

**EMPLOYEE  
CONCERNS  
SPECIAL PROGRAM**

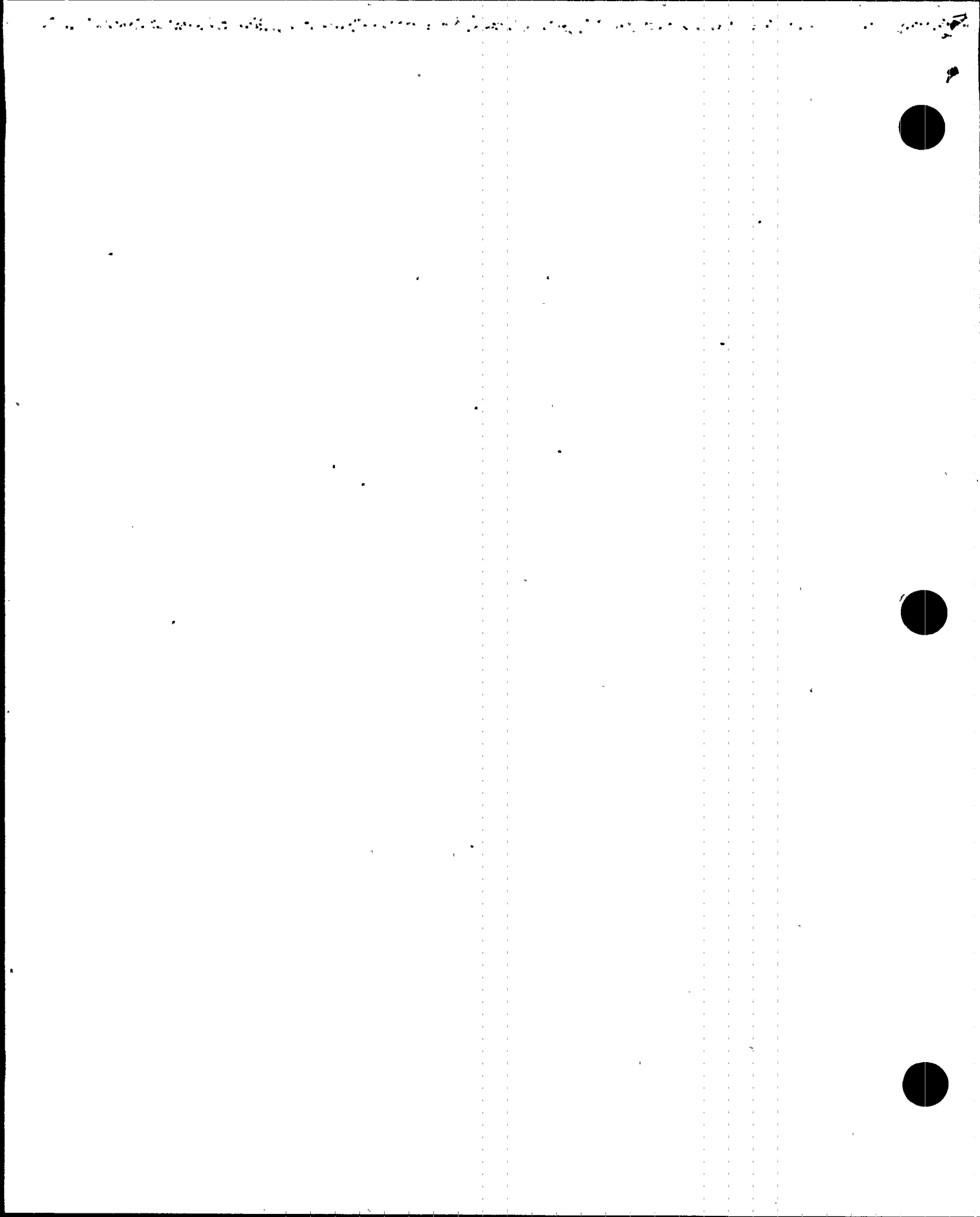
**VOLUME 2  
ENGINEERING CATEGORY**

**SUBCATEGORY REPORT 20900  
Q-LIST**

**UPDATED**

**TVA  
NUCLEAR POWER**

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TVA EMPLOYEE CONCERNS  
SPECIAL PROGRAM

REPORT NUMBER: 20900

REPORT TYPE: SUBCATEGORY REPORT FOR  
ENGINEERING

REVISION NUMBER: 5

TITLE: Q-LIST

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REASON FOR REVISION:

1. Revised to incorporate SRP and TAS comments as well as to incorporate corrective actions for BFN and BLN.
2. Revised to incorporate SRP and TAS comments and to add Attachment C (References).
3. Revised to incorporate SRP Comments.
4. Revised to incorporate SRP and TAS comments.
5. Revised to incorporate SRP and TAS comments.

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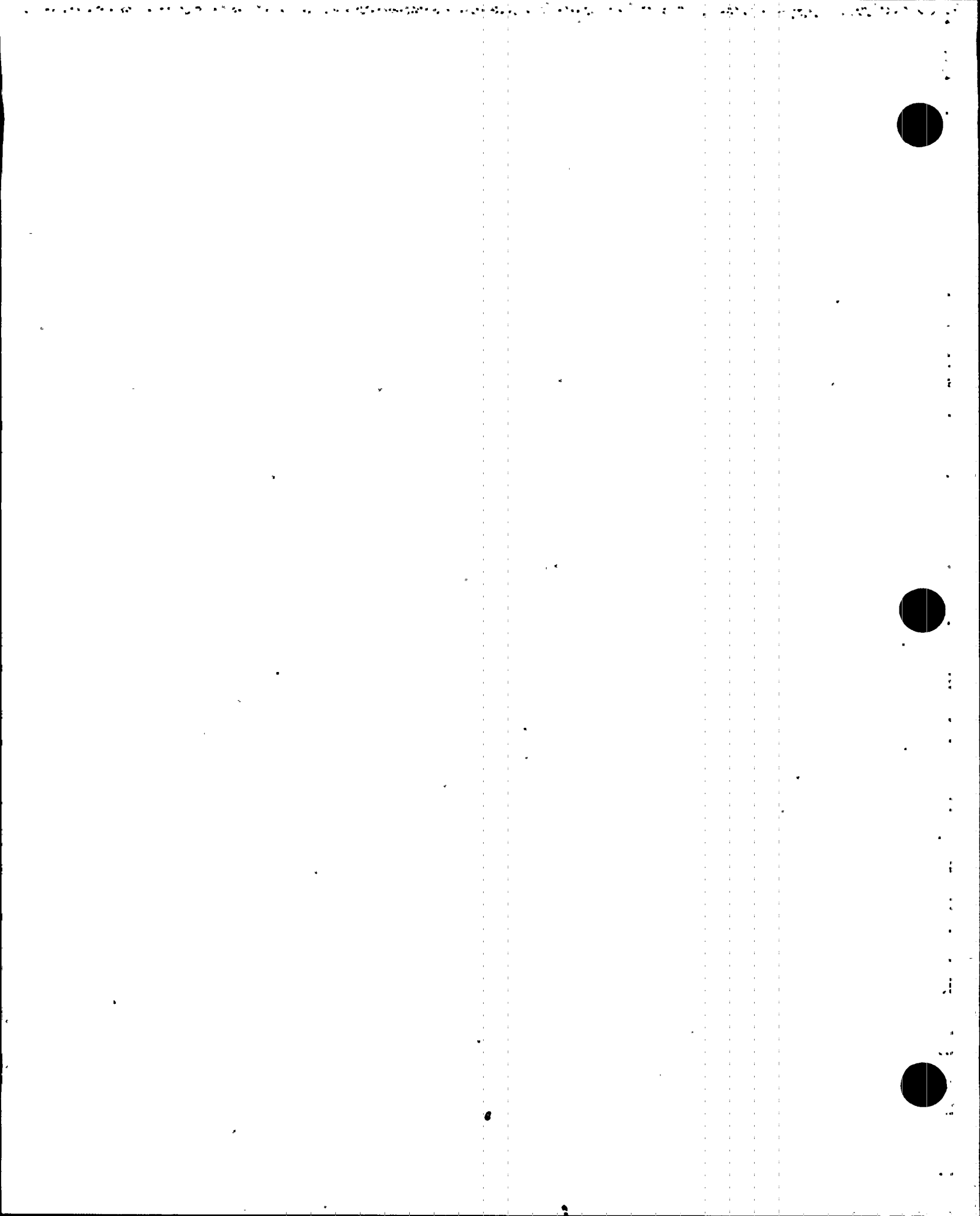
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EXECUTIVE SUMMARY

This subcategory report considers employee concerns regarding Q-Lists. It addresses the accuracy of the Q-Lists, the effects of using inaccurate Q-Lists, the use of more than one list, and Engineering input to the Q-List.

"Q-List" is a generic term used by the nuclear power industry to describe a listing of the plant structures, systems, and components that are to be covered by the Quality Assurance (QA) program requirements of 10 CFR 50, Appendix B. There is wide variation in the format and detail of the Q-Lists in existence within the nuclear power industry. Q-Lists range from summary lists containing only systems and components, to extensive lists with subcomponent identification and detailed data. TVA has generally referred to the list as a critical structures, systems, and components (CSSC) list for operations activities.

The accuracy of the Q-List/CSSC List was found to be questionable at the Watts Bar (WBN) and Sequoyah (SQN) nuclear plant sites. At Watts Bar, the TVA QA organization and the Nuclear Safety Review Staff (NSRS) investigated and found significant discrepancies in the Q-Lists, which were reported to the NRC. Previously committed corrective actions which were overdue had not been completed. At Sequoyah, a scheduled biennial review had not been performed and known CSSC Review Committee action items had been repeatedly deferred. At Browns Ferry (BFN), while no specific problems were noted by the evaluation team, the CSSC List had not recently been reviewed for accuracy or completeness. At Bellefonte (BLN), the Q-list was found to be accurate and complete, and it appears to be adequately controlled by engineering procedures.

Various Q-Lists existed independently and concurrently for a time at WBN and BFN. However, the use of multiple lists was limited in time and extent, and was determined not to represent a significant problem. TVA has committed to correct the list at WBN, create a new list at BFN, and cancel the redundant lists at both plants.

The concerns that the engineering design group was not providing input to changes to the Q-Lists were found not to be valid for any of the plants.

The cause of the negative findings in this subcategory is a lack of clearly defined interorganizational responsibility and authority for directing the development and implementation of the Q-Lists. TVA's QA organization identified Q-List/CSSC List problems at WBN and caused the initiation of corrective action. QA did not identify the findings noted in this report for SQN, BFN, and BLN. The negative findings applied to more than one plant and more than one organization. Specific actions to correct the negative findings have been initiated at the element level in response to element level CATDs.

A review of TVA's Nuclear Performance Plans (NPPs) by the evaluation team revealed that TVA recognized in the Watts Bar NPP a problem of deficient, incomplete, and multiple Q-Lists, and was taking steps to correct the

problem. The SQN, the BFN, and Corporate NPPs contain no discussion or specific commitment relative to accuracy or use of a Q-List or CSSC list. BLN has no plant-specific NPP and is covered by the Corporate NPP. The evaluation team believes, however, that the commitments in the Corporate NPP to consolidate a TVA nuclear infrastructure and to develop standard procedures to control interfaces with support organizations, coupled with the corrective actions to which TVA has committed at the element level, should eliminate future problems regarding accuracy of the Q-List for each plant.

The Nuclear Quality Assurance Manual (NQAM), commits the Division of Nuclear Engineering (DNE) to develop and maintain a Q-list for each nuclear plant. The NQAM, which is the governing upper-tier document, requires implementation of the WBN and BLN Q-Lists before receipt of an operating license for the first unit. It also requires the SQN and BFN Q-Lists to be implemented at a date mutually agreed to by DNE and the Nuclear Site Director (NSD). For BFN, the time frame has been established in the corrective action plan (CAP). For SQN the time frame has not yet been established.

TVA has prepared corrective action plans for WBN, BFN, and BLN, which, when properly implemented, should resolve the negative findings noted in this report.

The SQN corrective action plan provided justification that the biennial review of the Sequoyah CSSC List for accuracy and completeness, which was scheduled for June 1987, is not necessary prior to restart. The NRC concluded after a recent inspection at SQN that the SQN CSSC List and its utilization process appeared to be working and were adequate for the short term (unit 2 restart). The NRC recommended that the SQN Q-List be developed and implemented in an expeditious manner (Ref. 120). In addition, a joint Division of Nuclear Quality Assurance/Engineering Assurance (DNQA/EA) audit at SQN resulted in a recommendation that Engineering and Operations commit to the expeditious development and publication of a controlled SQN Q-List (Ref. 119). TVA has committed to submit a Q-List implementation plan for SQN to the NRC by March 1, 1988 (Ref. 121). This commitment is being tracked to completion by TVA as part of the Corporate Commitment Tracking System (CCTS), as will the Q-List implementation plan, when it is provided to the NRC.

The significance of the negative findings is that the impact of any omissions from the Q-Lists (or equivalent documents) cannot be determined until the evaluations of Q-list accuracy have been completed. Thus, there is some potential for future physical plant changes.

The causes, significance, and other evaluation results are being reexamined from a wider perspective in the Engineering Category Report.

### Preface

This subcategory report is one of a series of reports prepared for the Employee Concerns Special Program (ECSP) of the Tennessee Valley Authority (TVA). The ECSP and the organization which carried out the program, the Employee Concerns Task Group (ECTG), were established by TVA's Manager of Nuclear Power to evaluate and report on those Office of Nuclear Power (ONP) employee concerns filed before February 1, 1986. Concerns filed after that date are handled by the ongoing ONP Employee Concerns Program (ECP).

The ECSP addressed over 5800 employee concerns. Each of the concerns was a formal, written description of a circumstance or circumstances that an employee thought was unsafe, unjust, inefficient, or inappropriate. The mission of the Employee Concerns Special Program was to thoroughly investigate all issues presented in the concerns and to report the results of those investigations in a form accessible to ONP employees, the NRC, and the general public. The results of these investigations are communicated by four levels of ECSP reports: element, subcategory, category, and final.

Element reports, the lowest reporting level, will be published only for those concerns directly affecting the restart of Sequoyah Nuclear Plant's reactor unit 2. An element consists of one or more closely related issues. An issue is a potential problem identified by ECTG during the evaluation process as having been raised in one or more concerns. For efficient handling, what appeared to be similar concerns were grouped into elements early in the program, but issue definitions emerged from the evaluation process itself. Consequently, some elements did include only one issue, but often the ECTG evaluation found more than one issue per element.

Subcategory reports summarize the evaluation of a number of elements. However, the subcategory report does more than collect element level evaluations. The subcategory level overview of element findings leads to an integration of information that cannot take place at the element level. This integration of information reveals the extent to which problems overlap more than one element and will therefore require corrective action for underlying causes not fully apparent at the element level.

To make the subcategory reports easier to understand, three items have been placed at the front of each report: a preface, a glossary of the terminology unique to ECSP reports, and a list of acronyms.

Additionally, at the end of each subcategory report will be a Subcategory Summary Table that includes the concern numbers; identifies other subcategories that share a concern; designates nuclear safety-related, safety significant, or non-safety related concerns; designates generic applicability; and briefly states each concern.

Either the Subcategory Summary Table or another attachment or a combination of the two will enable the reader to find the report section or sections in which the issue raised by the concern is evaluated.

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The subcategories are themselves summarized in a series of eight category reports. Each category report reviews the major findings and collective significance of the subcategory reports in one of the following areas:

- management and personnel relations
- industrial safety
- construction
- material control
- operations
- quality assurance/quality control
- welding
- engineering

A separate report on employee concerns dealing with specific contentions of intimidation, harassment, and wrongdoing will be released by the TVA Office of the Inspector General.

Just as the subcategory reports integrate the information collected at the element level, the category reports integrate the information assembled in all the subcategory reports within the category, addressing particularly the underlying causes of those problems that run across more than one subcategory.

A final report will integrate and assess the information collected by all of the lower level reports prepared for the ECSP, including the Inspector General's report.

For more detail on the methods by which ECTG employee concerns were evaluated and reported, consult the Tennessee Valley Authority Employee Concerns Task Group Program Manual. The Manual spells out the program's objectives, scope, organization, and responsibilities. It also specifies the procedures that were followed in the investigation, reporting, and closeout of the issues raised by employee concerns.



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ECSP GLOSSARY OF REPORT TERMS\*

classification of evaluated issues the evaluation of an issue leads to one of the following determinations:

Class A: Issue cannot be verified as factual

Class B: Issue is factually accurate, but what is described is not a problem (i.e., not a condition requiring corrective action)

Class C: Issue is factual and identifies a problem, but corrective action for the problem was initiated before the evaluation of the issue was undertaken

Class D: Issue is factual and presents a problem for which corrective action has been, or is being, taken as a result of an evaluation

Class E: A problem, requiring corrective action, which was not identified by an employee concern, but was revealed during the ECTG evaluation of an issue raised by an employee concern.

collective significance an analysis which determines the importance and consequences of the findings in a particular ECSP report by putting those findings in the proper perspective.

concern (see "employee concern")

corrective action steps taken to fix specific deficiencies or discrepancies revealed by a negative finding and, when necessary, to correct causes in order to prevent recurrence.

criterion (plural: criteria) a basis for defining a performance, behavior, or quality which ONP imposes on itself (see also "requirement").

element or element report an optional level of ECSP report, below the subcategory level, that deals with one or more issues.

employee concern a formal, written description of a circumstance or circumstances that an employee thinks unsafe, unjust, inefficient or inappropriate; usually documented on a K-form or a form equivalent to the K-form.

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evaluator(s) the individual(s) assigned the responsibility to assess a specific grouping of employee concerns.

findings includes both statements of fact and the judgments made about those facts during the evaluation process; negative findings require corrective action.

issue a potential problem, as interpreted by the ECTG during the evaluation process, raised in one or more concerns.

K-form (see "employee concern")

requirement a standard of performance, behavior, or quality on which an evaluation judgment or decision may be based.

root cause the underlying reason for a problem.

\*Terms essential to the program but which require detailed definition have been defined in the ECTG Procedure Manual (e.g., generic, specific, nuclear safety-related, unreviewed safety-significant question).

Acronyms

AI	Administrative Instruction
AISC	American Institute of Steel Construction
ALARA	As Low As Reasonably Achievable
ANS	American Nuclear Society
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
BFN	Browns Ferry Nuclear Plant
BLN	Bellefonte Nuclear Plant
CAQ	Condition Adverse to Quality
CAR	Corrective Action Report
CATD	Corrective Action Tracking Document
CCTS	Corporate Commitment Tracking System
CEG-H	Category Evaluation Group Head
CFR	Code of Federal Regulations
CI	Concerned Individual
CMTR	Certified Material Test Report
COC	Certificate of Conformance/Compliance
DCR	Design Change Request
DNC	Division of Nuclear Construction (see also NU CON)

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DNE	Division of Nuclear Engineering
DNQA	Division of Nuclear Quality Assurance
DNT	Division of Nuclear Training
DOE	Department of Energy
DPO	Division Personnel Officer
DR	Discrepancy Report or Deviation Report
ECN	Engineering Change Notice
ECP	Employee Concerns Program
ECP-SR	Employee Concerns Program-Site Representative
ECSP	Employee Concerns Special Program
ECTG	Employee Concerns Task Group
EEOC	Equal Employment Opportunity Commission
EQ	Environmental Qualification
EMRT	Emergency Medical Response Team
EN DES.	Engineering Design
ERT	Employee Response Team or Emergency Response Team
FCR	Field Change Request
FSAR	Final Safety Analysis Report
FY	Fiscal Year
GET	General Employee Training
HCI	Hazard Control Instruction
HVAC	Heating, Ventilating, Air Conditioning
II	Installation Instruction
INPO	Institute of Nuclear Power Operations
IRN	Inspection Rejection Notice

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L/R	Labor Relations Staff
M&AI	Modifications and Additions Instruction
MI	Maintenance Instruction
MSPB	Merit Systems Protection Board
MT	Magnetic Particle Testing
NCR	Nonconforming Condition Report
NDE	Nondestructive Examination
NPP	Nuclear Performance Plan
NPS	Non-plant Specific or Nuclear Procedures System
NQAM	Nuclear Quality Assurance Manual
NRC	Nuclear Regulatory Commission
NSB	Nuclear Services Branch
NSRS	Nuclear Safety Review Staff
NU CON	Division of Nuclear Construction (obsolete abbreviation, see DNC)
NUMARC	Nuclear Utility Management and Resources Committee
OSHA	Occupational Safety and Health Administration (or Act)
ONP	Office of Nuclear Power
OWCP	Office of Workers Compensation Program
PHR	Personal History Record
PT	Liquid Penetrant Testing
QA	Quality Assurance
QAP	Quality Assurance Procedures
QC	Quality Control
QCI	Quality Control Instruction

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QCP	Quality Control Procedure
QTC	Quality Technology Company
RIF	Reduction in Force
RT	Radiographic Testing
SQN	Sequoyah Nuclear Plant
SI	Surveillance Instruction
SOP	Standard Operating Procedure
SRP	Senior Review Panel
SWEC	Stone and Webster Engineering Corporation
TAS	Technical Assistance Staff
T&L	Trades and Labor
TVA	Tennessee Valley Authority
TVILC	Tennessee Valley Trades and Labor Council
UT	Ultrasonic Testing
VT	Visual Testing
WBECSP	Watts Bar Employee Concern Special Program
WBN	Watts Bar Nuclear Plant
WR	Work Request or Work Rules
WP	Workplans

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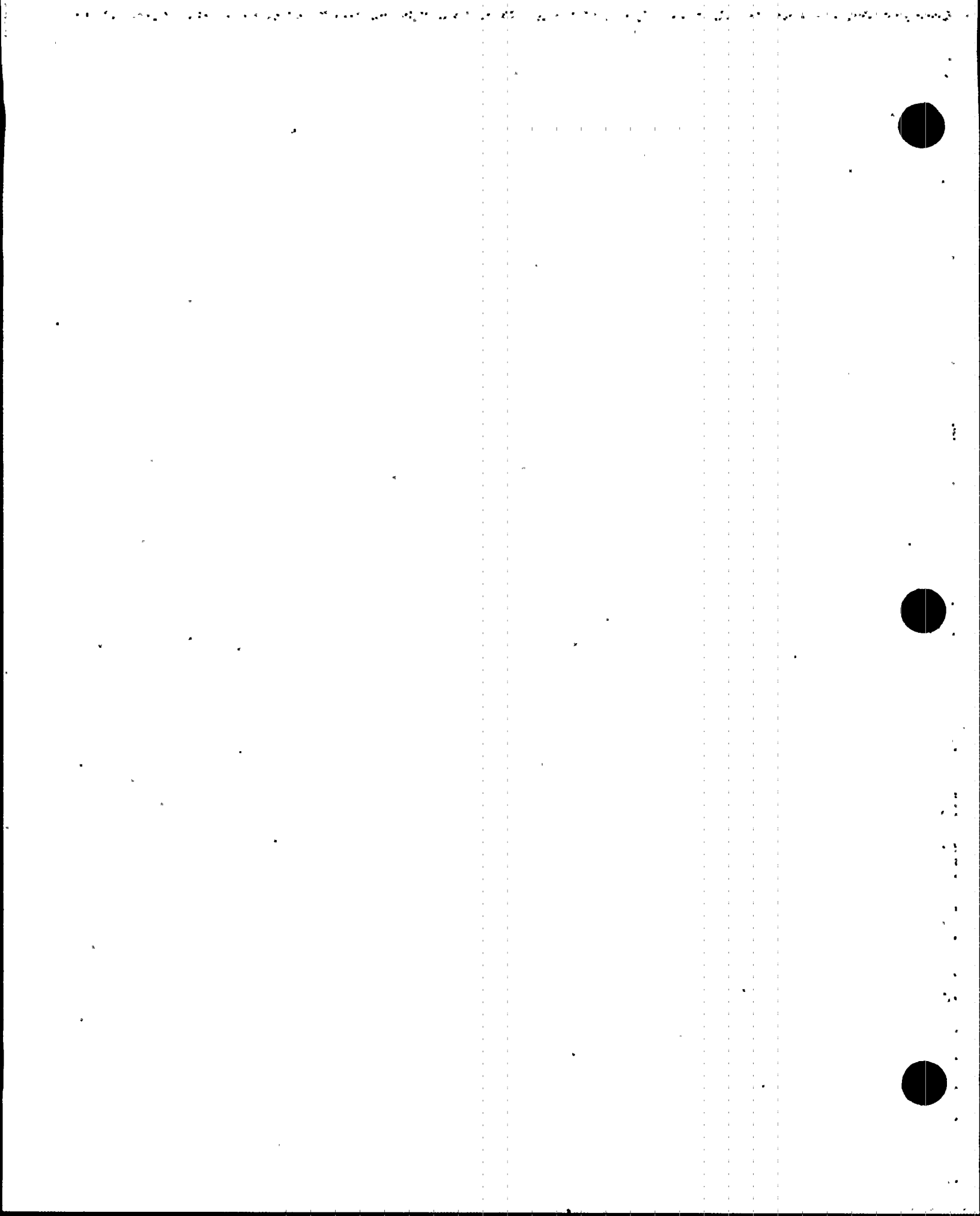
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## 1. INTRODUCTION

This subcategory report summarizes and evaluates the results of the Employee Concerns Special Program (ECSP) element evaluations prepared under Engineering Subcategory 20900, Q-List.

"Q-List" is a generic term used by the nuclear power industry to describe a listing of the plant structures, systems, and components that are to be covered by the Quality Assurance (QA) program requirements of 10 CFR 50, Appendix B. There is wide variation in the format and detail of the Q-Lists in existence within the nuclear power industry. Q-Lists range from summary lists containing only systems and components to extensive lists with subcomponent identification and detailed data. TVA has generally referred to the list as a critical structures, systems, and components (CSSC) list for operations activities.

The employee concerns that provide the basis for the element evaluations are listed by element number in Attachment A. The plant location where the concern was originally identified and the concern applicability to other TVA nuclear plants are also shown.

The evaluations are summarized in the balance of this report as follows:

- o Section 2 -- summarizes, by element, the issues stated or implied in the employee concerns and addresses the determination of generic applicability
- o Section 3 -- outlines the process followed for the element and subcategory evaluations and cites documents reviewed
- o Section 4 -- summarizes the findings by element, and identifies the negative findings that must be resolved
- o Section 5 -- highlights the corrective actions required for resolution of the negative findings cited in Section 4 and relates them to each element and to each plant site
- o Section 6 -- identifies causes of the negative findings
- o Section 7 -- assesses the significance of the negative findings
- o Attachment A -- lists, by element, each employee concern evaluated in the subcategory. The concern number is given along with notation of any other subcategory with which the concern is shared, and the plant sites to which it could be applicable. The concern is quoted as received by TVA, and is characterized by TVA as safety related (SR), safety significant (SS), or not safety related (NO)

- o Attachment B -- contains a summary of the element-level evaluations. Each issue is listed, by element number and plant, along with its corresponding findings and corrective actions. The reader may trace a concern from Attachment A to an issue in Attachment B by using the element number and applicable plant. The reader may relate a corrective action description in Attachment B to causes and significance in Table 3 by using the CATD number which appears in Attachment B in parentheses at the end of the corrective action description.

The term "Peripheral finding" in the issue column refers to a finding that occurred during the course of evaluating a concern but did not stem directly from an employee concern. These are classified as "E" in Tables 1 and 2 of this report.

- o Attachment C -- lists the references cited in the text

## 2. SUMMARY OF ISSUES/GENERIC APPLICABILITY

The employee concerns listed in Attachment A for each element and plant have been examined, and the potential problems raised by the five related concerns have been divided into two elements and identified as four separate issues. Elements 209.1 and 209.2 had individual element evaluations prepared for SQN, while they were combined and addressed under element evaluation 209.1 for the other three plants. This is reflected in Table 1 of this report.

All of the employee concerns listed were evaluated for each of the four plants except Concern IN-86-095-002, which was evaluated only for WBN. This concern was regarding the use of a CSSC Q-List. The CSSC Q-List was not used at either SQN, BLN, or BFN; thus, no evaluation of this concern was required at these three nuclear plant sites. All of the other issues were evaluated for each plant. The issues can be summarized as follows:

- o Element 209.1 - Q-List Differences

- The documents (Q-Lists or equivalent) used to identify the applicability of QA program controls are not accurate and complete.
- Various Q-Lists (or equivalents) exist at the same time that are different in content.
- The engineering design group does not provide input to the Q-Lists (or equivalents).

o Element 209.2 - Impact and Significance of Q-list Differences

- The use of inadequate Q-Lists (or equivalents) could have adversely affected the establishment of appropriate QA program controls on items that are related to plant safety. By reference to an inadequate Q-List, the possibility exists that "non-Q" items are installed in a safety-related system.

Each issue reviewed in the element evaluations is stated fully in Attachment B, which also lists corresponding findings (both positive and negative) and corrective actions that are discussed in Sections 4 and 5 of this report.

3. EVALUATION PROCESS

This subcategory report is based on the information contained in the element evaluations prepared to address the specific employee concerns related to those issues stated in Section 2 above. The evaluation process consisted of the following steps:

3.1 Element Evaluation Process

- a. Defined the issues for each element from the employee concerns.
- b. Reviewed regulatory guides (Refs. 1, 2, and 3), TVA criteria documents (Refs. 44 through 50), and TVA programs (Refs. 15 through 17, and 82) related to developing procedures (Refs. 30 through 35) and practices (Refs. 36 through 43) to govern Q-Lists (or equivalent documents).
- c. Reviewed applicable FSAR sections (Refs. 4 through 13) to understand scope and basis of NRC review (Refs. 66 through 84), to determine regulatory compliance, and to identify any open issues or TVA commitments related to Q-Lists.
- d. Reviewed applicable manuals, standards, and specifications (Refs. 15 through 29) and conducted facility visits (Refs. 116 and 117) to develop Q-List understanding.
- e. Reviewed any other documents applicable to the issues and determined to be needed for the evaluation, such as correspondence (Refs. 63 through 84, 87 through 114), instructions (Refs. 51 through 54), Corrective Action Reports (CARs) (Ref. 59), Nonconforming Condition Reports (NCRs) (Refs. 55, 56, and 95 through 107), evaluation and review reports (Refs. 14, 57, 58, 85 through 92, 108, and 109), etc.

- f. Made visits to WBN, SQN and BFN plant sites to further evaluate the issues.
- g. Using the results from steps a through e above, evaluated the issues for the element and documented the findings.
- h. Evaluated TVA's committed corrective actions.

### 3.2 Subcategory Evaluation Process

- a. Tabulated issues, findings, and corrective actions from the element evaluations in a plant-by-plant arrangement (see Attachment B).
- b. Prepared Tables 1, 2, and 3 to permit comparison and identification of common and unique issues, findings, and corrective actions between the four plants.
- c. Classified the findings and corrective actions from the element evaluations using the ECSP definitions.
- d. On the basis of ECSP guidelines, analyzed the collective significance and causes of the findings from the element evaluations.
- e. Evaluated defined corrective actions to determine if additional actions are required as a result of causes found in step d.
- f. Provided additional judgment and/or information that may not have been apparent at the element evaluation level.

## 4. FINDINGS

The findings from the five element evaluations for this subcategory are listed by element number and by plant in Attachment B. The findings for each element are summarized in the following paragraphs.

### 4.1 Background

The five employee concerns in the element evaluations associated with this subcategory report relate to the concurrent existence of different Q-Lists for WBN, the accuracy of the lists, and the impact of using those lists. These concerns were investigated as well for SQN, BFN, and BLN.

"Q-List" is a generic term used by the nuclear power industry to describe a listing of the plant structures, systems, and components that are to be covered by the Quality Assurance (QA) program requirements of 10 CFR 50 Appendix B. There is wide variation in the format and detail of the Q-Lists in existence within the nuclear power industry, from summary type lists containing only first-level identification, to extensive listings with subcomponent identification and detailed data.

TVA policy documents, including the governing upper-tier Nuclear Quality Assurance Manual (NQAM) (Refs. 18, 19, 20, and 23), have established the commitment that the Division of Nuclear Engineering (DNE) will develop and maintain a Q-List for each nuclear plant. The DNE-developed Q-List will be used by all divisions within a plant to maintain uniformity. The timing for implementation of a DNE-developed Q-List is a plant-unique situation, as noted in the following paragraph.

The specific portion of the NQAM that addresses Q-List is ID-QAP-2.7. ID-QAP-2.7 (Ref. 18), which governs the development, control, and application of a Q-List for each nuclear plant, has undergone several revisions affecting the implementation commitment for the Q-Lists at the various plants. It now states that "The SQN and BFN Q-Lists will be put into effect by the NSD at a date mutually agreed to by DNE and the NSD" and that the "NSDs for WBN and BLN shall implement the Q-List and incorporate its requirements into its plant operating instructions prior to receipt of an operating license for the first unit."

The following is the chronology of the major events concerning TVA Q-Lists/CSSC Lists at the four nuclear plant sites:

- 04/78: Nuclear Power (NUC PR) organization issues a Critical Structures, Systems, and Components (CSSC) List for each plant for application of the Operational QA program; the list is added to the Nuclear Quality Assurance Manual (NQAM) as Appendix A, and identified as the NQAM CSSC List. This list was derived from the PSAR/FSAR CSSC Lists
- 10/82: The Office of Engineering Design and Construction (OEDC) procedure OEDC-2QPD-5, R1, assigns the Office of Engineering Design (EN DES) the responsibility for preparing a detailed CSSC List for BFN
- 01/83: EN DES (now DNE) issues the WBN Q-List for one year's trial use, intended as a controlled single list of structures, systems, and components covered by the TVA QA program
- 01/84: EN DES (now DNE) reissues the WBN Q-List for use; however, NUC PR continues to utilize the NQAM CSSC List stating that it is better suited to that organization's needs

- 05/84: EN DES (now DNE) issues the EN DES CSSC List for BFN
- 10/84: EN DES (now DNE) issues BLN Q-List
- 11/84: A special sublisting of the WBN Q-List is developed by the Office of Engineering [OE] (formerly EN DES, now DNE), sorted by selected design functions identified by NUC PR; this list is called the WBN CSSC Q-List
- 12/84: NQAM Part V, ID-QAP-2.7, "Q-List," revised; OE (now DNE) identified as having responsibility for developing and maintaining Q-List for each nuclear plant
- 01/85: NUC PR issues WBN-AI-7.6, which provides for use of the WBN Q-List and WBN CSSC Q-List in lieu of the NQAM CSSC List; at this point discrepancies between the NQAM CSSC List and the WBN CSSC Q-List become evident and investigation begins
- 02/85: Responsibility for maintaining the CSSC Lists is transferred from corporate DNQA in Chattanooga to the NSDs
- 06/85: TVA receives Employee Concern IN-85-407-001
- 07/85: TVA receives Employee Concern IN-85-688-003
- 07/85: CSSC List deleted from NQAM Appendix A
- 08/85: TVA receives Employee Concerns IN-85-087-004 and IN-85-090-001
- 08/85: TVA issues Nonconforming Condition Report NCR W-269-P at WBN
- 10/85: TVA reports NCR W-269-P, R1 to the NRC in accordance with 10 CFR 50.55(e)
- 11/85: TVA receives Employee Concern IN-86-095-002
- 01/86: As a partial resolution of NCR W-269-P, R1, NUC PR revises WBN-AI-7.6 to delete the WBN CSSC Q-List
- 03/86: NQAM Part V, ID-QAP-2.7, "Q-List," revised to change BLN Q-List implementation to before fuel load
- 03/86: TVA issues final report to NRC on NCR W-269-P, R1
- 03/10/86: TVA submits Corporate Nuclear Performance Plan (CNPP), Volume 1, R0, to NRC

06/86: NQAM Part V, ID-QAP-2.7, "Q-List," Revision 0 issued to revise Q-List implementation requirements for SQN and BFN

09/86: TVA issues revised final report to NRC on NCR W-269-P, R1

4.2 Element 209.1 - Q-List Differences

4.2.1 Watts Bar Nuclear Plant Findings

The WBN "Q-Lists" provided a basic reference for the various WBN organizations to identify those structures, systems, and components which are subject to the special requirements and activities of the QA program. Organizational use of the Q-List includes the following:

- o As the design organization, EN DES originated the Q-List as a design output document to provide information (i.e., identification of structures, systems and components in the QA program) to interfacing organizations - notably the Offices of Construction (OC) and Nuclear Power (NUC PR). EN DES (now DNE) also had use for the Q-List internally, as a reference for performing activities such as safety evaluations.
- o Within OC, the Q-List is designated for use in determining identification of structures, systems, and components in the QA Program. The content of the workplans developed by OC to control construction and installation activities could be significantly impacted by the resultant determination of "Q" status of the related structure, system, or component.
- o Within NUC PR, the Q-List is used in the control of maintenance and modification activities. The requirements prescribed in maintenance requests and workplans, including such items as inspection activities and documentation requirements, could be significantly impacted by the "Q" status of the related structure, system, or component.

The employee concerns relating to Q-List(s) deficiencies were raised during mid-1985. This time frame corresponds to the performance by TVA of investigations of problems with the Q-List(s), and indicates a general awareness within TVA of the issues noted in these employee concerns. For this reason, the evaluation of these issues is focused on a review of the TVA systematic investigations and the resulting corrective actions that have occurred or are in process on Q-List(s) problems.

TVA Nonconforming Condition Report NCR W-269-P, R1 (Ref. 56) and its associated corrective action, provide the most significant evidence that the pertinent issues regarding Q-Lists have been recognized and are being resolved by TVA. NCR W-269-P, R1, documents discrepancies, inaccuracies and omissions

in the Q-List for programmatic areas and certain specific systems. This condition was determined by TVA to constitute a significant deficiency that required reporting to the NRC under the requirements of 10 CFR 50.55(e). A brief chronology of the activities specific to NCR W-269-P, R1, and its related subject matters is as follows:

- 01/85: Q-List review initiated by Plant QA Staff to investigate alleged discrepancies
- 08/85: Quality Evaluation Report QE-85-09 (Ref. 91) issued to document discrepancies identified in the review of Q-List treatment of Systems 62 and 63
- 08/85: Corrective Action Report WB-CAR-85-45 issued to require NUC PR action on certain CSSC Q-List discrepancies
- 08/85: Nonconforming Condition Report NCR W-269-P issued to document both programmatic and specific Q-List discrepancies
- 10/85: NCR W-269-P, R1, issued to expand on the detail of the identified Q-List discrepancies
- 10/85: NSRS Investigation Report No. I-85-422-WBN issued documenting the NSRS review of Employee Concerns relating to Q-List discrepancies
- 10/85: TVA provides initial notification to the NRC of the 10 CFR 50.55(e) reportability of NCR W-269-P, R1
- 12/85: TVA Interim 10 CFR 50.55(e) Report issued to the NRC regarding NCR W-269-P, R1
- 02/86: CAR WB-CAR-85-45 corrective action documented to be complete and the CAR closed
- 03/86: TVA Final 10 CFR 50.55(e) Report issued to the NRC regarding NCR W-269-P, R1
- 09/86 : Revised Final 10 CFR 50.55(e) Report issued to the NRC regarding NCR W-269-P, R1

Relative to the accuracy and completeness of the Q-Lists for WBN, the TVA systematic evaluations relating to NCR W-269-P, R1, identified that discrepancies existed in the Q-Lists, including the following types of deficiencies:

- o Omissions of safety-related items from the Q-Lists



- o Inconsistency of Q-Lists with NQAM requirements regarding differentiation between safety-related and special feature equipment
- o Inaccurate identification of items in the Q-Lists
- o Inadequacy of Q-List notices to reflect appropriate QA program implementation requirements

The revised final 10 CFR 50.55(e) Report (Ref. 68) documented a TVA commitment to perform a complete review of the WBN Q-List before fuel load of WBN unit 1. This commitment was a result of a completeness review of the WBN Q-List for six systems. That review (Ref. 107) identified errors in the Q-List coverage for these systems which were quantified and classified by TVA as follows:

<u>Classification</u>	<u>Number of Errors</u>
Component Identification Errors	183
Safety Function Errors	41
Omissions From Q-List	110

The concern that changes were made to the Q-Lists without Engineering input was found not to be valid for any of the four plants. Element 209.1 found the accuracy of the Q-List (or equivalent document) was questionable for two of the four plants, SQN and WBN.

#### 4.2.2 Sequoyah Nuclear Plant Findings

The listing for SQN is identified as the Critical Structures, Systems, and Components (CSSC) List (Ref. 36), and is of the summary type. The SQN CSSC List is characterized as a working document, with everyday usage in SQN activities including modifications, maintenance, and procurement. However, the use of the SQN CSSC List is limited to the Operations organization only (e.g. for procurement of maintenance materials and for modifications); the list was not used by Construction or Engineering at SQN, and currently is not used by Engineering.

The SQN CSSC List identifies safety-related structures, systems, and components committed in the SQN FSAR (Ref. 4) Section 3.2.

The individual system drawings (flow diagrams, control diagrams, etc.) developed by Engineering identify the safety-related structures, systems, and components at SQN. These design basis drawings, rather than the SQN CSSC List, were used by the Engineering and Construction organizations as the source documents to determine the items that required QA program controls.

Engineering developed design documents that were subsequently used by Construction. Operations developed the CSSC List from the same engineering design documents with engineering participation. Engineering is represented on the CSSC Review Committee which had the responsibility of updating the CSSC List. Engineering continued to use the design documents from which the CSSC List was created while Operations used the CSSC List. Since any list would be prepared from the engineering documents, coexistence of a list and documents does not represent de facto use of two lists (at least not in the same context as at WBN where a Q-List and a CSSC list were being used concurrently).

Construction Specification N2G-877 (Ref. 28) provides guidance to the Construction organization for identifying items requiring QA program controls. Tables were included as part of N2G-877 (prior to revision 5) which contained generalized convenience listings of safety-related items. However, the tables were used only as guidelines and did not constitute a "Q-List."

The current revision of N2G-877, Revision 5, allows Construction to use a "Q-List" (91QL series drawings) as an alternative to the system drawings for identification of items requiring QA program controls. However, the 91QL series drawings have not been implemented at SQN pending the Q-List development activity noted in the NQAM and outlined below. Further, this alternative method has not been used by Construction.

Control of the SQN CSSC List is established through Sequoyan Administrative Instruction AI-39 (Ref. 51), which provides for a SQN CSSC Review Committee, the membership of which includes engineering, to maintain the SQN CSSC List. The committee is required to perform a biennial review of the CSSC List to ensure that the list is accurate and complete.

The review of referenced documents identified various cases of direct or inferred concern regarding the accuracy and completeness of the CSSC List.

A complete review of the SQN CSSC List has not been accomplished. Minutes of CSSC Review Committee meetings (Ref. 62) reflected that the committee performed numerous activities responding to "Request for Revision to CSSC List" forms, but those activities do not constitute a complete review of the SQN CSSC List.

NRC Report 50-327/86-11 (Ref. 84) documents NRC inspection activities associated with followup of TVA's response to NRC Generic Letter 83-28 (Ref. 72), which contains requirements for licensees to confirm safety-related identification of reactor trip system components and to describe their programs for ensuring that all components of other safety-related systems are identified as safety-related.

Results of this NRC inspection identified that the current program for maintenance of the CSSC List deviates from the program described by TVA in the initial response to GL83-28. The NRC inspector also concluded that TVA's methods for revising the CSSC List lacked a formalized system for tracking CSSC Review Committee agenda items, and for requesting changes to the CSSC List. TVA's response (Ref. 66) to the NRC inspection report did not address either of these items.

The NRC inspection also included a limited review (sample of seven) of maintenance requests to verify that work activities were being properly classified as CSSC or non-CSSC. In the area of equipment classification, the NRC determined that there were no violations or deviations.

The evaluation team considers the issues relating to the accuracy and completeness of the SQN CSSC List to be valid for SQN. This conclusion is tempered by the positive factor that the on-going activities of the SQN CSSC Review Committee provide a reasonable assurance that there are no major problems with the SQN CSSC List. However, it is prudent for TVA to perform a confirmatory review of the accuracy and completeness of the SQN CSSC List, to address various TVA internal references (direct or implied) to the need for such a review. The review should be performed with input from DNE to determine the degree of completeness appropriate for the list, and should include resolution of those agenda items previously deferred by the SQN CSSC Review Committee.

The SQN CSSC List was initially developed and issued by NUC PR, and is presently the responsibility of the NSD through the Operations organization. The CSSC List is maintained by the SQN CSSC Review Committee. DNE has actively participated in CSSC Review Committee activities on an as-needed basis. The interface with DNE tempers the employee concern related to the issue of lack of engineering design group input/approval of the CSSC List, and indicates a DNE de facto involvement with the list.

The NRC has stated that the SQN CSSC List and its utilization process appeared to be working and were adequate for the short term (SQN unit 2 restart), but they recommended that TVA develop and implement the SQN Q-List in an expeditious manner (Ref. 120). Following the NRC review, DNQA and EA performed a joint audit of SQN, which resulted in a recommendation that Engineering and Operations commit to the expeditious development and publication of a controlled SQN Q-List (Ref. 119). TVA committed in a letter to the NRC (Ref. 121) that they will "provide an implementation plan for the [SQN] Q-List by March 1, 1988." This is being tracked by the Corporate Commitment Tracking System (CCTS) item NCO 860194003. When this plan for the implementation of a SQN Q-List is provided, the plan will be assigned a CCTS

item number and tracked to completion. This will ensure that TVA tracks the Q-List implementation as a commitment to the NRC and will enable the NRC to monitor the Q-List implementation. Thus a CATD is not required with this report.

#### 4.2.3 Browns Ferry Nuclear Plant Findings

At about the same time that the Office of Nuclear Power issued the Appendix A, CSSC List to the NQAM (Ref. 19), the BFN Plant Superintendent issued Standard Practice BF 1.11 (Ref. 39), which was also derived from the FSAR CSSC List (Ref. 11).

A review of historical documents by the evaluation team shows that the BF 1.11 CSSC List is, and has been, an integral part of procurement, maintenance, and modification activities at BFN. The BFN procedures (Refs. 39 and 60) that control these activities typically cite the CSSC List as the source document for determining safety-related CSSC items and activities.

Site Director Standard Practice (SDSP) 2.7 (formerly 2.14) has required, since 1981, that a review of the BF 1.11 CSSC List be performed at least every 2 years. SDSP 2.11 requires that the review ascertain that the information on the list is complete and accurate. A review of the revision history indicates that there have been eight revisions to the BF 1.11 CSSC List since 1981. All revisions except one add items to the CSSC List that were identified in other documents as belonging in the CSSC List. The one revision that indicates "annual review" produced only editorial changes. The extent of the actual review is not known. Discussions with TVA personnel (Ref. 117) indicated that no review record exists that would provide evidence of biennial review, except the history-of-revision page of BF 1.11. Paragraph 6.2 of SDSP 2.7 contains the following statement: "The general revision of a procedure constitutes a review."

Before July 1985, the review could have been accomplished by an item-for-item comparison to the NQAM, Appendix A CSSC List, which was being reviewed by the CSSC Review Committee in the corporate QA organization in Chattanooga. From February July 1985 to the present, the BFN Site Director has been responsible for the accuracy and completeness of the BF 1.11 CSSC List.

More than one Q-List (or equivalent) with different content were in use at the same time at BFN. BFN had issued a second CSSC List (EN DES CSSC List) while the Operations/NQAM CSSC List was in use. There was not sufficient evidence to indicate that the BF 1.11 CSSC List was complete and accurate. A new Q-List is being developed and will replace the existing CSSC Lists after the new and existing lists are compared and after any discrepancies that are found are documented.

The issue which relates to lack of engineering design group input to the Q-List is not valid for BFN. The BFN 1.11 CSSC List was originally derived from the FSAR list, and the revision record describes revisions resulting from engineering input.

#### 4.2.4 Bellefonte Nuclear Plant Findings

BLN is now using a single Q-List to satisfy the intent of 10 CFR 50, Appendix B, Criterion II. In the past, however, several different lists were used to determine which plant items required QA program controls. The lists were as follows:

- o From the beginning of the project in 1972 to the present, BLN has used a set of criteria documents to identify the safety-related structures, systems, and components.
- o The PSAR/FSAR contains a summary listing of structures, systems, and components (July 1973 to present).
- o From April 1978 through July 1985, Appendix A of the OQAM/NQAM contained a CSSC List that was derived from the PSAR CSSC List. In July 1985, the list was deleted from the NQAM, and thus was superseded by the BLN BGL1 CSSC List.
- o BLN Standard Practice BGL1 included a CSSC List and was issued in 1982. On November 20, 1986, the CSSC List was replaced by the BLN Q-List.
- o The BLN Q-List was issued by system from October 1984 through February 1985, and it listed the items defined by the criteria documents. The BLN Q-List appears to be adequately controlled by engineering procedures.

For design and construction activities, the listing of safety-related structures, systems, and components was provided from 1972 to October 1984 by design criteria documents and diagrams. In October 1984, EN DES (now DNE) began issuing, by system groups, the Q-List which became the primary list of safety-related items but was supplemented by the design criteria documents and diagrams. All systems were issued as Revision 0 by February 1985.

To cover the operational activities, TVA issued BLN Standard Practice BGL1 in 1982. BGL1 contained a CSSC List which was maintained equivalent to the OQAM/NQAM. In November 1986, BGL1 deleted the CSSC List and incorporated the BLN Q-List, thereby making the BLN Q-List applicable to all project activities.

The BLN Q-List and the controlling and supporting procedures used for BLN that affect safety-related structures, systems, and components are all engineering documents. Thus, the issue relating to lack of engineering input to the Q-List is not valid for BLN.

The evaluation team identified one peripheral finding requiring resolution at BLN: lack of evidence that CSSC open action items reported by the Division of Nuclear Quality Assurance (DNQA) in a memo from R. J. Mullin to Those Listed (Ref. 108) had been closed out.

Even though no evidence was found that the NQAM CSSC List open items were resolved, the evaluator found that the BLN Q-List appeared to be accurate and complete on the basis of the thorough, formalized procedures used to prepare the Q-List. The procedures included reviews by all engineering disciplines, trial use feedback from the construction organization, and independent reviews.

Because the BLN Q-List (Ref. 122), as noted above, appears to the evaluation team to be accurate and complete, the evaluation team found no evidence of misclassified safety-related items during fabrication or installation.

#### 4.3 Element 209.2 - Impact and Significance of Q-List Differences

The full significance of the findings of this Q-List subcategory to the physical plants cannot be evaluated until the corrective action reviews, which have been committed to by WBN, SQN, and BFN, have been completed and the final impact assessed. If the reviews find that safety-related structures, systems, or components had been manufactured and installed as nonsafety-related, the consequences could be very significant. It would mean that certain quality assurance program activities during design, construction, and operation intended to ensure that a structure, system, or component will perform satisfactorily in service may not have been performed.

#### 4.4 Summary of Subcategory Findings

A summary of the classified findings is provided in Table 1. Class A and B findings indicate that there is no problem and that corrective action is not required. Class C, D, and E findings require corrective actions. The corrective action class, defined in the Glossary Supplement, is identified in the table by the numeral combined with the finding class. For example, the designation D3 in Table 1 indicates that the evaluated issue was found to be valid (finding Class D) and that a corrective action involving some type of documentation revision is required (corrective action Class 3).

Findings are summarized by classification in Table 2. Of the 15 findings identified by a classification in Table 1, seven require no corrective action. Of the remaining, two findings had corrective actions initiated before the ECTG evaluation and five required new corrective actions to be taken. There was one peripheral finding uncovered during the ECTG evaluation which required new corrective action.

## 5. CORRECTIVE ACTIONS

As noted in Section 4 of this report, Table 2 identifies eight findings that require corrective action. The detailed corrective actions are described in Attachment B (listed by element and by plant). A condensation of this information by element and applicable plant follows.

### 5.1 Element 209.1 - Q-List Differences

At WBN, in response to element level CATDs, TVA has committed to review the Q-List and to revise it as required to make it accurate. TVA also will delete the CSSC Q-List and review activities that took place during the use of the CSSC Q-List to verify that the QA program was adequately implemented.

At SQN, TVA provided justification that the biennial review of the CSSC List is not necessary prior to restart. The NRC concluded that the SQN CSSC list and its utilization process appeared to be working and were adequate for the short term (SQN unit 2 restart), but recommended the SQN Q-List be developed and implemented in an expeditious manner. TVA has committed to submit a Q-List implementation plan to the NRC by March 1, 1988 (Ref. 121). Because this is tracked on CCTS (item number NCO 860194003), and the Q-List implementation plan, once it is provided, will also be tracked on CCTS, there is no CATD required with this report.

At BFN, in response to element level CATDs, TVA has committed to complete the development of, and issue, a new Q-List, then discontinue the EN DES and NUC PR CSSC Lists. TVA also committed to compare the new Q-List with the BF 1.11 CSSC List and EN DES CSSC List and resolve the differences.

At BLN, in response to element level CATDs, TVA has committed to close out DNQA memo (Ref. 108) open action items.

### 5.2 Element 209.2 - Impact and Significance of Q-List Differences

TVA will review the activities that took place during the use of the CSSC Q-List at WBN, and during the use of the questionable CSSC lists at SQN and BFN, to verify that the QA program was adequately implemented.

### 5.3 Summarized Corrective Actions

These corrective actions appear in Table 3, along with their corresponding finding/corrective action classifications. The table indicates the plant or plants to which a corrective action is applicable by the Corrective Action Tracking Document (CATD) column where the applicable plant is identified by the CATD number.

Until corrective action is completed, the potential exists for physical plant changes.

The evaluation team found the corrective action plans submitted for WBN, SQN, BFN, and BLN to be acceptable to resolve the findings.

### 6. CAUSES

Table 3 identifies causes for each negative finding requiring corrective action. Table 3 has 17 column headings representing causes of negative findings (e.g, "Lack of Management Attention," "Inadequate Procedures," etc.) For each negative finding, the most important cause is identified. Whenever direct evidence linked a cause to a negative finding requiring corrective action, such evidence was taken into account.

For the eight corrective actions described in Table 3, nine causes have been identified. These are shown in the table and totaled at the end.

- o WBN - Omissions and errors in the WBN Q-List, previously reported by TVA, were caused by "Engineering Error" and were not resolved in a timely manner. The use of the CSSC Q-List and activities resulting therefrom is the result of "Inadequate Communication" between engineering and maintenance personnel.
- o SQN - "Untimely Resolution of Issues" is the cause of lack of resolution of the SQN CSSC Review Committee agenda items which were repeatedly deferred.
- o BFN - "Inadequate Communication" between engineering and operations personnel is the cause of the lack of adequate review of the BFN CSSC and issuance of the NUC PR CSSC List.
- o BLN - The cause of the lack of final closeout of DNQA open-action items for BLN is "Untimely Resolution of Issues."



Although "Inadequate Communication" and "Untimely Resolution of Issues" are noted in Table 3 as the causes of the negative findings requiring corrective action, the evaluation team believes the negative findings primarily stem from a "Fragmented Organization" wherein the responsibility and authority for preparing and implementing an adequate listing of safety-related structures, systems, and components were not clearly delineated and enforced between functional organizations.

#### 7. COLLECTIVE SIGNIFICANCE

The five concerns expressed in this subcategory resulted in eight findings requiring corrective actions as a direct result of the employee concerns. Corrective actions were in progress for two of the findings at the time of the ECTG evaluation.

The eight findings requiring corrective action were judged to be significant. The full significance of the negative findings is that the impact of any omissions from the Q-Lists/CSSC Lists is indeterminate because the evaluations of Q-List accuracy are not complete. Thus, there is some potential for future physical plant changes. The consequences cannot be determined until the corrective action reviews have been performed. However, the following observations can be made at this time:

- o The concern that multiple Q-Lists existed independently and concurrently was found to be valid at two plants (WBN and BFN) but under different circumstances. The CSSC Q-List was issued at WBN in 1984 to provide a more workable document than the Q-List for NUC PR use in operations, maintenance, and modification activities. BFN had, or has, several lists for the purpose of satisfying the intent of 10 CFR 50, Appendix B, Criterion II. Although the concern represents a significant problem, the significance is tempered by the fact that each list was used only by the operations organization and only for a limited time, and that the lists are being compared to resolve potential deficiencies.
- o Table 3 identifies four cases of "Inadequate Communication," four cases where the cause is "Untimely Resolution of Issues," and one instance of "Engineering Error." TVA's QA organization identified Q-List/CSSC List problems at WBN which resulted in initiation of corrective action. Perhaps QA audits should have identified the negative findings in this report at SQN, BFN, and BLN. However, specific corrective actions for these negative findings were initiated at the element level. Category Report 80000, Rev. 2, Quality Assurance, states, "Corrective action has been implemented

by TVA to resolve the audit program problems . . . A tracking CATD was issued to verify effective implementation." The report did not contain specifics regarding individual items (such as Q-List) of an overall audit program.

The Q-List is a document that should be monitored and maintained by line management and periodically audited by QA. Thus, the QA organization would have a lesser role, and longer feedback loop, than line management's day to day involvement. Occasional problems of this sort are to be expected, but the frequency trend should become lower with time as errors in detail are identified through use. If the trend does not show a "time related" frequency reduction, the reasons should be examined. Auditing for this purpose would be appropriate. No broader conclusions can be drawn from these causes.

The last three columns of Table 3 show the significance of the corrective actions with regard to actual or potential changes in documentation, margins, and hardware. Until the review of Q-Lists/CSSC Lists has been completed, there is a potential that hardware may have to be changed because it does not meet QA program requirements.

TVA has developed a series of Nuclear Performance Plans (NPPs) to correct programmatic and management shortcomings that have contributed to the problems experienced in direction and control of TVA's nuclear activities. Volume 1 of the NPP describes the measures that TVA has taken and currently intends to take to improve the corporate-level management of its nuclear activities and to correct the problems that have occurred in this area. Volumes 2, 3, and 4 address SQN, BFN, and WBN, respectively. There is currently no plant-specific NPP for BLN. The three plant-specific nuclear performance plans provide an account of the actions TVA is taking to improve its nuclear program.

The Q-List/CSSC List was specifically addressed only in the Watts Bar NPP. The commitments in the Corporate NPP to consolidate the nuclear organization, to develop standard procedures, and control interfaces with support organizations, along with the specific corrective actions at the element level to which TVA has committed in response to the findings for the individual plants, and the NQAM requirement for a Q-List to be implemented at each of the nuclear plant sites, should eliminate future problems regarding accuracy of the lists of safety-related structures, systems, and components.

The results of this subcategory evaluation are combined with the other subcategory evaluations and reassessed in the Engineering category report.

TABLE 1  
CLASSIFICATION OF FINDINGS AND CORRECTIVE ACTIONS

<u>Element</u>	<u>Issue/ Finding**</u>	<u>Finding/Corrective Action Class*</u>			
		<u>SQL</u>	<u>WBN</u>	<u>BFN</u>	<u>BLN</u>
209.1 Q-List Differences	a	D3	C3	D3	E3
	b	(1)	A	D6	A
	c	A	C3	D3	A
	d	A	-	A	A
209.2 Impact and Significance of Q-List Differences	b	D6	(2)	(2)	(2)

- (1) Issue is addressed in element 209.2.  
(2) Issue is addressed in element 209.1.

\*Classification of Findings and Corrective Actions

- |  |                  |
|--|------------------|
| A. Issue not valid.<br>No corrective action required.                                | 1. Hardware      |
| B. Issue valid but consequences acceptable.<br>No corrective action required.        | 2. Procedure     |
| C. Issue valid. Corrective action<br>initiated before ECTG evaluation.               | 3. Documentation |
| D. Issue valid. Corrective action<br>taken as a result of ECTG evaluation.           | 4. Training      |
| E. Peripheral issue uncovered during ECTG<br>evaluation. Corrective action required. | 5. Analysis      |
|  | 6. Evaluation    |
|  | 7. Other         |

\*\* Defined in Attachment B.

TABLE 2  
FINDINGS SUMMARY

<u>Classification of Findings</u>	<u>Plant</u>				<u>Total</u>
	<u>SN</u>	<u>WBN</u>	<u>BFN</u>	<u>BLN</u>	
A. Issue not valid. No corrective action required.	2	1	1	3	7
B. Issue valid but consequences acceptable. No corrective action required.	0	0	0	0	0
C. Issue valid. Corrective action initiated before ECTG evaluation.	0	2	0	0	2
D. Issue valid. Corrective action taken as a result of ECTG evaluation.	2	0	3	0	5
E. Peripheral issue uncovered during ECTG evaluation. Corrective action required.	0	0	0	1	1
Total	4	3	4	4	15



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GLOSSARY SUPPLEMENT  
FOR THE ENGINEERING CATEGORY

Causes of Negative Findings - the causes for findings that require corrective action are categorized as follows:

1. Fragmented organization - Lines of authority, responsibility, and accountability were not clearly defined.
2. Inadequate quality (Q) training - Personnel were not fully trained in the procedures established for design process control and in the maintenance of design documents, including audits.
3. Inadequate procedures - Design and modification control methods and procedures were deficient in establishing requirements and did not ensure an effective design control program in some areas.
4. Procedures not followed - Existing procedures controlling the design process were not fully adhered to.
5. Inadequate communications - Communication, coordination, and cooperation were not fully effective in supplying needed information within plants, between plants and organizations (e.g., Engineering, Construction, Licensing, and Operations), and between interorganizational disciplines and departments.
6. Untimely resolution of issues - Problems were not resolved in a timely manner, and their resolution was not aggressively pursued.
7. Lack of management attention - There was a lack of management attention in ensuring that programs required for an effective design process were established and implemented.
8. Inadequate design bases - Design bases were lacking, vague, or incomplete for design execution and verification and for design change evaluation.
9. Inadequate calculations - Design calculations were incomplete, used incorrect input or assumptions, or otherwise failed to fully demonstrate compliance with design requirements or support design output documents.
10. Inadequate as-built reconciliation - Reconciliation of design and licensing documents with plant as-built condition was lacking or incomplete.
11. Lack of design detail - Detail in design output documents was insufficient to ensure compliance with design requirements.

12. Failure to document engineering judgments - Documentation justifying engineering judgments used in the design process was lacking or incomplete.
13. Design criteria/commitments not met - Design criteria or licensing commitments were not met.
14. Insufficient verification documentation - Documentation (Q) was insufficient to audit the adequacy of design and installation.
15. Standards not followed - Code or industry standards and practices were not complied with.
16. Engineering error - There were errors or oversights in the assumptions, methodology, or judgments used in the design process.
17. Vendor error - Vendor design or supplied items were deficient for the intended purpose.

Classification of Corrective Actions - corrective actions are classified as belonging to one or more of the following groups:

1. Hardware - physical plant changes
2. Procedure - changed or generated a procedure
3. Documentation - affected QA records
4. Training - required personnel education
5. Analysis - required design calculations, etc., to resolve
6. Evaluation - initial corrective action plan indicated a need to evaluate the issue before a definitive plan could be established. Therefore, all hardware, procedure, etc., changes are not yet known
7. Other - items not listed above

Peripheral Finding (Issue) - A negative finding that does not result directly from an employee concern but that was uncovered during the process of evaluating an employee concern. By definition, peripheral findings (issues) require corrective action.

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Significance of Corrective Actions - The evaluation team's judgment as to the significance of the corrective actions listed in Table 3 is indicated in the last three columns of the table. Significance is rated in accordance with the type or types of changes that may be expected to result from the corrective action. Changes are categorized as:

- o Documentation change (D) - This is a change to any design input or output document (e.g., drawing, specification, calculation, or procedure) that does not result in a significant reduction in design margin.
- o Change in design margin (M) - This is a change in design interpretation (minimum requirement vs actual capability) that results in a significant (outside normal limits of expected accuracy) change in the design margin. All designs include margins to allow for error and unforeseeable events. Changes in design margins are a normal and acceptable part of the design and construction process as long as the final design margins satisfy regulatory requirements and applicable codes and standards.
- o Change of hardware (H) - This is a physical change to an existing plant structure or component that results from a change in the design basis, or that is required to correct an initially inadequate design or design error.

If the change resulting from the corrective action is judged to be significant, either an "A" for actual or "P" for potential is entered into the appropriate column of Table 3. Actual is distinguished from potential because corrective actions are not complete and, consequently, the scope of required changes may not be known. Corrective actions are judged to be significant if the resultant changes affect the overall quality, performance, or margin of a safety-related structure, system, or component.



ATTACHMENT A

EMPLOYEE CONCERNS  
FOR SUBCATEGORY 20900

Attachment A -- lists, by element, each employee concern evaluated in the subcategory. The concern's number is given, along with notation of any other subcategory with which the concern is shared and the plant sites to which it could be applicable. The concern is quoted as received by TVA, and is characterized by TVA as safety related (SR), safety significant (SS), or not safety related (NO).

## ATTACHMENT A

## EMPLOYEE CONCERNS FOR SUBCATEGORY 20900

REVISION NUMBER: 5  
PAGE A-2 OF 3

ELEMENT	CONCERN NUMBER	PLANT LOCATION	APPLICABILITY				CONCERN DESCRIPTION*
			SNV	WBN	BFN	BLN	
209.1	IN-85-407-001	WBN	X	X	X	X	"CSSC Q-List is not accurate. Not all components covered by QA program are listed. QE Department has list that documents the inaccuracies. The CSSC Q-List is used to determine if QC inspections are required. CI has no further information." (SS)
	IN-85-688-003	WBN	X	X	X	X	"Concern over validity of Critical System, Structures and Components 'Q' listing. Details known to QTC. Details withheld to maintain CI confidentiality." (SR)
	IN-86-087-004	WBN	X	X	X	X	"Significant differences exist in the content of the Nuclear Power 'Q' List and the Critical Structures, Systems and Components (CSSC) 'Q' List. Many items originally placed on the NUC Power 'Q' List are not reflected on the CSSC 'Q' List, which could adversely affect establishment of appropriate quality controls on items which are related to plant safety. Nuclear Power concern. No specifics provided. CI has no further information." (SS)
	IN-86-090-001	WBN	X	X	X	X	"NUC PWR (No name/dept. given) issued a Critical Structures, Systems and Components List (CSSC) that does not include all items identified on the site 'Q' List (No specifics given). This was done without Office of ENG, ENG Design Group input/approval (The originator of the site 'Q' List). By referring to the CSSC, the possibility exists for installing 'Non-Q' items in a Safety-Related System. CI has no additional information. NUC Power Concern." (SS)
	IN-86-095-002	WBN		X		X	"CI is concerned that the recent use of the CSSC-'Q' List rather than the 'Q' List is not correct, due to differences in content between the two documents: (1) Requirements, seismic requirements). This condition has been documented by an NCR, which has been determined to be reportable, and the NRC has been notified. NUC Power Dept. concern. CI has no further information." (SR)

\* SR/NO/SS indicates safety related, not safety related, or safety significant per determination criteria in the ECTG Program manual and applied by TVA before evaluations.

ATTACHMENT A

EMPLOYEE CONCERNS FOR SUBCATEGORY 20900

REVISION NUMBER: 5  
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ELEMENT	CONCERN NUMBER	PLANT LOCATION	APPLICABILITY				CONCERN DESCRIPTION*
			SON	WBN	BFN	BLN	
209.2	IN-85-407-001	WBN	X	X	X	X	"CSSC Q-List is not accurate. Not all components covered by QA program are listed. QE Department has list that documents the inaccuracies. The CSSC Q-List is used to determine if QC inspections are required. CI has no further information." (SS)
	IN-86-087-004	WBN	X	X	X	X	"Significant differences exist in the content of the Nuclear Power 'Q' List and the Critical Structures, Systems and Components (CSSC) 'Q' List. Many items originally placed on the NUC Power 'Q' List are not reflected on the CSSC 'Q' List, which could adversely affect establishment of appropriate quality controls on items which are related to plant safety. Nuclear Power concern. No specifics provided. CI has no further information." (SS)
	IN-86-090-001	WBN	X	X	X	X	"NUC PHR (No name/dept. given) issued a Critical Structures, Systems and Components List (CSSC) that does not include all items identified on the site 'Q' List (No specifics given). This was done without Office of ENG, ENG Design Group input/approval (The originator of the site 'Q' List). By referring to the CSSC, the possibility exists for installing 'Non-Q' items in a Safety-Related System. CI has no additional information. NUC POWER concern." (SS)

\* SR/NO/SS indicates safety related, not safety related, or safety significant per determination criteria in the ECTG Program manual and applied by TVA before evaluations.



ATTACHMENT B

SUMMARY OF ISSUES, FINDINGS, AND  
CORRECTIVE ACTIONS FOR  
SUBCATEGORY 20900

Attachment B -- contains a summary of the element-level evaluations. Each issue is listed, by element number and plant, along with its corresponding findings and corrective actions. The reader may trace a concern from Attachment A to an issue in Attachment B by using the element number and applicable plant. The reader may relate a corrective action description in Attachment B to causes and significance in Table 3 by using the CATD number which appears in Attachment B in parentheses at the end of the corrective action description.

ATTACHMENT B  
SUMMARY OF ISSUES, FINDINGS, AND CORRECTIVE ACTIONS  
FOR SUBCATEGORY 20900

REVISION NUMBER: 5  
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Issues

Findings

Corrective Actions

\*\*\*\*\*  
Element 209.1 - Q-List Differences  
\*\*\*\*\*

SNQ

- a. The documents (Q-Lists or equivalent) used on SNQ to identify the applicability of QA program controls are not accurate and complete.

SNQ

- a. The SNQ CSSC List is the "Q-List" type document in use on SNQ to identify items that require QA program controls. Although a review of the SNQ CSSC List for accuracy and completeness has been committed to by TVA, such a review has not been performed to date. The required biennial review of the CSSC List is presently scheduled for completion by June 1987.

The activities of the SNQ CSSC Review Committee are a positive factor towards maintaining the SNQ CSSC List as a "living" document. However, the following shortcomings are evident in the Review Committee actions:

- o A TVA review of the SNQ CSSC List for accuracy and completeness has not been accomplished to date. Therefore the baseline, to which the CSSC Review Committee is providing updates for plant modifications etc., is of undetermined accuracy and completeness.
- o The practice of deferring numerous classification actions to the pending DNE Q-List development contributes to the questionable status of SNQ CSSC List accuracy and completeness.

NOTE: One of the purposes of a recent NRC inspection at SNQ was to evaluate the adequacy of the CSSC List. As noted in the TVA prepared minutes (Ref. 118) of the inspection exit meeting on July 24, 1987, the NRC concluded that the SNQ CSSC List and its utilization process appeared to be working and, for the short term, were adequate. However, it was recommended by NRC that the Q-List for SNQ be developed and implemented in an expeditious manner.

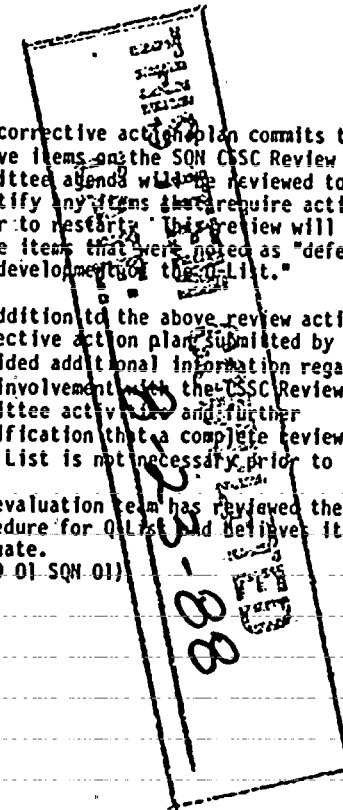
SNQ

- a. The corrective action plan commits that all active items on the SNQ CSSC Review Committee agenda will be reviewed to identify any items that require actions prior to restart. This review will include those items that were noted as "deferrals to the development of the Q-List."

In addition to the above review action, the corrective action plan submitted by TVA provided additional information regarding DNE involvement with the CSSC Review Committee activities and further justification that a complete review of the CSSC List is not necessary prior to restart.

The evaluation team has reviewed the DNE procedure for Q-List and believes it to be adequate.

(CATD 209-01-SNQ-01)



ATTACHMENT  
SUMMARY OF ISSUES, FINDINGS, AND CORRECTIVE ACTIONS  
FOR SUBCATEGORY 20900

REVISION NUMBER:  
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Issues

Findings

Corrective Actions

Element 209.1 - Q-List Differences - SQN

- |  |  |                   |
|--|--|-------------------|
| c. Various Q-Lists (or equivalents) exist on SQN, which are different in content.              | b.* The investigation indicated that only a single listing, the SQN CSSC List, was used on Sequoyah. The Engineering organization had developed a "trial use" SQN Q-List, but it was not implemented on the project. Thus, the problems associated with the existence of several Q-Lists having different content were not applicable to Sequoyah. Further, the TVA commitment in the NQAM to implement the forthcoming DNE-developed and maintained Q-List will adhere to the principle that a single list prescribing QA program applicability will be in existence for SQN. Thus, at some future date, the SQN CSSC List will apparently be superseded by an SQN Q-List.  | b. None required. |
| d. The engineering design group does not provide input to the Q-Lists (or equivalents) on SQN. | c.* The SQN CSSC List was initially developed and issued by NUC PR, and is presently the responsibility of the NSD through the Operations organization. The CSSC List is maintained by the SQN CSSC Review Committee. Although direct DNE organization membership on the committee is not prescribed by the controlling procedure (AI-39) (Ref. 51), DNE has actively participated in CSSC Review Committee activities on an as-needed basis. The interface with DNE tempers the employee concern related to the issue of lack of engineering design group input/approval of the CSSC List, and indicates a DNE de facto involvement with the list. In the past, Q-Lists/CSSC Lists have been prepared and changed by various TVA organizations. Changes have been made at the corporate level to assign specific responsibilities with regard to these lists. As specified in NEP-5.1, Attachment 6, "Q-List," changes to Q-Lists shall be controlled by DNE through the ECR process. | c. None required. |

\* Finding "b" in SQN Element Report corresponds to Issue "c" herein. Finding "c" in SQN Element Report corresponds to Issue "d" herein. Issue "b" is found in SQN Element 209.2.

ATTACHMENT B  
SUMMARY OF ISSUES, FINDINGS, AND CORRECTIVE ACTIONS  
FOR SUBCATEGORY 20900

REVISION NUMBER: 5  
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Issues

Findings

Corrective Actions

Element 209.1 - Q-List Differences - WBN

WBN

- a. The CSSC Q-List is not accurate and complete, and significant differences exist in the content of that list and the Q-List.

- a. TVA has identified and investigated problems associated with the Q-List documents used on Watts Bar Nuclear Plant (WBN). The most significant of the analysis mechanisms include Nuclear Safety Review Staff (NSRS) Investigation Report 1-85-422-WBN (Ref. 58) and Nonconforming Condition Report (NCR) W-269-P, Rev. 1 (Ref. 56). The Q-List problems were determined by TVA to be a significant deficiency and were reported to the NRC under 10 CFR 50.55(e).

The TVA reports documented that discrepancies existed; which included omissions, inconsistencies, and inaccuracies in the identification of safety-related items within the Q-lists.

The CSSC Q-List was a special sort of the Q-List which was utilized by NUC PR for operations, maintenance, and modification activities. The CSSC Q-List was intended as a replacement for the CSSC List which had been developed by NUC PR and used since 1978.

Although the CSSC Q-List was issued and used by NUC PR, it was developed directly from the OE originated WBN Q-List. Engineering was involved with the NUC PR interface in developing the selection criteria for the CSSC Q-List. Thus, the CSSC Q-List was derived with OE (DNE) input and involvement.

WBN

- a. To address Finding "a," which relates to the issue regarding deficiencies in Q-List(s) content, TVA will implement the corrective actions committed to the NRC (L44 860917 812) for Nonconforming Condition Report NCR W-269-P, R1. The following corrective actions have been completed by TVA:

o The WBN Q-List general notes and WBN Administrative Instruction AI-7.6 have been revised to clarify the safety classifications of components listed in the Q-List.

o The WBN CSSC Q-List has been canceled by AI-7.6, R1, 01/31/86.

o TVA has issued guidance for identifying class 1E motors, as an interim measure to revising the WBN Q-List to uniquely identify all motors.

o The Nuclear Quality Assurance Manual (NQAM) has been revised to define limited QA programs used at WBN.

o The WBN Q-List has been revised to provide short-term resolution of content deficiencies identified in NCR W-269-P, R1.

In addition to these actions already completed, TVA has committed to complete the following before WBN unit 1 fuel load:

o Revision of the entire Q-List independently of the existing Q-List, in a coordinated effort between the design, construction, and operations organizations to identify and correct errors, to ensure consistent terminology and definitions, and to provide straightforward and concise information.  
(CAID 209 01 WBN 01)



ATTACHMENT  
SUMMARY OF ISSUES, FINDINGS, AND CORRECTIVE ACTIONS  
FOR SUBCATEGORY 20900

REVISION NUMBER: 5  
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Issues

Findings

Corrective Actions

Element 209.1 - Q-List Differences - WBN

b. The CSSC Q-List was issued without engineering design group input/approval.

b. There were three formally issued Q-List documents on WBN, summarized as follows:

- o CSSC List - Developed and issued in April 1978 by NUC PR for application of the Operational QA Program
- o Q-List - Developed by the OE and issued in January 1984 after one year's trial use; intended as a controlled single list of the structures, systems, and components (SSC) covered by the TVA QA Program
- o CSSC Q-List - A special sublisting of the Q-List, issued in November 1984. Intended to provide a more workable document than the Q-List for NUC PR use in operations, maintenance, and modification activities - and a replacement for the CSSC List. The CSSC Q-List was subsequently canceled.

OE developed the CSSC Q-List from selection criteria that were established by NUC PR. However, an apparent lack of common definition and different program emphases between these offices led to incorrect selection criteria for the CSSC Q-List.

In spite of NUC PR's role in establishing selection criteria, there was active involvement between OE and NUC PR in the development and issue of the CSSC Q-List to the extent that the issue regarding lack of engineering design group input/approval of the CSSC Q-List is not considered valid.

c. The use of the CSSC Q-List could have adversely affected the establishment of appropriate quality control on items that are related to plant safety. By referring to the CSSC Q-List, the possibility exists for installing non-Q items in a safety-related system.

c. Use of the CSSC Q-List was limited both by timeframe and by organization and has been canceled. Therefore the scope of potential problems from use of the CSSC Q-List should be limited by the time of issue of Administrative Instruction AI-7.6 (RO, January 8, 1985) (Ref. 53), which initiated the use of the CSSC Q-List, until AI-7.6 was revised (R1, January 31, 1986) to delete the CSSC Q-List. In addition, the CSSC Q-List was used only by plant personnel (NUC PR) and not by the design or construction organizations.

b. None required.

c. To address Finding "c," which relates to the effects of using deficient Q-List(s), TVA will implement the corrective actions committed to the NRC (L44 860917 812) for Nonconforming Condition Report NCR W-269-P, R1. The TVA corrective action plan provides for the following actions:

- o The revised Q-List, resulting from the complete review activity noted for Finding "a," will be compared to the old Q-List. The differences will be documented, tracked as open items, and transmitted for evaluation by the

ATTACHMENT B  
SUMMARY OF ISSUES, FINDINGS, AND CORRECTIVE ACTIONS  
FOR SUBCATEGORY 20900

REVISION NUMBER: 5  
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Issues

Findings

Corrective Actions

Element 209.1 - Q-List Differences - WBN

TVA's 10 CFR 50.55(e) report to the NRC on Q-List deficiencies commits to review and establish a complete and accurate Q-List. TVA also commits to review maintenance and modification activities for the period from 01/08/85 to 02/15/86 and to make necessary corrections resulting from the review. These activities are committed to be complete prior to fuel load.

The results of the TVA review of the Q-List for accuracy and completeness indicate that additional deficiencies exist in the Q-List. Unlike the limitations regarding historical use of the CSSC Q-List, the Q-List was prepared for use by all organizations on WBN. As such, the implications of using a deficient Q-List are more encompassing than the potential for impact on only maintenance and modifications activities.

Of particular interest are the ramifications of Q-List deficiencies on the Office of Construction (OC) activities. Before the Q-List was implemented on WBN, the OC depended on the identification of safety-related features in the individual system documents and drawings originated by OE. With implementation of the Q-List, Construction Specification N3G-881 (Ref. 29) was revised to identify the Q-List as an additional source of identifying the SSC subject to the QA Program. N3G-881 states that either source (i.e., Q-List or drawings) may be used for identification of the SSC, depending on the needs of the user. These factors indicate that deficiencies in the Q-List could result in incomplete implementation of QA program requirements by Construction.

The results of the corrective actions taken by TVA to address deficiencies in the Q-List must be assessed to determine the impact of identified deficiencies on a wide range of QA program requirements - including design, procurement, and construction activities, as appropriate.

Division of Nuclear Construction (DNC), the Nuclear Site Director (NSD), and the Division of Nuclear Engineering (DNE) as appropriate, for potential impact on construction, maintenance, procurement, design, and other activities. Conditions Adverse to Quality (CAQs) will be identified before WBN unit 1 fuel load, and corrective actions will be scheduled and completed by the responsible organizations as appropriate.

- o Prior to WBN unit 1 fuel load, TVA will complete a review of maintenance and modification activities during the existence of the CSSC Q-List to verify that these activities were adequately implemented.  
(CAID 209 01 WBN 02)

ATTACHMENT  
SUMMARY OF ISSUES, FINDINGS, AND CORRECTIVE ACTIONS  
FOR SUBCATEGORY 20900

REVISION NUMBER: 5  
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Issues	Findings	Corrective Actions
Element 209.1 - Q-List Differences - BFN	BFN	BFN
a. The documents (Q-Lists or equivalent) used to identify the applicability of QA program controls are not accurate and complete.	a. Browns Ferry either used, or is now using, several lists for the purpose of satisfying the intent of 10 CFR 50, Appendix B, Criterion II, as follows: <ul style="list-style-type: none"><li data-bbox="692 464 1317 508">o The FSAR in Appendix D contained a CSSC List between 1970 and 1978.</li><li data-bbox="692 533 1338 624">o In that same period (1970 through 1978), the OQAM contained a Critical Structures, Features, Systems and Equipment (CSFSE) list which was used by TVA during construction of BFN units 1, 2, and 3.</li><li data-bbox="692 649 1342 905">o From 04/78 through 07/85, Appendix A of the OQAM/NQAM contained a CSSC List which was derived from the FSAR CSSC List. In 05/81 the NSRS found the list deficient. As a result of the NSRS review, a CSSC Review Committee was formed in Chattanooga to be responsible for updating the list to reflect plant modifications. In 07/85, the list was deleted from the NQAM and the responsibility for it was transferred to the site director. The site director did not create a specific CSSC Review Committee to continue the committee review concept.</li><li data-bbox="692 930 1342 1210">o In 03/78, the BFN plant superintendent issued Standard Practice BF 1.11, CSSC List (Ref. 39), which is being used by operations personnel to this day. This BF 1.11 CSSC List was also derived from the FSAR CSSC List. It was not a continuation of the CSFSE List which was used during construction and no evidence was found that a comparison of the two lists was made and any differences reconciled. Periodic review is required by the BF 1.11 procedure; however, no evidence was found that the reviews were for accuracy or completeness and that they incorporated plant modifications.</li><li data-bbox="692 1235 1342 1352">o In 05/84 DNE issued a set of drawings titled "EN DES CSSC List." There is evidence that this list caused some changes in the BF 1.11 CSSC List. However, no evidence was found that a complete comparison was made and any differences reconciled.</li></ul>	a. A program is in process to develop and implement a Q-List which will provide more detailed component level identification and specification and replace the present CSSC list. An experienced contractor and TVA are generating the initial phase of this Q-List in order to meet the Nuclear Regulatory Commission's (NRC) generic requirements related to equipment classifications. This list will use information derived from the Baseline Program, field walkdowns, and licensing commitments and requirements related to equipment classifications. This initial issue (Phase I) of this list, for safety-related systems, is scheduled for late September 1987. Evaluations of additional systems for which TVA has made commitments for application of QA or limited QA programs (Phase II) will be completed 6 months following restart of each unit. During the interim period between completion of Phase I and the completion of Phase II, instructions for the use of the Q-List will direct the users to use the CSSC lists for guidance for items not appearing in the Q-List. Upon completion of Phase II in conjunction with an aggressive update and tracking scheme, an active and complete component Q-List will have been developed. (CATD 209 01 BFN 01)

ATTACHMENT B  
SUMMARY OF ISSUES, FINDINGS, AND CORRECTIVE ACTIONS  
FOR SUBCATEGORY 20900

REVISION NUMBER: 5  
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Issues

Findings

Corrective Actions

Element 209.1 - Q-List Differences - BFN

- o In addition, the evaluation team found that GE is preparing a Q-list which will be completed later this year (1987).
- b. The use of inadequate Q-Lists (or equivalents) could have adversely affected the establishment of appropriate QA program controls on items that are related to plant safety. By reference to an inadequate Q-List, the possibility exists that "non-Q" items are installed in a safety-related system.
- b. Standard Practice BF 1.11 is used by the operations organization for procurement, maintenance, and modifications. Procedures for control of procurement, maintenance, and modification activities establish BF 1.11 as the base reference for identifying safety-related (CSSC) items or activities. An inaccurate or incomplete BFN CSSC List could result in misclassification of an item or work activity as not being safety-related (CSSC), resulting in the omission of QA program requirements.
- b. If at any time during the preparation of the Q-List, discrepancies are discovered which are Conditions Adverse to Quality, CAQRs will be initiated and processed in accordance with NEP-9.1. Upon issuance of the Q-List at the completion of Phase II, a comparison is to be made between it and the Nuclear Power CSSC and the EN DES CSSC lists noting the discrepancies. CAQRs [to resolve needed hardware changes] will be issued when disagreements between the lists are a result of the Q-List classifying a component safety-related which was previously classified non-safety related. Other discrepancies will be identified and evaluated via the PIR process. Disposition of those initiated CAQRs will be performed in accordance with NEP-9.1 and will be tracked by the TROI System.  
(CATD 209 01 BFN 02)
- c. Various Q-Lists (or equivalents) exist that are different in content.
- c. There is more than one Q-List/CSSC List available and in use at BFN.

  - o Standard Practice BF 1.11 issued 03/78 is the primary CSSC List used by operations personnel for procurement, maintenance, and modification. The EN DES CSSC List issued 05/84 is a set of issued drawings that could be used for the same activities. It was created with a draft procedure; however, it is not clear who used it.
  - o The revision history of Standard Practice BF 1.11 shows two revisions that were the result of a difference between the EN DES CSSC List and the BF 1.11 CSSC List. This finding is the only evidence in the documents reviewed that the two lists were ever compared; however, the evidence does not indicate whether or not the comparison was complete.
- c. The BF 1.11 and EN DES CSSC lists will be discontinued upon completion of the Phase II Q-List (Refer to Section 14.1 of BFNPP Volume 3 commitment).  
(CATD 209 01 BFN 03)

ATTACHMENT B  
SUMMARY OF ISSUES, FINDINGS, AND CORRECTIVE ACTIONS  
FOR SUBCATEGORY 20900

REVISION NUMBER: 5  
Page 8-9 of 11

Issues

Findings

Corrective Actions

Element 209.1 - Q-List Differences - BFN

d. The engineering design group does not provide input to the Q-Lists (or equivalents).

d. The reference documents show no requirement for DNE participation in review and/or approval of Standard Practice BF 1.11, CSSC List. This list did, however, originate from the FSAR and the revision record of BF 1.11 describes some revisions resulting from engineering input.

d. None required.

BLN

BLN

BLN

a. The documents (Q-Lists or equivalent) used to identify the applicability of QA program controls are not accurate and complete.

a. BLN is now using a single Q-List to satisfy the intent of 10 CFR 50, Appendix B, Criterion 11. In the past, however, several different lists were used to determine which plant items required QA program controls. The lists were used as follows:

a. A review of the open items in the memo from R. J. Mullin to Those Listed, dated December 31, 1984 (L16 841231 974) will be performed. Discussion of resolution or proposed resolution will be documented.

- o From the beginning of the project in 1972 to the present, BLN has used the plant design criteria documents to identify the safety-related structures, systems, and components.
- o The PSAR/FSAR contains a summary listing of structures, systems, and components (07/73 to present).
- o From 04/78 through 07/85, Appendix A of the OQAM/NQAM contained a CSSC List that was derived from the PSAR CSSC List. In 07/85, the list was deleted from the NQAM, and thus was superseded by the BLN BLG1 CSSC List.
- o BLN Standard Practice BLG1 (Ref. 43) included a CSSC List and was issued in 1982. On 11/20/86, the CSSC List was replaced by the BLN Q-List.
- o The BLN Q-List was issued by system from 10/84 through 02/85, and it listed the items defined by the criteria documents. The BLN Q-List appears to be adequately controlled by engineering procedures.

The review will be completed in time to implement any required changes to the Q-list as a result of the review prior to fuel load of each unit.  
(CA1D 209 01 BLN 01)

TVA memo from R. J. Mullin to Those Listed, "CSSC List and CSSC Review Committee" (Ref. 108) [L16 841231 974] (12/31/84), transferred responsibility for the CSSC List to the BLN jobsite and included a list of open paperwork items to be resolved.

ATTACHMENT B  
SUMMARY OF ISSUES, FINDINGS, AND CORRECTIVE ACTIONS  
FOR SUBCATEGORY 20900

REVISION NUMBER: 5  
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Issues

Findings

Corrective Actions

Element 209.1 - Q-List Differences - BLN

Even though no evidence was found that the NQAM CSSC list open-items were resolved, the evaluator found that the BLN Q-List appeared to be accurate and complete based on the thorough, formalized procedures which were subsequently used to prepare the Q-List. The procedures included reviews by all engineering disciplines, the construction organization through trial use feedback, and independent reviews.

- |   |   |                   |
|---|---|-------------------|
| b. The use of inadequate Q-Lists (or equivalents) could have adversely affected the establishment of appropriate QA program controls on items that are related to plant safety. By reference to an inadequate Q-List, the possibility exists that "non-Q" items are installed in a safety-related system. | b. Because the BLN Q-List, as noted in Finding "a," appears to be accurate and complete, the evaluator found no evidence of misclassified safety-related items during fabrication or installation.  | b. None required. |
| c. Various Q-Lists (or equivalents) exist that are different in content.  | c. For design and construction activities, the listing of safety-related structures, systems, and components was provided from 1972 to 10/84 by design criteria documents and diagrams. In 10/84, EN DES began issuing, by system groups, the Q-List which became the primary list of safety-related items but supplemented by the design criteria documents and diagrams. All systems were issued RO by 02/85.<br><br>To cover the operational activities, TVA issued BLN Standard Practice BLG1 in 1982. BLG1 contained a CSSC List which was maintained equivalent to the OQAM/NQAM. In 11/86, BLG1 deleted the CSSC List and incorporated the BLN Q-List, thereby making the BLN Q-List applicable to all project activities. | c. None required. |
| d. The engineering design group does not provide input to the Q-Lists (or equivalents).   | d. The BLN Q-List and the controlling and supporting procedures used for BLN that affect safety-related structures, systems, and components are all engineering documents. Thus, the issue relating to lack of engineering input to the Q-List is not true for BLN.   | d. None required. |

ATTACHMENT  
SUMMARY OF ISSUES, FINDINGS, AND CORRECTIVE ACTIONS  
FOR SUBCATEGORY 20900

REVISION NUMBER:  
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Issues

Findings

Corrective Actions

\*\*\*\*\*  
Element 209.2 - Impact and Significance of Q-Lists Differences  
\*\*\*\*\*

SQN

b.\* The use of inadequate Q-Lists (or equivalents) on SQN could have adversely affected the establishment of appropriate QA program controls on items that are related to plant safety. By reference to an inadequate Q-List, the possibility exists that "non-Q" items are installed in a safety-related system.

SQN

b. To date, the SQN CSSC List has been used only by the Operations organization; the list was not used by Construction or Engineering on SQN. Therefore, the potential effects of using an inaccurate or incomplete SQN CSSC List are limited to Operations activities, which include procurement, maintenance, and modification.

SQN procedures that control procurement, maintenance, and modification activities of the Operations organization establish the SQN CSSC List as the base reference for identifying safety-related (CSSC) items or activities. Erroneous classification as non-CSSC could result in omission of essential requirements and activities.

No specific deficiencies in the SQN CSSC List were identified in the review of the case file materials.

NOTE: One of the purposes of a recent NRC inspection at SQN was to evaluate the adequacy of the CSSC List. As noted in the TVA prepared minutes of the inspection exit meeting on July 24, 1987, the NRC concluded that the SQN CSSC List and its utilization process appeared to be working and, for the short term, were adequate. However, it was recommended by NRC that the Q-List for SQN be developed and implemented in an expeditious manner.

WBN

(See 209.1)

BFN

(See 209.1)

BLN

(See 209.1)

WBN

(See 209.1)

BFN

(See 209.1)

BLN

(See 209.1)

SQN

b. TVA has submitted a corrective action plan (TCAB-021). This plan provides that if the corrective action for Sequoyah Element 209.1 discloses inaccuracies or omissions in the SQN CSSC List, the items will be dispositioned (to resolve needed hardware changes) (prior to restart if appropriate) in accordance with the established procedures for conditions adverse to quality. (CATD 209 02 SQN 01)

WBN

(See 209.1)

BFN

(See 209.1)

BLN

(See 209.1)

\* Issues a, c, and d are in Element 209.1.





ATTACHMENT C

REFERENCES

1. 10 CFR 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants, Criterion II, "Quality Assurance Program"
2. Regulatory Guide 1.29, Rev. 2, "Seismic Design Classification," (02/76)
3. Regulatory Guide 1.26, Rev. 2, "Quality Group Classifications and Standard for Water-Steam, and Radioactive Waste Containing Components of Nuclear Power Plants," (06/75)
4. SQN FSAR, Section 3.2 (Amendment 3), "Classification of Structures, Systems and Components"
5. SQN FSAR, Section 17 (Amendment 3), "Quality Assurance"
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66. Letter from R. Gridley (TVA) to J. N. Grace (NRC), "Response to Inspection Report 50-327/86-11 and 50-328/86-11," [L44 860627 800], (06/27/86)
67. Letter from Gridley (TVA) to Grace (NRC), "WBN Units 1 and 2 - Q-List Conformance to NQAM Requirements - WBRD-50-390/85-86, WBRD-50-391/85-93 - Final Report," [L44 860303 815], (03/03/86)
68. Letter from R. Gridley to J. N. Grace (NRC), "Revised Final 10 CFR 50.55(e) Report on NCR W-269-P R1," [L44 860917 812], (09/17/86)
69. Letter from Thompson (NRC) to Parris (TVA), "Concerns Regarding TVA Construction Sites," [L44 850528 290], (05/16/85)
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82. Letter from McNutt to Parkinson, "Employee Concern Evaluation Program - Sequoyah Restart Program - Corrective Action Plan (CAP)," (12/08/86) (TCAB-021 and TCAB-022)
83. Letter from L. N. Arms (TVA) to American Nuclear Insurers, "SQN-ANI/MAELU Nuclear Liability Insurance - Sept. 10-13, 1984 Inspection - Recommendations 84-2, 84-3, and 84-4," [L01 841221 158], (12/19/84)
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