

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

JAN 29 1988

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

Gentlemen:

In the Matter of)	Docket Nos. 50-327
Tennessee Valley Authority)	50-328

SEQUOYAH NUCLEAR PLANT (SQN) UNITS 1 AND 2 - RESPONSE TO NRC TECHNICAL
EVALUATION REPORT (TER) RECOMMENDATIONS

- References:
1. NRC letter to TVA dated March 9, 1987, "Evaluation of Sequoyah Units 1 and 2 Cable Pulling and Bend Radii Concerns"
 2. TVA letter to NRC dated November 20, 1987, "Sequoyah Nuclear Plant (SQN) Units 1 and 2 - Cable Test Program Procedures, Data, and Results"
 3. NRC letter to TVA dated November 13, 1987, "Cable Test Program For Sequoyah Units 1 and 2"
 4. TVA letter to NRC dated July 31, 1987, "Sequoyah Nuclear Plant (SQN) Units 1 and 2 - Revised Cable Test Program"

The purpose of this letter is to outline TVA's response to the recommendations provided by the NRC in their TER (reference 1). TVA committed to provide this response before the restart of SQN unit 2 (reference 2).

The NRC's TER, in section 14, provided eight recommendations that they believed were necessary to ensure adequate reliability of the SQN cable system. NRC specified that three of the recommendations, which addressed potential damage associated with pullbys, jamming, and vertical cable supported by 90-degree condulets, were to be resolved before startup of SQN. TVA has successfully resolved these three concerns (reference 2) and has obtained NRC's concurrence based on the preliminary results (reference 3). This letter addresses the five remaining recommendations for which postrestart implementation was agreed to by TVA and NRC (reference 1). The schedule for implementation of each corrective action is identified in the individual response.

Monitoring of Cable Failures

TVA recognizes the essential need for monitoring and trending all conditions adverse to quality. The specific relationship of such a program with regard to cable failures was identified in TVA's Employee Concerns Program (ECP) in

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U.S. Nuclear Regulatory Commission

JAN 29 1988

Element Report No. 238.01-SQN-04. TVA's Division of Nuclear Engineering (DNE) has issued Nuclear Engineering Procedure (NEP)-9.2 entitled "Trending of Conditions Adverse to Quality." The program is controlled and administered by DNE Engineering Assurance. The program involves analyzing Condition Adverse to Quality Reports to identify adverse trends for further review and assessment. Any adverse trends will be researched to determine their root causes. Timely corrective action will be implemented for the root cause of each adverse trend to reduce or eliminate the recurrence of similar problems. This includes all instances of cable failures.

This ECP element report has been reviewed by the Employee Concerns Task Group and, along with NRC recommendation, is considered closed for SQN. DNE NEP-9.2 is included as enclosure 1.

Small Bend Radii for Low-Voltage Cable

TVA will implement a program, which may include tests and/or analysis, to ensure that the safety-related, low-voltage power, control, and instrument cables that are bent to radii smaller than four times the cable diameter will not be subject to common mode failures when subjected to accident and postaccident environments. In establishing this program, TVA will consider the recommendations of the Insulated Conductors Committee (ICC) Task Force 14-4, of the Institute of Electrical and Electronics Engineers (IEEE) Power Engineering Society. TVA and its representatives are actively participating on this task force entitled "Evaluating Installed Station Cables." In addition, TVA will consider the applicability of the cable test program, committed to in reference 4, that will be established consistent with NRC's Office of Inspection and Enforcement (IE) Information Notice No. 86-49.

TVA agrees with NRC's assessment that this potential damage is age related and long term in nature. TVA will provide the details of this particular program in accordance with the commitment for describing the IE Notice 86-49 program, which is within six months after restart of SQN unit 2. In the interim, if any adverse trends occur in this area, TVA's cable monitoring program will ensure that timely corrective action is implemented.

Small Bend Radii for Medium-Voltage Cable

TVA will determine the safety-related, 8-kV, shielded power cables that are bent to radii smaller than those presently recommended by the manufacturers of the cables. TVA will take the necessary action to ensure that the cables will not be subject to long-term degradation that could interfere with the reliability of the cables. In establishing this program, TVA will consider NRC's recommendation of periodic dc high-potential testing of a sample of cables that had the worst case bends. In addition, TVA will consider the recommendations of the IEEE/ICC task force 14-4 as well as the applicability of the IE Notice 86-49 program previously committed to.

U.S. Nuclear Regulatory Commission

JAN 29 1988

TVA agrees with NRC's assessment that this potential damage is age related and long term in nature. TVA will provide the details of this particular program also in accordance with the commitment for describing the IE Notice 86-49 program, which is six months after restart of SQN unit 2. In the interim, if any adverse trends occur in this area, TVA's cable monitoring program will ensure that timely corrective action is implemented.

Pulling Through 90-Degree Condulets and Flexible Conduit

NRC has recommended that TVA make a survey and assessment of midrun flexible conduits with a significant offset or angle of bend and of 90-degree condulets to determine those that were likely to have had cables pulled through them under mechanical assistance. TVA has carefully reviewed this recommendation. Since midrun flexible conduits and condulets are generally not identified on design drawings, the existence of such raceways or fittings can be determined only through extensive field walkdowns. Upon determination of their existence, it would be virtually impossible to determine whether condulets had cables pulled through them as opposed to having been utilized as a pull point. It would be even more remote to expect to determine which flexible conduits or condulets were likely to have had cables pulled through them with mechanical assistance. TVA does not believe that such a program would be meaningful or is warranted.

TVA has recently completed an extensive in situ cable test program on over 900 conductors, all of which were installed in conduits. All of these conductors were selected because they represented the worst case installations as judged by various criteria, generally focused on long, difficult pulls with high expected pulling tensions. It is expected that these conduits contain a representative or even worst case sampling of midrun flexible conduits and condulets. TVA will review the existing isometric sketches of these conduits and identify the existence of the raceways or fittings of concern. Utilizing this sample, it is expected that TVA will demonstrate the integrity of the cables installed in the raceways and fittings in question. This sample will be shown to be representative or will be expanded until it is so justified.

If it is determined that a diagnostic program is required, TVA will consider the recommendations of the IEEE/ICC task force 14-4 as well as the applicability of the IE Notice 86-49 program previously committed to.

The recently completed cable test program, combined with the NRC's statement that their discussions with SQN electricians indicated that they did not pull cable around the corners of 90-degree condulets, provides TVA with a high level of confidence in SQN's installed cables. TVA will complete the

U.S. Nuclear Regulatory Commission

JAN 29 1988

assessment of its existing program to demonstrate a representative sampling of midrun flexible conduits and condulets and provide the results to the NRC within six months after restart of SQN unit 2. If further sampling or diagnostic procedures are required, TVA will describe its program for implementation at that same time. In the interim, if any adverse trends occur in this area, TVA's cable monitoring program will ensure that timely corrective action is implemented.

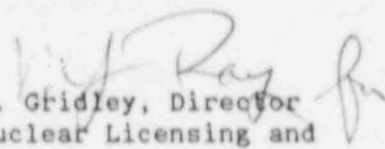
Revision of General Construction Specifications

TVA will revise General Construction Specifications G-38 and G-40 and the appropriate Modifications and Additions Instructions used at SQN to incorporate the recommendations provided in section 14, item 8, of the TER (reference 1). This revision represents an enhancement to TVA's existing procedures that have been demonstrated as adequate by the recent successfully completed SQN cable test program. TVA will complete and implement the above document revisions by April 30 and June 30, 1988, respectively. In addition to the above, TVA has contracted with an outside engineering firm to prepare a new TVA Engineering Requirements Specification for Electrical Installation. This specification, which will supersede G-38 and G-40, will contain the current industry requirements and guidelines for all electrical installations.

Enclosure 2 contains a list of commitments made by this letter. If you have any questions regarding the information provided by this letter, please telephone M. R. Harding at (615) 870-6422.

Very truly yours,

TENNESSEE VALLEY AUTHORITY


R. Gridley, Director
Nuclear Licensing and
Regulatory Affairs

Enclosures

cc: See page 5

U.S. Nuclear Regulatory Commission

JAN 29 1988

cc (Enclosures):

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ENCLOSURE 1

TVA Division of Nuclear Engineering
Nuclear Engineering Procedure 9.2 Revision 0

Trending of Conditions Adverse to Quality

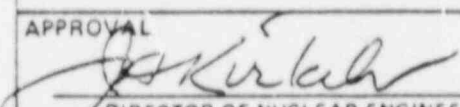


QA Record

B05 '87 0515 501

NEP-9.2

TVA DIVISION OF NUCLEAR ENGINEERING NUCLEAR ENGINEERING PROCEDURE

TITLE TRENDING OF CONDITIONS ADVERSE TO QUALITY (CAQ)		REVISION 0 DATE 5-15-87 PAGE 1 OF 7*
APPLICABILITY ALL NUCLEAR PLANT PROJECTS	SUPERSEDES	
APPROVAL  DIRECTOR OF NUCLEAR ENGINEERING		

1.0 PURPOSE AND SCOPE

This procedure describes the DNE CAQ Trend Analysis Program for identifying and resolving adverse trends in CAQs, the issuance of CAQ trend data reports, trend analysis of trend categories, documentation of the analysis results, and corrective action for adverse trends. The CAQs include SCRs, PIRs, NCRs (DNC and vendor), LERs, PT deficiency reports, CAQRs, NSRS reports, and audits (DNE and supplier).

2.0 GENERAL REQUIREMENTS

2.1 Identification and Documentation of Adverse Trends

Adverse trends for DNE problems involve technical or programmatic concerns which indicate that certain aspects of corrective actions for previously identified CAQs have not been effective and that root causes for these CAQs and the recurrence control should be reevaluated. An adverse trend is considered a significant CAQ and shall be documented and processed in accordance with NEP-9.1.

2.2 DNE CAQ Trend Analysis Program

CAQ reports shall be analyzed to identify adverse trends for further review and assessment. This involves isolating instances of the same or similar recurring problems involving DNE. Adverse trends shall be researched to determine their root causes. Timely corrective action shall be implemented for the root cause of each adverse trend to reduce or eliminate the recurrence of similar problems. The DNE CAQ Trend Analysis Program shall be controlled and administered by Engineering Assurance (EA). The program elements, including the manner of data presentation, is described in the Trend Analysis Task Team Final Report of reference 5.2. The program will include the semi-annual distribution of branch and project trend data reports (TDRs) to DNE branches and projects for their use in identifying and resolving adverse trends. The formal analysis of the trend categories identified in the trend data reports are to be documented in accordance with the instructions in Appendix F. In addition, EA may identify apparent adverse trends and request investigation and resolution from the responsible DNE branch or project.

2.5 Definitions (Continued)

- 2.5.2 Trend Analysis--The process of evaluating the data pertaining to a trend for the purpose of identifying significant changes.
- 2.5.3 Adverse Trend--The repetition of the same or similar CAQs at an unacceptable frequency such that it indicates root cause determination and subsequent recurrence control action has been ineffective.
- 2.5.4 Root Cause--The underlying reason for the existence of a CAQ. The root cause is the initiating event to a chain of events that led to a CAQ, or the most basic cause that can be reasonably identified and that management has the control to fix. Root cause is discussed in further detail in Appendix B.
- 2.5.5 Recurrence Control--Actions designed to address the root cause of a CAQ and thereby prevent it from recurring.
- 2.5.6 Formal Trending--Trend analysis of CAQs that is accomplished within the structure of the DNE CAQ Trend Analysis Program in response to either DNE Trend Data Reports or EA-initiated Apparent Adverse Trend Reports.
- 2.5.7 Routine Trending--Trend analysis accomplished outside the structure of the DNE CAQ Trend Analysis Program and EA-initiated Apparent Adverse Trend Reports. Routine trending is normally accomplished at the initiative of DNE management in response to the need to investigate the adequacy of recurrence control for specific trend subjects.

3.0 PROCEDURE

3.1 Administration of Formal Trend Analysis Program

3.1.1 The EA Trend Section Supervisor shall:

- a. Serve as the DNE trend analysis program lead.
- b. Collect and maintain a data base of information of CAQ reports.
- c. Prepare and distribute semi-annual reports of trend data to DNE branches and engineering projects for their area of responsibility, with sufficient annotation to clearly define responsibilities. Mark "QA Record" on the record copy of the reports and send them to RIMS.
- d. As requested, provide guidance, assistance, and training to the discipline branches and engineering projects in the analysis of trend data, including developing special trend data sorts/reports.
- e. Maintain a staff to identify and research adverse trend topics and refer to appropriate DNE branches or projects for determination of corrective actions.

3.3 Analyzing Semi-Annual Reports of Trend Data (DNE Projects) (Continued)

- c. Document the results of each periodic analysis of trend data within 60 days of receipt of trend data reports, and provide a copy of the documentation to EA, applicable branch chiefs (including OES), and to other projects which may have the same or similar problems (see Exhibits A and B of Appendix F for suggested formats that provide required information). Provide results of the project analysis to the appropriate branch within 45 days of receipt of trend data to allow the branch analysis to assess multiproject implications. Document the results of the analysis of Apparent Adverse Trend Reports within 30 days. Documentation shall be marked as a QA Record and sent to RIMS.

3.4 Surveillance of Trend Analysis Results

3.4.1 The EA Trend Section Supervisor shall:

- a. Perform surveillance on the results of the trend analysis performed by the branches and engineering projects. Review the trend subjects identified by these analyses, the CAQ groupings established, the adequacy and completeness of root cause(s), the conclusion regarding the presence of adverse trend(s), and the completeness of corrective actions established. Monitor corrective actions through closure.
- b. Request additional analysis and/or documentation for trend analysis reviews found to be incomplete or inadequate.
- c. Escalate concerns regarding timely and complete identification of adverse trends or adequacy of proposed corrective actions to appropriate management for resolution.
- d. Enter in the remarks column of Reports A, B, and C (see Appendix A) descriptive statements from the discipline branch analysis of each identifier or requisition grouping.
- e. Analyze trend data to identify programmatic multiproject and multi-discipline trends, issue apparent adverse trend reports on the subjects. Interface with involved DNE organizations in determining any required corrective actions. Enter corrective action plans into Tracking and Reporting of Open Items (TROI) for related EA TROI items. Monitor corrective actions through closure.
- f. Track and summarize trend analysis activities within DNE and prepare appropriate reports, including end-of-cycle reports for DNE management. Stamp "QA Record" on the record copy of such reports and send them to RIMS.

4.0 APPENDIXES (Continued)

4.5 Appendix E, DNE CAQ Data Base Report Examples

4.6 Appendix F, Format for Summarizing the Results of the Review for Adverse Trends

5.0 REFERENCES

5.1 NEP-9.1, Corrective Action

5.2 Trend Analysis Task Team final report, attached to memorandum from J. R. Lyons to the Technical and Administrative Staff Files dated May 2, 1985 (B49 850502 005)

5.3 NQAM Part I, Section 2.16, Corrective Action

5.4 TVA Topical Report, TVA-TR75-1A

DESCRIPTION OF CAQ DATA PROVIDED TO BRANCHES
GUIDELINES FOR EVALUATION, CORRECTIVE ACTIONS,
AND DOCUMENTATION OF ANALYSIS RESULTS

1. Discipline-sorted trend data reports for the previous 3-year period of "DNE-caused" problems are provided periodically (normally semiannually) to the discipline branches, including references to all CAQRs associated with that discipline for all DNE projects.
2. The trend data reports consist of:
 - a. Summary lists of recurring groupings of CAQRs which have occurred three or more times within a given equipment or problem identifier grouping, or by a given requisition number as follows:

o Equipment and Documentation	Selected by discipline;
Problems (Report A)	report selection for all
o Supplier Problems (Report B)	projects and each project
o Type of Problem (Report C)	is available

Examples of these reports are included in this appendix and in Appendix E.
 - b. Appropriate CAQ data base companion printouts containing the complete data entries corresponding to the above lists.
 - o Report 3F - "By Identifier - All Projects - DNE-Caused, Selected by Discipline," companion report for Report A
 - o Report 5A - "Supplier-Caused Nonconformances," companion report for Report B

- (7) Existence of an adverse trend(s).
- (8) When the adverse trend is an already identified problem area (previous adverse trend), the following areas should be addressed:
 - (a) If the corrective action plan has been implemented.
 - (b) The effectiveness of the corrective action plan in preventing recurrence of the problem.
 - (c) Further actions, if any, that should be initiated to prevent recurrence.
- (9) When the adverse trend is a new problem area (new adverse trend), state what corrective actions need to be initiated.

4. Documentation of Analysis Results

- a. A memorandum summarizing the results of the periodic review is to be provided to the Manager of Engineering Assurance within 60 days after receipt of the CAQ data. The format for documenting the results of these reviews is shown in Appendix F.
- b. The memorandum and its attachments shall be considered standalone documentation that can be used for future surveillance of identified corrective action(s).
- c. For those identifier and requisition groupings for which the method of review used in the analysis and the resulting conclusion are logically the same or similar, the results of the branch analyses for these groupings may be documented together.

5. Apparent Adverse Trend Subjects Identified by EA and Provided to
Discipline Branches for Analysis

- a. For apparent adverse trends identified by EA (not addressed above) in the form of separate apparent adverse trend reports from EA to the branch, the designated branch shall, for each report:
 - (1) Further analyze the data provided by EA in the EA apparent adverse trend report to determine the existence or nonexistence of a trend.
 - (2) Evaluate the adverse trends to determine the applicable root cause(s) and required corrective action(s).
 - (3) Within 30 days of receipt of the report, provide a response to EA stating:
 - (a) Whether the analysis confirmed an adverse trend
 - (b) Root causes of the trend, as applicable
 - (c) Corrective actions that have been, are being, and/or are planned to correct the root cause(s) (i.e., to preclude repetition of the root cause), including all plants as applicable and the schedule for completion of each corrective action
 - (4) Results should be documented as described in section 4 and the format given in Appendix F.

SAMPLE

SUNMARY LIST

Supplier Problems By Discipline

Code: XX5X
Plant: All (4)
Timeframe: 7/1/83 - 6/30/86

In Descending Order By
Quantity of Occurrences

PAGE:
DATE: 7/15/86
Report B

Discipline: Civil

<u>Requisition No.</u>	<u>Vendor</u>	<u>CAQ Report Quantities</u>					<u>Trend Analysis Results (1)</u>		
		<u>Total</u>	<u>83</u>	<u>84</u>	<u>85</u>	<u>86</u>	<u>Previously Reported (2)</u>	<u>Update (2)</u>	<u>Remarks (3)</u>
XXXXXX-XX	Large Corp.	25	5	8	8	4	C 11/85	-	
Etc.	Etc.			Etc.			Etc.	Etc.	

A-7

NOTES:

- (1) Legend: N = No Trend
C = Trend Recognized, Corrective Action
Initiated (Date)
- = No Change from Previous Status
- (2) The initial and the updated status of trend recognition, in accordance with legend.
- (3) Appropriate remarks for the record (which will be entered into computer by EA as history record).
- (4) Plant selection will also be provided

(See Appendix E for example of actual Report B printout.)

GUIDELINES FOR IDENTIFYING ROOT CAUSES
AND DETERMINING CORRECTIVE ACTIONS

An effective corrective action program must include an accurate identification of the root cause(s) which contribute to the problem(s) being addressed. This identification of root causes is essential to provide a basis for determining the actions necessary to prevent recurrence of similar problems, i.e., to correct adverse trends. As a minimum, the analysis of adverse trends should consider the following factors in determining the associated root causes:

- o Timeframe in which individual CAQs occurred
- o Organizations and personnel involved
- o Extent of management involvement in planning for and controlling the work process
- o Procedural controls for the affected processes and the effectiveness of their implementation
- o Extent of training provided

Root causes usually involve people and/or procedures. The root cause is generally not indicated or obvious from reading the problem description of a given CAQ report. Some examples of root causes are listed below.

Lack of, erroneous, incomplete, and/or inadequate:

1. Planning
2. Training and/or Qualification
3. Procedures and Instructions
4. Management Control (Work Schedule, Staffing, Etc.)
5. Engineering Judgment
6. Compliance With Regulatory Requirements
7. Compliance With DNE Design Criteria

DESCRIPTION OF CAQ DATA PROVIDED TO PROJECTS
GUIDELINES FOR EVALUATION, CORRECTIVE ACTIONS,
AND DOCUMENTATION OF ANALYSIS RESULTS

1. Project-sorted trend data reports include reference to all CAQ data associated with the project. The project trend data is multidiscipline and identifies problems that relate to "DNE-Caused," "DNC-Caused," "Operations-Caused," and those where the causing organization cannot be determined. The trend data is provided semiannually and includes CAQ reports for the previous 3-year period.
2. The trend data reports consist of:
 - a. The "top 50" most frequently occurring identifier groupings (Report 1B). See Appendix E for an example of this report.
 - b. Report 4A, "By Identifier - Each Project," the full-text companion report for the above. Report 4A is a 2-part report which contains project-specific CAQs (under the appropriate project code) and all generic CAQs (under a 99 project code). See Appendix E for an example of this report.
3. Evaluation and Corrective Action
 - a. The project is to analyze the following trend data grouping from the project "top 50" to identify any recurring problems that indicate potential adverse trends.
 - (1) "DNE-Caused" identifier groupings (XX2X and discipline-oriented groupings such as XXCX)
 - (2) "DNC-Caused" identifier groupings (XX1X)
 - (3) "Operations-Caused" identifier groupings (XX3X)

- (9) When the adverse trend is a new problem area (new adverse trend), state what corrective actions need to be initiated.
 - c. The project will coordinate its analysis with the appropriate discipline for each discipline-oriented identifier in the "top 50" and for each supplier grouping (XX5X) in the "top 50." Further coordination with DNE and/or non-DNE organizations shall be accomplished as required.
4. Documentation of Analysis Results
- a. A memorandum summarizing the results of the periodic review is provided to the Manager of Engineering Assurance within 60 days after receipt of the CAQ data. See Appendix F for the format for documenting the results of these reviews.
 - b. The memorandum and its attachments shall be considered standalone documentation that can be used for future surveillance of identified corrective action(s).
 - c. For those identifier groupings for which the method of review used in the analysis and the resulting conclusion are logically the same or similar, the results of the project analysis for these groupings may be documented together.
 - d. If a new adverse trend is identified, include as a minimum the following: (1) Statement that an adverse trend has been identified. (2) A description of the adverse trend. (3) Summary of the factors which led to identifying the adverse trend. (4) Review of the technical, programmatic, and generic aspects of the adverse trend. (5) Summary of the corrective actions to be initiated. (6) Number of the CAQ which was initiated when the adverse trend was identified (as required by NEP-9.1).

- b. Evaluate the adverse trends to determine the applicable root cause(s) and required corrective action(s).
- c. Within 30 days of receipt of the report, provide a response to EA stating:
 - (1) Whether or not the analysis by the project confirmed an adverse trend
 - (2) Root causes of the trend, as applicable
 - (3) Corrective actions that have been, are being and/or are planned to correct the root cause(s) (i.e., to preclude repetition of the root cause), including all plants as applicable and the schedule for completion of each corrective action
- d. Results should be documented as described in Appendix C, section 4, and the format given in Appendix F.

OVERVIEW AND GENERAL INSTRUCTIONS FOR USE OF THE DNE CAQ DATA BASE

General

The DNE Conditions Adverse to Quality (CAQ) Data Base has been developed specifically for use within DNE to assist in identifying adverse trends and to serve as a comprehensive reference for other applicable research and activities. The extent and type of data extracted from the reports and shown on the data base printouts have been designed particularly for use by DNE personnel. The types of CAQ reports which are reviewed and entered into the data base are those which are or may be related to DNE activities and/or are within the control or influence of DNE; hence, DNE may be able to provide corrective action in those cases where adverse trends are identified and analyzed.

The types of CAQs included in the data base are those which have been identified during each program phase of a nuclear plant, i.e., design phase (DNE NCRs, SCRs, PIRs, CAQRs), procurement phase (Supplier NCRs), construction phase (DNC NCRs, CAQRs), test phase (PTs), and operational phase (LERs, CAQRs). Additionally, internal audit reports and NSRS review reports cover the various program phases, as applicable to each particular report.

Some of the uses that can be made of the CAQ Data Base are for bid evaluation, source selection, supplier problems, component and/or system problems, frequently occurring problems, and generic problems. CAQ data base printouts can isolate categories covering, for example, suppliers, components, systems, analyses, installation, quality control, material defects, shipping/handling/storage, and testing.

Types of Reports in Data Base

Various printout sorts of the following types of CAQs are available:

- CNCRs - DNC NCRs referred to DNE
- SNCRs - Supplier NCRs
- ENCRs - DNE NCRs
- ESCRs - DNE SCRs
- EPIRs - DNE PIRs
- LERs - Licensee Event Reports
- PTs - Preoperational/Postmodification Test Deficiency Reports
- DNE Internal Audit Reports of DNE
- NSRS Review Reports of DNE
- Audit Reports of Suppliers
- CAQRs - ONP CAQ Report

Applicability - All nuclear plants

Revisions - Frequent entries are made to the data base to maintain current status with reports of CAQs.

Identifier - All CAQ conditions are force-fit categorized into a 4-digit, alphanumeric identifier. The identifier list is contained in the next section.

2. Report 2 - All Projects - This printout lists the reports of CAQs by project code, report type, and report number. This is the basic list.
3. Report 3E - By Identifier - All Projects - This printout sorts the CAQ reports by identifier code, project code, report type, and report number. This printout identifies all CAQ reports for all projects against each identifier.

Report 3F - By Identifier - All Projects - DNE-Caused - Selected by discipline based on 3rd character of identifier code. Sorted by identifier code, project code, report type, and report number.

Report 3G - By Identifier - All Projects - DNE-Caused - Selected by discipline based on 3rd and 4th characters of identifier code. Sorted by identifier code, report type, and report number.
4. Report 4A - By Identifier - Each Project - This printout sorts the CAQ reports by identifier code, report type, and report number.

Report 4B - By Identifier - Each Project - Selected by discipline based on 3rd character of identifier code. Sorted by identifier code, report type, and report number.

Report 4C - By Identifier - Each Project - Selected by discipline based on 3rd and 4th characters of identifier code. Sorted by identifier code, report type, and report number.
5. Report 5 - By Supplier-Caused CAQs - All Projects - This printout of reports of CAQs is for identifier XX5X only, arranged alphabetically by supplier name, project code, report type, and report number.

Report 5A - By Requisition No. - All Projects - Same as Report 5, but arranged in numerical sequence by requisition number.

Report 5B - By Requisition No. - Each Project - Same as Report 5A, with available selection by project.
6. Report 6 - By DNE-Caused CAQs - This printout of reports of CAQs is for identifier XX2X only, by project code, report type, and report number.
7. Report 7 - By DNC-Caused CAQs - This printout of reports of CAQs is for identifier XX1X only, by project code, report type, and report number.
8. Report 8 - By Quality Control (QA/QC) Problems - This printout of reports of CAQs is for identifier XXX4 only, by project code, report type, and report number.
9. Report 9 - By Welding-Type Problems - This printout of reports of CAQs is for identifier XXXQ only, by project code, report type, and report number.

OPEN/CLOSED (OC)

O if open
C if closed

REPORTABLE INDICATOR (RI)

Y if reportable
N if not reportable

VENDOR NAME/CONTRACT NUMBER

This information is shown for each supplier-caused CAQ (except for those cases where the vendor name and/or contract number is not available on the CAQ Report).

COMPONENT/DOCUMENT

PROBLEM DESCRIPTION

IDENTIFIER

The 4-digit identifier appropriate to the component, source of problem, and type of problem.

UNIT NUMBER

RIMS REFERENCE

Additional Types of Printout Sorts

Additional types of sorting are available: Key word search of the "Vendor Names/Contract Number," "Component/Document," and "Problem Description" columns; this allows a printout to be provided for all CAQs which contain the selected key word(s). Also, any type of printout is available on a timeframe basis, i.e., all reports of CAQs between (date) and (date). Printouts of only certain types of CAQs are also available. Requests for such sorts, searches, and other questions, assistance, and suggestions should be directed to the EA Trend Section.

Table A lists a summary of printouts available.

Table B relates reference uses for the CAQ Report Data Base to printouts available.

Table C shows the Identifier Legend and Identifier List.

<u>Report Type & No.</u>	<u>Description</u>
<u>Full-Test</u>	
5	By Supplier-Caused CAQs (XX5X) - All Projects
**5A	By Purchase Requisition No. for Supplier-Caused CAQ Reports - All Projects
5B	By Purchase Requisition No. for Supplier-Caused CAQ Reports - Each Project
6	By DNE-Caused (General) CAQs (XX2X)
7	By DNC-Caused CAQs (XX1X)
8	By Quality Control (QA/QC) Problems (XXX4)
9	By Weld-Related CAQs (XXX0)
10	Audits and Reviews
11	By Problem - All Projects
12	By Problem - Each Project

Summary Lists - By Discipline

**A	Equipment and Documentation Problems - All Projects Equipment and Documentation Problems - Each Project
**B	Supplier Problems - All Projects Supplier Problems - Each Project
**C	Type of Problem - All Projects Type of Problem - Each Project

Additional Printouts Available:

- o Any of the above by type of CAQ report (except 1A, 1B, 1C, 1D, and 1F).
- o Any of the above by timeframe.
- o Key word search.

* = Periodic Project Data

** = Periodic Branch Data

<u>Use</u>	<u>Printout Type or Report No.</u>	<u>Printout Subject</u>
o Environmental Qualification Problems	Sort on XXXA	Component/System Environmental Qualification Problems (DNE)
o Component/System Design Problems	Sort on XXXB	Component Design Problems (DNE)
o Design Input Document Problems	Sort on XXXC Sort on XXXD	Design Criteria Problems (DNE) FSAR Problems (DNE)
o Design Output Document Problems	Sort on XXXG	Drawing Problems (DNE)
o Design Specification Problems	Sort on XXXH Sort on XXXI	General Specification Problems (DNE) Plant Specific Specification Problems (DNE)
o Procedure Problems	Sort on XXXJ	Procedure Problems (DNE)
o Computer Program Problems	Sort on XXXO	Computer Program Problems (DNE)
o NUREG/Regulatory Guide Problems	Sort on XXXP	NUREG/Regulatory Guide Problems (DNE)
o Design "Control Paper" Problems	Sort on XXXQ	Design "Control Paper" Problems (DNE)
o Unnecessary Condition Adverse to Quality Reports	Sort on XXXR	Not a Nonconformance (DNE)
o Welding Problems	Sort on XXXØ	Welding Problems
o Generic Problems	1A, 1C, 1E, 3, 5	"All Projects"
o Project Problems	1B, 1D, 2, 4A	"Specific Project"
o Basic List	2	Basic "Log" - By Project, Type of CAQ Report, and Report No.
o Discipline Problems	A B C	Equipment and Documentation Problems Supplier Problems Type of Problem

IDENTIFIER LIST

<u>IDENTIFIER</u>	<u>SUBJECT</u>
A---	Valves
A1--	
A2--	Relief/Pressure/Safety
A3--	
A4--	MOVS
A5--	Gate/Globe/Butterfly/Ball/Needle/Plug/Angle/Root/Diaphragm
A6--	Operator
A7--	Check
A8--	Solenoid
A9--	
A0--	Misc
B---	Piping
B1--	HVAC, IE, Ductwork/Plenums/Dampers/Air Flow & Leakage Problems
B2--	Heating & Cooling Coils
B3--	Ells/Elbows/Plugs/Fittings/Flued Heads/Bosses/Sockets/Weldolets
B4--	Secondary Piping/Drains/Vents
B5--	Sleeves/Strainers/Headers/Manifolds/Spools/Flow Elements/ Filters/Screens/Nozzles/Jets/Steam Trap
B6--	Primary Piping: Feedwater/Main Steam/Letdown/Accumulator Standpipe/RCS/CCW/RHR/ECS/SI/CVCS/CS
B7--	Analysis Program
B8--	
B9--	
B0--	Misc, Including Flex Hoses & Pipe Insulation
C---	Concrete
C1--	Concrete Supports/Pads/Foundations/Grouting
C2--	Structures/Walls/Floors/Columns/Beams/Boxes/Pours
C3--	Backfill/Ditches
C4--	Materials (Aggregate, Cement, Etc)
C5--	Holding Ponds/Reservoirs
C6--	
C7--	Pipe (Conduit/Drains/Caps)
C8--	
C9--	Test Cylinders
C0--	Misc
D---	Electrical
D1--	Cables/Trays/Conduit/Reels/JBs/Heat Trace
D2--	Relays
D3--	Breakers/Switches/Fuses/Disconnects/Limit Switches/Zone Switches/Hand Switches/Transfer Switches/Contractors
D4--	Controls/Switchgear/MCC/Consoles/Panels/Boards/Cabinets

<u>IDENTIFIER</u>	<u>SUBJECT</u>
G5--	Radiation Detection/Radiation Monitors
G6--	
G7--	Meters/Gauges/Alarms/Recorders/Monitors/Annunciators/ Potentiometers/Indicators/Analyzers
G8--	Computers/PA/Radio/TV/telephones
G9--	Sensors/Thermocouples/Transmitters/Temperature Switches/ Temperature Elements/Pressure Switches/Level Switches/ Flow Switches/Transducers/Thermowalls/Detectors
G0--	Misc Instrumentation
H---	Misc
H1--	Fire Protection/Flamastic/Pyrocrete Seals/Bellows/Sealants/Joint Material/Adhesives/Adhesive Cement Coating
H2--	
H3--	
H4--	
H5--	
H6--	Snubbers/Shock Absorbers/Dampeners
H7--	Bldgs/Structures/Rooms
H8--	Door/Frames/Kinges/Hatches
H9--	Tanks/Sumps/Heat Exch/Ice Condensers/Lattice/Water Chillers/ Coolers
H0--	Misc
I----	Rotating Equipment
I1--	Motors/Generators/Chargers Internal Combustion Engines Fans Pumps Hoists/Cranes/Monorail Turbines Compressors Misc
I2--	
I3--	
I4--	
I5--	
I6--	
I7--	
I8--	
I9--	
I0--	
J---	Containment
J1--	Internals IE, Control Rods/Drives and Fuel Elements
J2--	Air Locks/Equip Hatch
J3--	Steam Generator/Pressurizer/Accumulator
J4--	Pressure Vessel & Nozzles
J5--	Polar Crane/Reactor Head Storage Fixture
J6--	Fuel Handling/Storage/Fuel Pool Liners
J7--	Liners/Shield Walls/Dome/Containment Vessel/Weirs
J8--	Reactor Support/Pedestal
J9--	Drywell/Suppression Pool
J0--	Misc

***PROBLEM AREA FOR DNE DISCIPLINE --C-, --E-, --M-, --N-

Lack of, inadequate, or incomplete:

- A Component/System/Environmental Qualifications (NUREG 0588 and 7901B)
- B Component Design/Analysis
- C Design Criteria (Includes DIMS)
- D FSAR
- E Procurement/Contract Documents
- F Documentation (Includes documentation control and documents not covered under other headings: i.e., calculations, set point documentation, and load table documentation)
- G Drawings
- H General Specifications
- I Plant Specific Specifications
- J Procedures (Includes lack of a procedural program)
- K Testing
- L Seismic/Structural Analysis
- M Piping Analysis/Support Design
- N System Design/Analysis
- O Computer Programs (All computer problems)
- P Application of NUREG/Regulatory Guides (Except for ---A)
- Q Design "Control Paper" (Includes ECNs, FCRs, CTRs, DCRs, NCRs)
- R Not a Nonconformance

*--2- will be used only when a DNE-caused problem cannot be assigned to a discipline branch (i.e., CEB, ECB, EEB, MEB, NEB).

**Problem area categories ---1 through ---O will be used to categorize all Construction-, all DNE-caused problems that cannot be assigned to a discipline branch, Operations-, Vendor-, and unknown-caused problems (i.e., --1-, --2-, --3-, --5-, --O-).

***Problem area categories ---A through --R will be used to categorize all DNE-caused problems that can be assigned to a discipline branch (i.e., --B-, --C-, --E-, --M-, --N-).

DNE CAQ DATA BASE REPORT EXAMPLES
SHOWN ON THE FOLLOWING PAGES

<u>Report Type & No.</u>	<u>Title</u>
<u>Statistical</u>	
*1B	Summary of Top 50 - Each Project - By Identifier
<u>Full Text</u>	
**3F	By Identifier - All Projects - DNE-Caused (XXBX, XXCX, XXEX, XXMX, XXNX)
**3G	By Identifier - All Projects - DNE-Caused (XXBA-XXBR, XXCA-XXCR, XXEA-XXER, XXMA-XXMR, XXNA-XXNR)
*4A	By Identifier - Each Project
4B	By Identifier - Each Project - DNE-Caused (XXBX, XXCX, XXEX, XXMX, XXNX)
4C	By Identifier - Each Project - DNE-Caused (XXBA-XXBR, XXCA-XXCR, XXEA-XXER, XXMA-XXMR, XXNA-XXNR)
**5A	By Purchase Requisition No. for Supplier-Caused CAQ Reports
<u>Summary Lists - By Discipline</u>	
**A -	Equipment Problems - All Projects Equipment Problems - Each Project
**B -	Supplier Problems - All Projects Supplier Problems - Each Project
**C -	Type of Problem - All Projects Type Of Problem - Each Project
*Periodic Project Data	
**Periodic Branch Data	

TVA TREND ANALYSIS MASTER FILE

PAGE 1

DATE 07/07/86

BY DISCIPLINE - ALL PROJECTS

(SORTED BY KREC, PROJECT CODE, REPORT TYPE, AND REPORT NUMBER) REPORT 1 3P

FROM 01/01/83 THROUGH 07/03/86

LAST REPORT DATE: 12/01/85

REPORT TYPES REQUESTED: ALL REPORT TYPES

PROJ RPT CODE TYPE	REPORT NUMBER	RPT ORIGIN DATE	ORIGIN NATOR	S I R O I C I C	VENDOR NAME/ CONTRACT NO.	DISC COMPONENT/ CCEC COMPONENT	PROBLEM DESCRIPTION	IDENT - UNIT IFR NO.	MEOS REFERENCE
85 EPIR	EEB8586	122485	EEB	N	N	VALVE POSITIONERS	NOT ENVIRONMENTALLY QUALIFIED	A0EA 0	843860102907
85 ESCR	EQP8613	050686	EQP	Y	Y	AFM ELECTRO- PNEUMATIC LEVEL CONTROL VALVE POSITIONER	NOT ENVIRONMENTALLY QUALIFIED	A0EA 1	843860529828
85 ESCR	EQP8629	061986	EQP	Y	Y	MAIN AND AUXILIARY FEEDWATER FLOW CONTROL VALVES	NOT ENVIRONMENTALLY QUALIFIED	A0EA 1	871860626CC4
85 ESCR	EQP8630	061986	EQP	Y	Y	MAIN AND AUXILIARY FEEDWATER FLOW CONTROL VALVES	NOT ENVIRONMENTALLY QUALIFIED	A0EA 2	871860624005
45 ESCR	EQP8606	011086	EQP	Y	Y	MAINFEEDWATER ISOLATION VALVES	WILL NOT OPERATE PROPERLY WHEN EXPOSED TO REDUCED VOLTAGE CONDITIONS	A0EA 0	870860111002
85 EPIR	EEB8628	031386	EEB	N	N	MAIN FEEDWATER ISOLATION VALVE	WILL NOT OPERATE PROPERLY WHEN EXPOSED TO REDUCED VOLTAGE CONDITIONS	A0EB 1	843860324902
85 EPIR	EEB8629	031386	EEB	N	N	MAIN FEEDWATER ISOLATION VALVE	WILL NOT OPERATE PROPERLY WHEN EXPOSED TO REDUCED VOLTAGE CONDITIONS	A0EB 2	843860324904
89 ENCR	BLP8321	051583	BLP	N	N	CONTROL BLDG ESF ENVIRONMENTAL CONTROL SYSTEM VALVES	IMPLEMENTATION OF FIELD IS INCORRECT IN RELATIONSHIP TO VALVES OPERATION	A0EB 0	81P830512017
88 ENCR	EEB8316	071183	EEB	Y	Y	AUX FEEDWATER PUMP TURBINE TRIP AND THROTTLE VALVE	SWITCH IS DESIGNATED AS "S", CONDUIT IS "G" VIOLATING DESIGN CRITERIA N4-50-0786	A0EB 0	NE8830719220
45 ESCR	EEB8521	092685	EEB	Y	Y	CONTROL VALVES*	DRAWINGS NOT REVISED TO REFLECT DIFFERENT REPLACEMENT PARTS	A0EG 0	843550930932

NEP-9.2
Appendix B

REPORT 3F

EVA TREND ANALYSIS MASTER FILE

PAGE 1

DATE 12/19/85

BY IDENTIFIER - EACH PROJECT

(SORTED BY PROJECT CODE, IDENTIFIER, REPORT TYPE AND REPORT NUMBER) REPORT 1 4A

FROM 01/01/82 THROUGH 12/18/85

REPORT TYPES REQUESTED: ALL REPORT TYPES

PROJ RPT CODE TYPE	REPORT NUMBER	RPT DATE	ORIGI DATE	SI IC	NO IC	VENDOR NAME/ CONTRACT NO.	COMPONENT/ DOCUMENT	PROBLEM DESCRIPTION	IDENT- UNIT IFIER NO.	MEDS REFERENCE	
67 ENCR	GENNEBB210	102802	NEB	Y	Y		ISOLATIONS VALVES *	SEISMIC ANALYSIS DOES NOT CONSIDER MASS OF LOCKING DEVICES	AOCL	0	CEB021025014
67 ESCN	CEB0503	060785	BYN	Y	Y		REACTOR CORE ISOLATION COOLING FLOW CONTROL VALVES	ACCELERATION ALLOW- ABLES BASED ON SAME VENDOR? EACH UNIT USED DIFFERENT MFG	AOCL	0	041830308007
67 ESCN	CEB0502	071185	BYN	Y	Y		REACTOR DRAIN AND VENT SYSTEM FLOW CONTROL VALVES	NOT EVALUATED FOR LOADS RESULTING FROM TIEBACK SUPPORT ATTACHED TO ACTUATOR	AOCL	0	041830806006
67 ENCR	CEB0408	071284	EDD	Y	Y		FUEL POOL VALVES	RECEIVE MOTIVE POWER FROM SAME SUPPLY AS AUTO INITIATION SIG OF REDUNDANT EQUIP	AOCL	0	CEB040716927
67 LCR	RO-259/65317	061385	BYN	Y	Y		HYDROGEN- OXYGEN ANALYZER VALVES	TEFLON PACKING AND SEATS DO NOT MEET NRC BULLETIN 79-018 RADIATION REQUIS	AOCL	1	042850613908
67 ENCR	NEB0303	031083	NEB	Y	Y		MAIN STEAM VACUUM BREAKER VALVES	DAMAGED DUE TO OPENING CONDITIONS- NOT ANTICIPATED IN DESIGN	AOCL	0	NEB030310856
67 ENCR	BWP0327	121483	BWP	Y	Y		BWRSM REECS SYSTEM VALVES	NO RECORD OF SEISMIC QUALIFICATION FOUND IN CONTRACTS OR EN DES FILES	AOCL	0	BWP031214001
67 ENCR	BWP0222	011583	BWP	Y	Y		VALVE *	REV 4 TO DWG ADDED VALVE MARKER TAG INFO: REISSUED AS REV 1	AOCL	2	BWP030706002
67 ENCR	TOP0203	012802	TOP	N	N		REACTOR WATER RECIRC SYSTEM GLOBE AND CHECK VALVES	DRAWING REVISIONS DID NOT RECEIVE PROPER REVIEW FROM EN DES	AOCL	0	TOP020201010

NEP-9.2
Appendix E

REPORT 4A

TVA TREND ANALYSIS MASTER FILE

PAGE 1

DATE 11/14/86

BY DISCIPLINE/PROBLEM, EACH PROJECT
 (SORTED BY XXCA - XXCR, PROJECT CODE, REPORT TYPE AND REPORT NUMBER) REPORT 1 4C
 FROM 01/01/83 THROUGH 11/13/86
 REPORT TYPES REQUESTED: ALL REPORT TYPES

PROJ CODE	RPT TYPE	REPORT NUMBER	RPT DATE	ORIGI NATOR	S I I C	R O I C	VENDOR NAME/ CONTRACT NO.	COMPONENT/ DOCUMENT	PROBLEM DESCRIPTION	IDENT- IFIER	UNIT NO.	MEDS REFERENCE
45	ENCR	CEBB4C7	052984	CEB	Y	T		ELECTRICAL CABLE TRAYS	ADJUSTABLE RISER CONNECTORS NOT SUPPORTED AS SPECIFIED IN CATALOG	E1CB	0	CEE840529004
45	ESCR	CEBB616	022486	CEB	Y	T		PIPE ANCHOR	MAY BE UNEER DESIGNED	E3CB	0	841860306008
45	ESCR	CEBB627	041786	CEB	Y	T		EXPANSION ANCHORS	NOT QUALIFIED FOR USE IN HIGH DENSITY SHIELDING CONCRETE	E3CB	0	841860423012
45	ESCR	CEBB6C1	010186	CEB	Y	T		DRAWING NOTES	BASED ON CALCULATION WHICH USE UNSUBSTANTIATED DESIGN ASSUMPTIONS	F1CB	0	841860110021
45	ENCR	NEBB3C4	040783	NEB	Y	N		AUXILIARY BLOC DOORS	INCORRECT LOADING CAPACITY USED IN ANALYSIS	H8CB	0	841860114008
45	ESCR	ABB6C1	020786	ASB	Y	T		FIRE AND SECURITY DOORS	DO NOT AUTOMATICALLY CLOSE AND LATCH AFTER EACH USE	H8CB	0	841860210003
45	ESCR	CEB5514	122485	CEB	Y	T		SEISMICALLY SUPPORTED NON- SAFETY SYSTEM CRITERIA	NOT JUSTIFIED BY AN ENGINEERING EVALUATION	B0CC	0	841851231021
45	GAUD	85-29-02	083085	QMS	N	N		HYAC DUCTS DESIGN CRITERIA	DOES NOT ADDRESS REQUALIFICATION AFTER INTRUSION BARRIER INSTALLATION	B1CC		841851011005
45	GAUD	85-29-03	083085	QMS	N	N		DESIGN CRITERIA	FAILURE TO INCORPORATE DESIGN INPUT MEMO WITHIN ONE YEAR AFTER ISSUE	F6CC		841851011005
45	ESCR	CEBB511	120285	CEB	Y	T		VALVE	CALCULATED LOADS IN EXCESS OF VENDOR SPECIFICATIONS; NOT IN PROCUREMENT FILES	A0CF	0	841851209012

E-7

 NEP-9.2
 Appendix E

REPORT 4C

SUMMARY LIST: EQUIPMENT AND DOCUMENTATION PROBLEM SORT BY DISCIPLINE

IDENTIFIER: NNEK

IN DESCENDING ORDER BY
QTY OF OCCURRENCES

REPORT A

PLANT: ***** ALL *****
TIME FRAME: C1/01/83 THRU 07/03/86

---TREND ANALYSIS RESULTS---

PREV
TOT 83 84 85 86 RPTED UPDATE

DISCIPLINE E

IDENT-

SUBJECT/PROBLEM

CAQ SPT QTY

PREV

REMARKS

G7EB METERS/GAUGES/ALARMS
CMPNT DSGN/ANAL

0009 001 004 004 000

N 06/25/86 (B43860519908)

G7EG METERS/GAUGES/ALARMS
DRAWINGS

0009 002 004 002 001

N 06/25/86 DRAWING ERRORS TO BE MONITORED FOR POTENTIAL
ADVERSE TREND. (B43860609902)

I2EB MOTORS/GENERATORS
CMPNT DSGN/ANAL

0009 001 000 006 002

- 07/07/86 NO REMARKS

D0EN MISC ELEC
SYSTEM DSGN/ANAL

0008 001 000 007 000

- 07/07/86 NO REMARKS

D0TEP ELEC CABLES/TRAYS/CONDU
APPLIC NUREG/GUIDES

0008 001 006 001 000

- 07/07/86 NO REMARKS

D3EG BREAKERS/SWITCHES
DRAWINGS

0008 002 003 003 000

- 07/07/86 NO REMARKS

D4EG CONTROLS/PANELS/SW GEAR
DRAWINGS

0008 005 001 002 000

- 07/07/86 NO REMARKS

D7EG TRANSFORMERS/CONV/RECT
DRAWINGS

0008 002 000 005 001

- 07/07/86 NO REMARKS

A6EA VALVE OPERATOR
CMPNT/SYS ENVIR QUAL

0007 003 002 002 000

- 07/07/86 NO REMARKS

D5EB CIRCUITRY/CONNECTORS
CMPNT DSGN/ANAL

0007 000 000 003 004

- 07/07/86 NO REMARKS

D6EN LIGHTING
SYSTEM DSGN/ANAL

0007 003 003 001 000

- 07/07/86 NO REMARKS

A0EG MISC VALVES
DRAWINGS

0006 002 000 003 001

N 06/25/86 DRAWING ERRORS TO BE MONITORED FOR POTENTIAL
ADVERSE TREND. (B43860609901)

A0EN MISC VALVES
SYSTEM DSGN/ANAL

0006 002 004 000 000

- 07/07/86 NO REMARKS

A4EA MOTOR OPERATED VALVES
CMPNT/SYS ENVIR QUAL

0006 001 000 002 003

- 07/07/86 NO REMARKS

REPORT A

PAGE: 3
DATE: 07/07/86

SUMMARY LIST & TYPE OF PROBLEM SORT BY DISCIPLINE

IDENTIFIERS: XREA THRU XKER

PLANTS: ***** ALL *****
TIME FRAME: C1/01/83 THRU 07/03/86

----- CAQ RPT Q1Y5 -----
TOT 83 84 85 86 PREV RPTED UPDATE

IN DESCENDING ORDER BY
QTY OF OCCURRENCES
-----TREND ANALYSIS RESULTS-----

DISCIPLINE E

IDENT-
IFICR PROBLEM

XXEG DRAWINGS

XXEB CMPNT DSGN/ANAL

XXER SYSTEM DSGN/ANAL

XXEA CMPNT/SYS EVIR QUAL

XXEE PRGNT/CONTRACT DOC

XXEF DOCUMENTATION

XXEQ DESIGN CONTROL PAPER

XXEJ PROCEDURES

XXEP APPLIC NUREG/GUIDES

XXER NOT A NONCONFORMANCE

XXEC DESIGN CRITERIA

XXEK TESTING

XXEM GENERAL SPECS

XXEI PLANT SPECIFIC SPECS

XXEL SEISMIC/STRUCT ANAL

0139 034 032 048 045	-	07/07/86	NO REMARKS
0149 036 033 054 026	-	07/07/86	NO REMARKS
0131 034 036 041 020	-	07/07/86	NO REMARKS
0116 112 024 113 061	-	07/07/86	NO REMARKS
0046 009 006 022 009	-	07/07/86	NO REMARKS
0037 003 000 013 021	-	07/07/86	NO REMARKS
0030 011 006 003 010	-	07/07/86	NO REMARKS
0016 003 005 007 001	-	07/07/86	NO REMARKS
0009 001 007 001 000	-	07/07/86	NO REMARKS
0007 001 004 001 001	-	07/07/86	NO REMARKS
0006 000 002 001 003	-	07/07/86	NO REMARKS
0006 000 003 002 001	-	07/07/86	NO REMARKS
0005 000 001 004 000	-	07/07/86	NO REMARKS
0003 000 000 001 002	-	07/07/86	NO REMARKS
0003 000 000 003 000	-	07/07/86	NO REMARKS

FORMAT FOR SUMMARIZING THE RESULTS OF THE REVIEW FOR ADVERSE TRENDS

Exhibit A

MEMORANDUM FORMAT FOR 60-DAY SUMMARY REPORT

To: (Branch/Project Files)
From: (Branch Chief/Project Engineer)
Date:
Subject: BRANCH/PROJECT REVIEW OF DNE TREND DATA REPORT
DATED _____

A review of the DNE Trend Data Report dated _____ for the
_____ branch/project has been completed. The following subjects were
identified as adverse trends, and an adverse trend report (Exhibit B) for each
subject has been written. Corrective action is being handled by the
organization noted (statement from project only).

1. Subject A: (i.e., B6CM) Organization: (i.e., CEB)
2. Subject B: (i.e., D1EG) Organization: (i.e., EEB)

The other subjects on the trend data report do not involve adverse trends.

(Branch Chief/Project Engineer)

cc: Division Director
Manager, Engineering Assurance (Attn: Trend Section) (with attachments)

Exhibit B (Continued)

3. Conclusions

(If a new adverse trend is identified, include as a minimum the following: a statement that an adverse trend has been identified; a description of the adverse trend; a summary of the factors which led to identifying the adverse trend; a review of the technical, programmatic, and generic aspects of the adverse trend; a summary of the corrective actions to be initiated if identified; the number of the SCR which was initiated when the adverse trend was identified as required by NEP-9.1; and a statement that when corrective actions are identified, they will be entered into TROI.)

(If a previous adverse trend is identified, include as a minimum the following: a statement that an adverse trend has been identified; a description of the adverse trend; a brief history of the trend and the corrective actions; a review of the effectiveness of the corrective actions; a summary of further corrective actions to be initiated, if applicable; a statement that further corrective actions will be entered into TROI; and a statement that this trend area will be monitored to ensure that actions initiated will prevent recurrence.)

(If a trend subject is identified which requires future monitoring, include as a minimum a description of the trend subject and a statement that this subject area will be monitored.)

(If an adverse trend is not identified, include as a minimum a statement that an adverse trend does not exist and a statement of the factors that led to this conclusion.)

Prepared by: _____ Date: _____
Reviewed by: _____ Date: _____
Approved by: _____ Date: _____

ENCLOSURE 2

LIST OF COMMITMENTS

1. TVA will implement a program to ensure that safety-related, low-voltage power, control, and instrument cables that are bent to a radii smaller than four times the cable diameter will not be subject to common mode failures when subjected to accident and postaccident environments. TVA will provide the details of this particular program to NRC within six months after the restart of SQN unit 2.
2. TVA will determine the safety-related, 8-kV, shielded power cables that are bent to radii smaller than those presently recommended by the manufacturers of the cables. TVA will take the necessary action to ensure that these cables will not be subject to long-term degradation that could interfere with the reliability of the cables. TVA will provide NRC details of this particular program six months after the restart of SQN unit 2.
3. TVA will complete the assessment of its existing program by using the existing isometric sketches of the conduits tested in the in situ cable test program to demonstrate that the cables in this sampling are representative of midrun flexible conduits and condulets and are capable of performing their intended function when subjected to accident and postaccident environments. TVA will provide the results of this assessment to NRC within six months after the restart of SQN unit 2. If further sampling or diagnostic procedures are required, TVA will describe its program for implementation at that time.
4. TVA will revise General Construction Specifications G-38, "Installing Insulated Cables Rated up to 15,000 Volts," and G-40, "Installing Electrical Conduit Systems and Conduit Boxes," to incorporate the recommendations provided in section 14, recommendations of TER-C5506-649, item 8. Revisions of these documents will be completed by April 30, 1988.
5. TVA will revise the appropriate Modifications and Additions Instructions (M&AIs) used at SQN to incorporate the recommendations provided in section 14, recommendations of TER-C5506-649, item 8, associated with General Construction Specifications G-38 and G-40 revisions addressing these recommendations. Revisions and implementation of these M&AIs will be completed by June 30, 1988.

ATTACHMENT C

Page 1 of 1

COMMITMENT TRACKING AND ACTION ITEM LOAD SHEET

☒ NEW ACTION ITEM/COMMITMENT
☐ CHANGE TO EXISTING ACTION ITEM/COMMITMENT
☐ ADDITION OF NEW ACTION TO EXISTING ACTION ITEM SERIES

CONTROL NO. NC0880

TROI ITEM NO. _____ TYPE _____ PLANT _____

CATEGORY* NRC OTHER SUBJECT _____
(20 Characters Maximum) (20 Characters Maximum)

IDENTIFYING DOCUMENT / /88 LTR DOCUMENT SECTION _____
(12 Characters Max.) (10 Characters Max.)

ACTION ITEM SUBJECT 03/09/87 NRC LTR TYPE* Implement
TER RECOMMENDATIONS (12 Characters Maximum)
(50 Characters Maximum)

ACTION ITEM DESCRIPTION (500 Characters Max.)

TVA will implement a program to ensure that safety related low voltage power, control, and instrument cables that are bent to a radii smaller than four times the cable diameter will not be subject to common mode failures when subjected to accident and postaccident environments. TVA will provide the details of this particular program to NRC within six months after the restart of SQN unit 2.

APPLICABILITY	COMMITMENT	CONDITIONAL	ECN	DCR
	DUE DATE	REQUIREMENTS	NO.	NO.
* <u>SQN</u> * <u>0</u> * <u>A</u>	<u>09/06/88</u>			
PLANT UNIT C/A				

*LEAD COORD. ORG. SQN-DNE *IMPL. ORG. DNE-EEB *LIC. ORG. SQN-REG LIC

CONTACT JBH CONTACT MRS CONTACT MJB/BAK

REMARKS: _____

*REFERENCES/CORRESPONDENCE
(Primary First)
(Additional Reference Following)

RLG to NRC L44 880

jss / 01-12-88
PREPARED BY DATE

COMPUTER INPUT COMPLETE _____
(Initials) (Date)

*Fields That Must Be Completed As A Minimum.
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ATTACHMENT C

Page 1 of 1

COMMITMENT TRACKING AND ACTION ITEM LOAD SHEET

X NEW ACTION ITEM/COMMITMENT
 CHANGE TO EXISTING ACTION ITEM/COMMITMENT
 ADDITION OF NEW ACTION TO EXISTING ACTION ITEM SERIES

CONTROL NO. NC0880

TROI ITEM NO. TYPE PLANT

CATEGORY* NRC OTHER SUBJECT
(20 Characters Maximum) (20 Characters Maximum)

IDENTIFYING DOCUMENT / /88 LTR DOCUMENT SECTION
(12 Characters Max.) (10 Characters Max.)

ACTION ITEM SUBJECT 03/09/87 NRC LTR - TYPE* IMPLEMENT
TER RECOMMENDATIONS (12 Characters Maximum)
(50 Characters Maximum)

ACTION ITEM DESCRIPTION (500 Characters Max.)

TVA will determine the safety related 8 kV shielded power cables that are bent
to radii smaller than those presently recommended by the manufacturers of the
cables. TVA will take the necessary action to ensure that these cables will
not be subject to long-term degradation that could interfere with the
reliability of the cables. TVA will provide NRC details of this particular
program six months after the restart of SQN unit 2.

APPLICABILITY	COMMITMENT	CONDITIONAL	ECN	DCR
	DUE DATE	REQUIREMENTS	NO.	NO.
* SQN * O * A	09/06/88			
PLANT UNIT C/A				

*LEAD COORD. ORG. SQN-DNE *IMPL. ORG. DNE-EEB *LIC. ORG. SQN-REG LIC
SEVERITY

CONTACT JBH CONTACT MRS CONTACT MJB/BAK

REMARKS: *REFERENCES/CORRESPONDENCE
 (Primary First)
 (Additional Reference Following)

 RLG to NRC L44 880

jss / 01-12-88
PREPARED BY DATE

COMPUTER INPUT COMPLETE (Initials) (Date)

*Fields That Must Be Completed As A Minimum.
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ATTACHMENT C
Page 1 of 1

COMMITMENT TRACKING AND ACTION ITEM LOAD SHEET

X NEW ACTION ITEM/COMMITMENT
 _____ CHANGE TO EXISTING ACTION ITEM/COMMITMENT
 _____ ADDITION OF NEW ACTION TO EXISTING ACTION ITEM SERIES

CONTROL NO. NC0880

TROI ITEM NO. _____ TYPE _____ PLANT _____

CATEGORY* NRC OTHER SUBJECT _____
 (20 Characters Maximum) (20 Characters Maximum)

IDENTIFYING DOCUMENT / /88 LTR DOCUMENT SECTION _____
 (12 Characters Max.) (10 Characters Max.)

ACTION ITEM SUBJECT 03/09/87 NRC LTR - TYPE* IMPLEMENT
TER RECOMMENDATIONS (12 Characters Maximum)
 (50 Characters Maximum)

ACTION ITEM DESCRIPTION (500 Characters Max.)

TVA will complete the assessment of its existing program by using the existing isometric sketches of the conduits tested in the in-situ cable test program to demonstrate that the cables in this sampling are representative of mid-run flexible conduits and condulets and are capable of performing their intended function when subjected to accident and postaccident environments. TVA will provide the results of this assessment to NRC within 6 months after the restart of SQN unit 2. If further sampling or diagnostic procedures are required, TVA will describe its program for implementation at that time.

APPLICABILITY	COMMITMENT	CONDITIONAL	ECN	DCR
	DUE DATE	REQUIREMENTS	NO.	NO.
* <u>SQN</u> * <u>O</u> * <u>A</u>	<u>09/06/88</u>			
PLANT UNIT C/A				

*LEAD COORD. ORG. SQN-DNE *IMPL. ORG. DNE-EEB *LIC. ORG. SQN-REC LIC

CONTACT JBH CONTACT MRS CONTACT MJB/BAK

REMARKS: _____ *REFERENCES/CORRESPONDENCE
 _____ (Primary First)
 _____ (Additional Reference Following)

_____ RLG to NRC L44 880

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 PREPARED BY DATE

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 (Initials) (Date)

ATTACHMENT C

Page 1 of 1

COMMITMENT TRACKING AND ACTION ITEM LOAD SHEET

X NEW ACTION ITEM/COMMITMENT
 _____ CHANGE TO EXISTING ACTION ITEM/COMMITMENT
 _____ ADDITION OF NEW ACTION TO EXISTING ACTION ITEM SERIES

CONTROL NO. NC0880

TKOI ITEM NO. _____ TYPE _____ PLANT _____

CATEGORY* NRC OTHER SUBJECT _____
 (20 Characters Maximum) (20 Characters Maximum)

IDENTIFYING DOCUMENT / /88 LTR DOCUMENT SECTION _____
 (12 Characters Max.) (10 Characters Max.)

ACTION ITEM SUBJECT 03/09/87 NRC LTR - TYPE* REVISION
TER RECOMMENDATIONS (12 Characters Maximum)
 (50 Characters Maximum)

ACTION ITEM DESCRIPTION (500 Characters Max.)

TVA will revise General Construction Specifications G-38, "Installing Insulated Cables Rated up to 15,000 Volts," G-40, "Installing Electrical Conduit Systems and Conduit Boxes" to incorporate the recommendations provided in section 14, Recommendations of TER-C5506-649 item 8. Revisions of these documents will be completed by April 30, 1988.

APPLICABILITY	COMMITMENT	CONDITIONAL	ECN	DCR
* SQN * O * C	DUE DATE	REQUIREMENTS	NO.	NO.
PLANT UNIT C/A	<u>04/30/88</u>			

*LEAD COORD. ORG. SQN-DNE *IMPL. ORG. DNE-EEB *LIC. ORG. SQN-REG LIC

CONTACT JBH CONTACT MRS CONTACT MJB/BAK

REMARKS: _____ *REFERENCES/CORRESPONDENCE
 _____ (Primary First)
 _____ (Additional Reference Following)

_____ RLG to NRC L44 880

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 (Initials) (Date)

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Page 1 of 1

COMMITMENT TRACKING AND ACTION ITEM LOAD SHEET

X NEW ACTION ITEM/COMMITMENT
 CHANGE TO EXISTING ACTION ITEM/COMMITMENT
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CONTROL NO. NC0880

TROI ITEM NO. TYPE PLANT

CATEGORY* NRC OTHER SUBJECT
(20 Characters Maximum) (20 Characters Maximum)

IDENTIFYING DOCUMENT / /88 LTR DOCUMENT SECTION
(12 Characters Max.) (10 Characters Max.)

ACTION ITEM SUBJECT 03/09/87 NRC LTR - TYPE* REVISION
TER RECOMMENDATIONS (12 Characters Maximum)
(50 Characters Maximum)

ACTION ITEM DESCRIPTION (500 Characters Max.)

TVA will revise the appropriate Modifications and Additions Instructions (M&AIs)
used at SQN to incorporate the recommendations provided in section 14 of
TER-C5506-649, item 8, associated with General Construction Specifications G-38
and G-40 revisions addressing these recommendations. Revisions and implementation
of these M&AIs will be completed by June 30, 1988.

APPLICABILITY	COMMITMENT	CONDITIONAL	ECN	DCR
	DUE DATE	REQUIREMENTS	NO.	NO.
* SQN * O * C	06/30/88			
PLANT UNIT C/A				

*LEAD COORD. ORG. SQN-DNE *IMPL. ORG. DNE-EEB *LIC. ORG. SQN-REG LIC

CONTACT JBH CONTACT MRS CONTACT MJB/BAK

REMARKS: *REFERENCES/CORRESPONDENCE
 (Primary First)
 (Additional Reference Following)

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