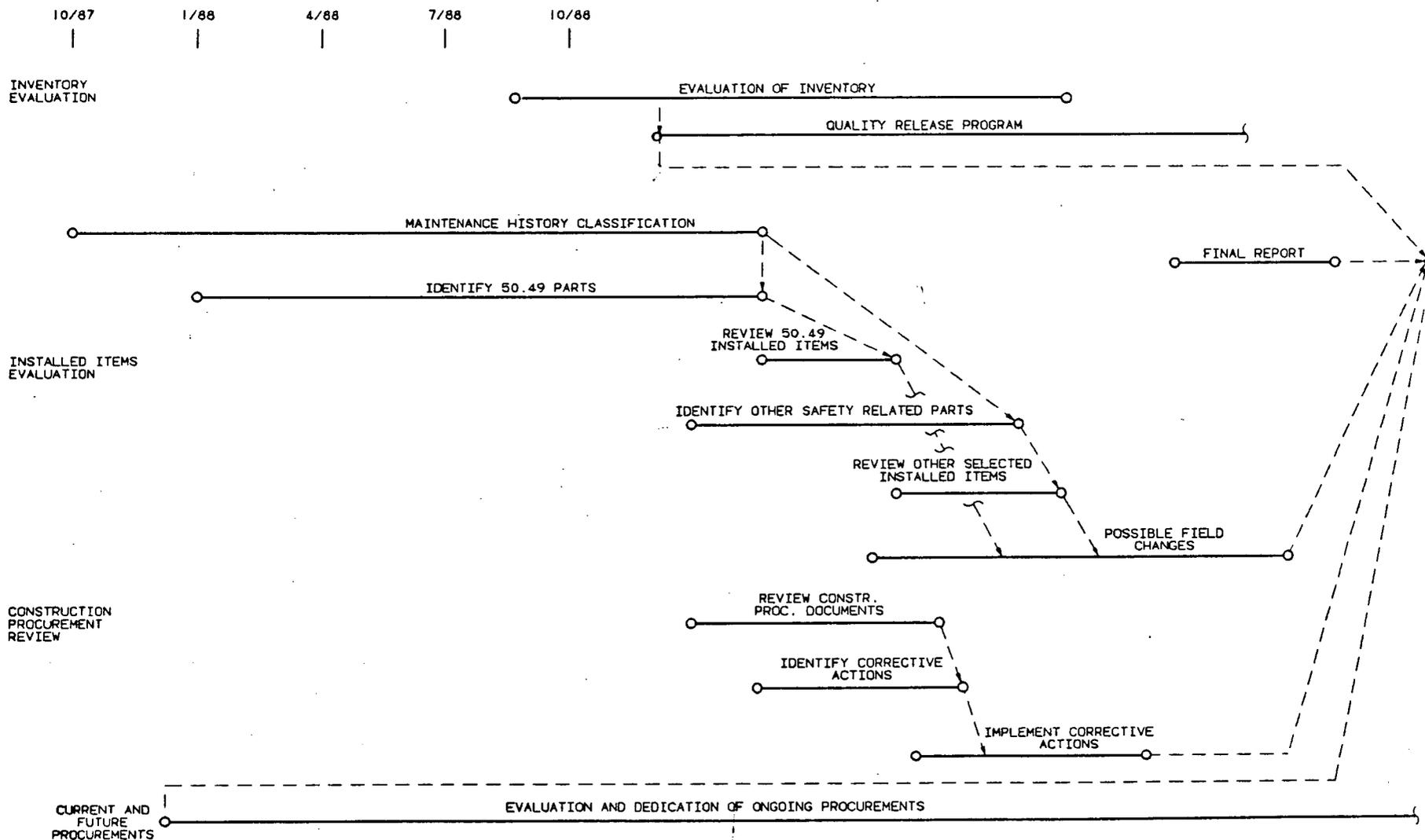
## INSTALLED REPLACEMENT ITEM REVIEW



\* NUCLEAR POWER GROUP

REPLACEMENT ITEMS PROGRAM FLOWCHART

# REPLACEMENT ITEMS PROGRAM FRAGNET



ENCLOSURE 2

For the Watts Bar Nuclear Plant, TVA commits to:

- ° Current warehouse inventory that could potentially be issued for use in unit 1 safety-related applications will be evaluated by NE, including dedication as required. Items in this inventory classified for intended use as basic components and procured as commercial grade will be reviewed.
- ° The RIP will review previous plant maintenance activities to verify that replacement items currently installed in safety-related devices have not degraded the components' ability to perform their intended safety-related functions.
- ° The Construction Procurements Evaluation activity is an NE review of the NC procurements that may have been used to provide replacement items for unit 1 safety-related equipment.