WATTS BAR NUCLEAR PLANT

REPLACEMENT ITEMS PROGRAM
(PIECE PARTS)

CORRECTIVE ACTION PROGRAM PLAN

REVISION 2

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Title: REPLACEMENT ITEMS PROGRAMS (PIECE PARTS) CORRECTIVE ACTION PROGRAM PLAN		REVISION LOG
Revision No.	Description of Revision	Date Approved
0	Original Issue.	12/01/88
1	Cover sheet resigned.	12/12/88
2	Revised method for evaluation of inventory and maintenance installed items (Sections 4.1.2 and 4.1.3). This included: (1) the addition of seismic sensitive devices, ASME parts, inventory Release Tracking Log, testing review, and commodity justifications and sampling, (2) the deletion of Conditional Release Log review and installed item sample, and (3) the temporary suspension of the Quality Release Program. These changes also reflected in Exhibit A and Attachments 2 and 3. TVA organizational changes reflected. Added clarification note to Exhibit B flowchart.	08/02/89

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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 10 CFR 50.49 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. Specifically, the inventory review of parts procured prior to CEG formation will be performed as follows:

- The parts lists of the Environmental Qualification (EQ) equipment binders will be correlated to the inventory and those parts in inventory for use in EQ applications will receive an engineering evaluation, which includes dedication as required.

- Seismically sensitive, electrically active, QA Level II (see Exhibit A) devices and QA Level II metallic ASME pump and valve parts will be identified and receive an engineering evaluation, which includes dedication as required.

- The remaining QA Level II inventory parts will be categorized for review on a commodity group basis. These commodity groups will be reviewed by one of two methods. The first method includes commodities which will be justified as acceptable on the basis of combinations of applicable validating characteristics, such as having been manufactured to industry standards, simplicity, no applicable NRC Notices or Bulletins, routine installation testing, and existing evaluations. Electrical terminal lugs is an example of a commodity which will use this method. The second method addresses those commodities not suitable for the preceding method (e.g., pneumatic valve operator parts). These commodities will be included in groups to be sampled as a means to evaluate their adequacy. The items selected for sampling will receive an engineering evaluation, which includes dedication as required. Reference 1 provides additional detail on these two review methods.

The engineering evaluations identified above will be performed in the following manner:

- Determination of the required safety function of the part.

- Verifying or obtaining the documentation needed to justify 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 2 and 3, 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 4 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.

A Quality Release Program (see Exhibit A) was 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, during the performance of the warehouse inventory evaluation, the Quality Release Program will be suspended and an Inventory Release Tracking Log (see Exhibit A) has been implemented as an interim control measure. This log will identify unreviewed parts and materials released for installation in safety-related applications and allow for their subsequent replacement should the inventory evaluation indicate unacceptability. The Inventory Release Tracking Log and the Quality Release Program will be administered by the site's Power Stores Unit (PSU).

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 85,000 documents) will be reviewed:

- Corrective maintenance
- Preventive maintenance
- Maintenance performed during surveillance testing
- Maintenance performed during plant modifications

The RIP's Maintenance History Group (MHG) will review maintenance records associated with the above areas, screen for 10 CFR 50.49 components, and identify any replacement items and the associated procurement documentation. Replacement parts that are installed in 10 CFR 50.49 devices will be evaluated and dedicated as required. The engineering evaluations will be performed in a manner similar to that described in Section 4.1.2.

A screening process of the above maintenance activities will also be used to identify the inventory release documents for replacement parts of safety-related components other than 10 CFR 50.49 equipment. The results of this screening will be used to determine whether parts identified as unacceptable in the inventory review are currently installed and, if so, identify their location. This action will allow replacement of these items as appropriate.

A review will be performed of seismically sensitive, electrically active QA Level II devices which have been installed through plant maintenance activities since 1983 (the time of initiation of TVA's material database). These devices will receive an engineering evaluation including dedication as required. Based on the results of this review, a determination will be made as to whether further review of seismically sensitive devices installed prior to 1983 is warranted.

Inspection and testing at the time of part replacement increases confidence that the installed part is correct in form, fit, and function for its application. Consequently, the plant's maintenance instructions will be reviewed to confirm that those instructions include appropriate installation inspection and/or testing following part replacements in safety-related components as required.

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 were 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 procurement process 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 4.1.2.

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 and review of maintenance instructions.

- 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.

- Power Stores Unit (PSU) - Administration of Quality Release Program and Inventory Release Tracking Log.

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

TVA's Quality Assurance (QA) organization provides oversight of RIP activities by performing technical audits and review of procedures. The QA organization also 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 procedures. 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 engineering evaluations performed for those individual parts reviewed from inventory or installed in the plant will be documented in item evaluation QA records (including dedication documentation for QA Level II items). Other reviews will be documented in QA record task summary reports. A final report will serve as the program closure document for RIP.

8.0 CONCLUSIONS

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

9.0 REFERENCES

1. Stone and Webster Engineering Corporation letter to TVA, WBSW-89-0366, dated July 12, 1989.

2. TVA Design Criteria WB-DC-40.31.2, "Seismic Qualification of Category I Fluid System Components and Electrical or Mechanical Equipment."

3. TVA Design Criteria WB-DC-40-54, "Environmental Qualification to 10CFR50.49."

4. TVA General Construction Specification G-62, "Material Documentation and Acceptability Requirements for ASME Section III Applications."

EXHIBIT A

GLOSSARY OF TERMS

Basic Component - As defined in 10 CFR 21, "'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."

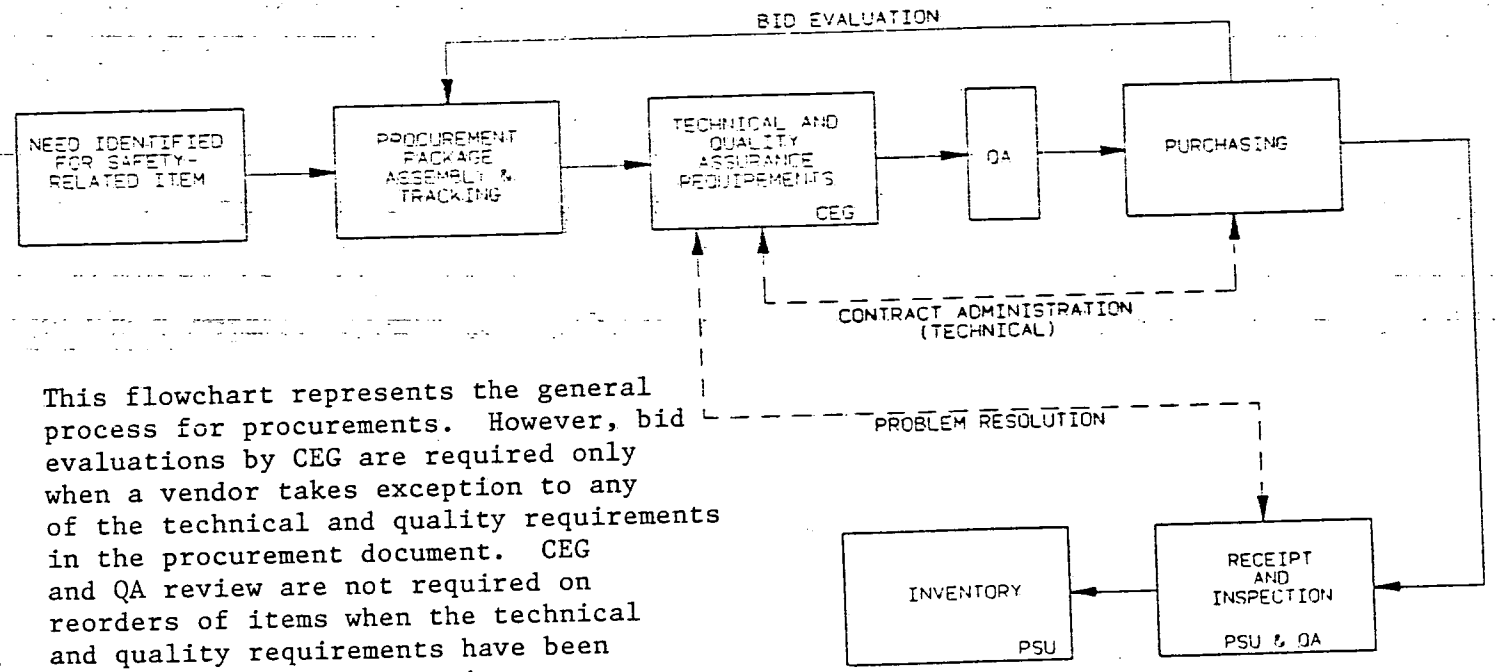
Commercial Grade Item - As defined in 10 CFR 21, "'Commercial grade item,' means an item that is (a) not subject to design or specification requirements that are unique to facilities or activities licensed pursuant to Parts 30, 40, 50, 60, 61, 70, 71, or 72 of this chapter and (b) used in applications 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)."

Dedication - As defined in 10 CFR 21, "'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 and Inventory Release Tracking Log - The Quality Release Program is a program established within PSU and governed by plant procedures (specifically, Site Director's Procedure AI-5.4) 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 follow-up evaluation for special cases when individually authorized by senior plant management. The Quality Release Program was in effect from January 23, 1989 until June 8, 1989. On June 8, 1989, the Inventory Release Tracking Log (also governed by Site Director's Procedure AI-5.4) was initiated and will be in effect during completion of the inventory review. This log will identify unreviewed parts and materials released for installation in safety-related applications and allow for their subsequent replacement should the inventory evaluation indicate unacceptability. At the completion of the inventory review the Quality Release Program will be reinstituted to assure that QA Level II items and all parts for 10 CFR 50.49 applications requested for release from inventory were either procured through CEG (see Section 4.1.1) or were found satisfactory during the inventory review.

WBN PARTS PROCUREMENT FLOWCHART



NOTE: This flowchart represents the general process for procurements. However, bid evaluations by CEG are required only when a vendor takes exception to any of the technical and quality requirements in the procurement document. CEG and QA review are not required on reorders of items when the technical and quality requirements have been provided by CEG on a previous procurement action. CEG and QA review is required whenever revisions to those technical and quality requirements are necessary.

EXHIBIT B

ATTACHMENT 1

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.

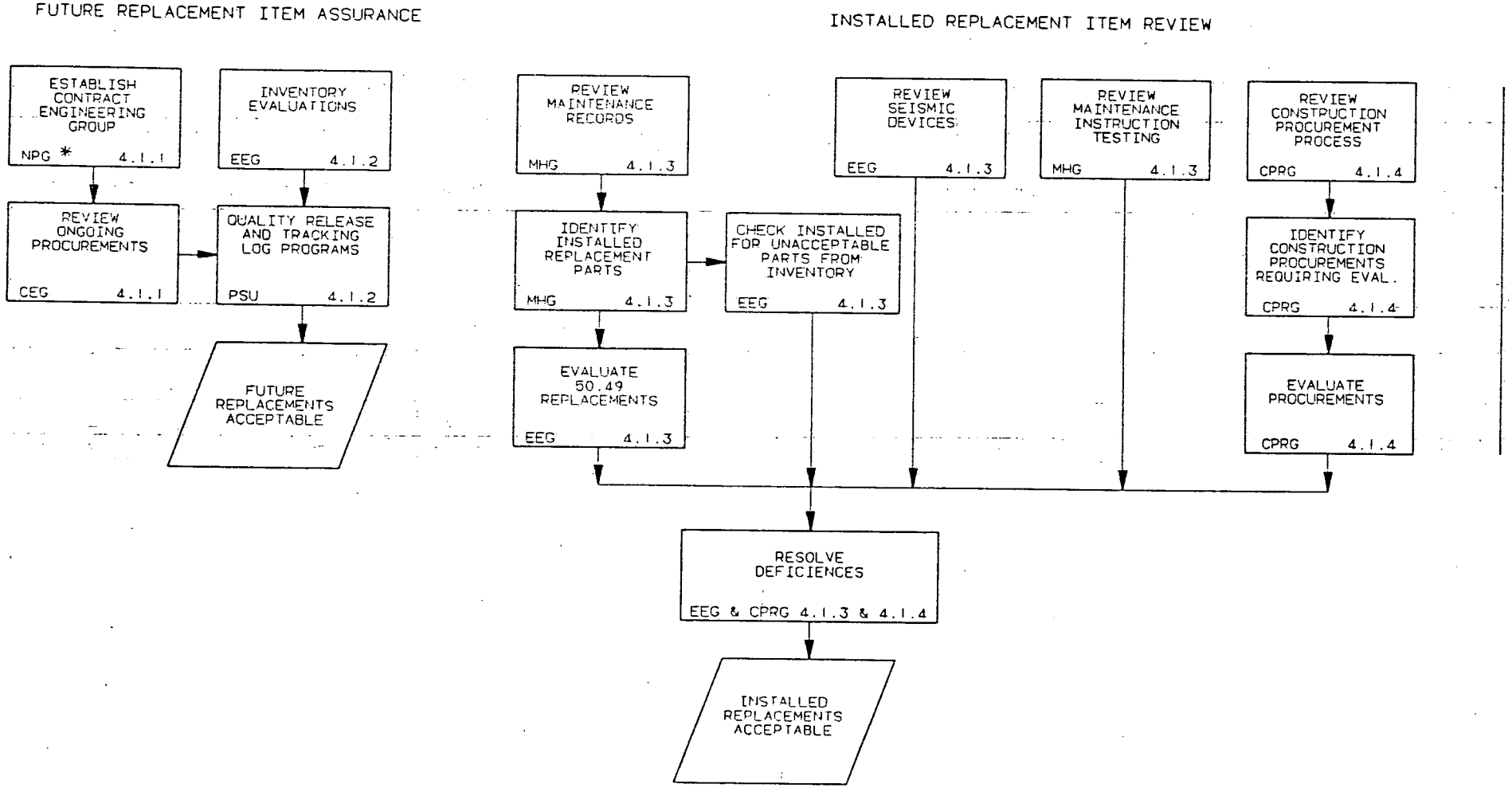
CAQR WBF870069 - Some NC procurements were made by part number only and lack technical and quality assurance requirements.

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.

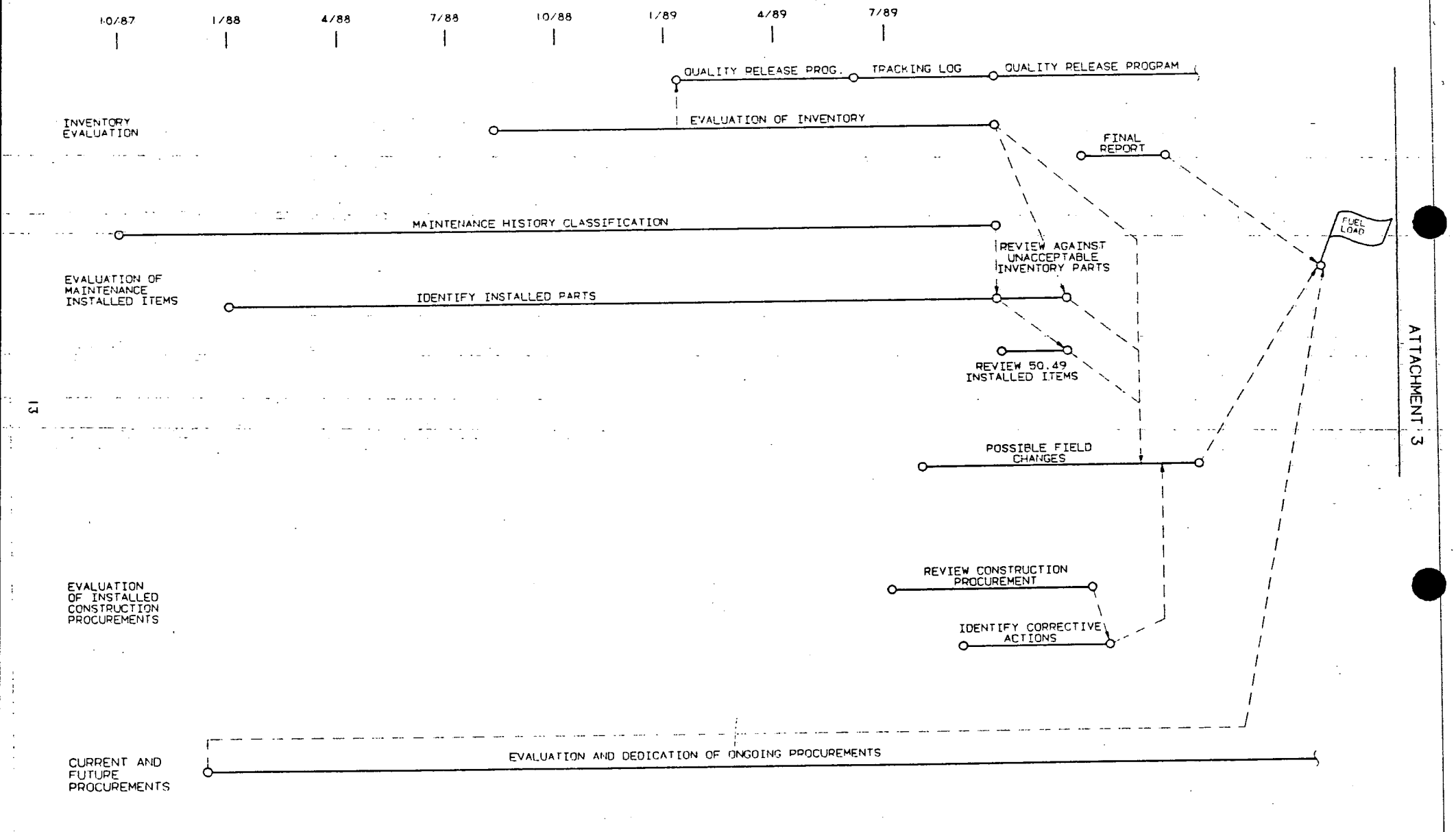
REPLACEMENT ITEMS PROGRAM FLOWCHART



* NUCLEAR POWER GROUP

ATTACHMENT 2

REPLACEMENT ITEMS PROGRAM FRAGNET



ATTACHMENT 3

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ENCLOSURE 2

LIST OF COMMITMENTS

1. Current warehouse inventory that could potentially be issued for use in Unit 1 safety-related applications will be evaluated by Nuclear Engineering (NE), including dedications as required. Items in this inventory classified for intended use as basic components and procured as commercial grade will be reviewed.

2. The replacement items program (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.

3. The construction procurement evaluation activity is an NE review of the Nuclear Construction (NC) procurements that may have been used to provide replacement items for Unit 1 safety-related equipment.

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