TVA EMPLOYEE CONCERNS
SPECIAL PROGRAM

REPORT NUMBER: SWEC-SQN-12

REPORT TYPE: Sequoyah Nuclear Plant Element

REVISION NUMBER: 1

TITLE: TVA Comparison to Industry Medians

REASON FOR REVISION: To incorporate TAS and SRP comments

SWEC SUMMARY STATEMENT: The items in this report were identified by the Institute of Nuclear Power Operations (INPO) and were included in the Stone & Webster Engineering Corporation (SWEC systematic analysis. All items evaluated within this report were verified to be adequately addresssed with corrective action in progress.

PREPARATION

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TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT

EMPLOYEE CONCERNS TASK GROUP

OTHER SITES

CEG

Element Title: TVA Comparison To Industry Medians

SWEC Concerns: A02841129011-002
A02841129011-005
A02841129011-010
A02841129011-011
A02841129011-012
A02841129011-013
A02841129011-014

Source Document: INPO Plant Performance Data, November, 1984

Report Number: SWEC-SQN-12

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Report SWEC-SQN-12

INPO Plant Performance Data, 1984

I. Introduction

In November 1984, the Institute of Nuclear Power Operations (INPO) performed a review of TVA's plant performance compared with industry medians (reference 1). Several items from the review were addressed as issues in the Stone & Webster Engineering Corporation (SWEC) systematic analysis, as follows:

1. A02841129011-002, SQN out of service control room instruments exceeded the industry median.

2. A02841129011-005, SQN unplanned automatic scrams exceeded the industry median.

3. A02841129011-010, SQN Senior Reactor Operator (SRO) turnover rate exceeded the industry median.

4. A02841129011-011, SQN forced outage rate exceeded the industry median

5. A02841129011-012, The number of actual design changes at SQN exceeded the industry median.

6. A02841129011-013, The number of temporary modifications installed at SQN exceeded the industry median.

7. A02841129011-014, The number of Nuclear Performance Reliability Data System (NPRDS) failures at SQN exceeded the industry median.

II. Verification of SWEC Issues

A. Background

The INPO team compared TVA's operational data to other utilities with the results as indicated in section II.C items 1 through 7.

B. Corrective Actions Taken

1. A02841129011-002, Control Room Instruments

In 1984 Sequoyah's Instrument Maintenance Training Program became the first craft training program in the industry to be accredited by INPO. The SQN Nuclear Performance Plan (NPP), Section II.4, describes the maintenance training and overall preventive maintenance program for achieving equipment reliability. Additionally, section II.4.5 states that the following startup activity will be performed for plant instrumentation: R1

Surveillance Instruction SI-604, "Essential Instrumentation Operability Verification," will be performed by the Instrument Maintenance Group to ensure that the essential surveillance instrumentation needed to monitor plant processes during normal operating conditions is available and operable. R1

2. A02841129011-005, Unplanned Automatic Scrams

The SQN Standard Practice, SQA 129, "Objectives in Plant Operation-Sequoyah Nuclear Plant" established October 1, 1986 a goal of "less than or equal to three unplanned trips per unit," Practices and policies to meet this goal include the following:

a. in-depth and thorough follow-up on all automatic scrams

b. identification of root causes of all automatic scrams

c. development of action plan to correct those root causes and thereby to reduce the probability of future automatic scrams

The Operations Group supervisor and the Technical Support Group supervisor will review each trip report and investigate each trip as needed to ensure the proper actions have been taken to prevent recurrence. R1

The Performance Monitoring Unit shall prepare a monthly report showing plant progress toward these objectives.

3. A02841129011-010, SRO Turnover Rate

Operations training personnel outlined for ECTG the following steps that TVA has taken to reduce the SRO turnover rate:

- Annually, a license maintenance bonus of $7,000 is paid to the SRO.
- All SRO positions have been upgraded to the M-4 and M-5 management levels.
- The SRO positions have been placed in the highest of the three management pay brackets which are available for each TVA management grade.
- The SROs are now permitted to leave shift work for designated periods to serve in other plant capacities.

An Operations Training Manager stated to ECTG, "To my knowledge, no SRO has left TVA in nearly two years."

4. A02841129011-011, Forced Outage Rate

The SQN NPP, Section II.4.3, establishes this objective for plant maintenance relative to unit availability:

R1

TVA and site management now recognize that plant maintenance must become proactive and aggressive in its approach to evaluating and improving component and safety system performance before long-term gains in safety system reliability, unit availability, and reduction of maintenance-related errors can be achieved. Achieving this long-term change in emphasis will require that component deterioration be predicted and that SQN initiates preventative actions before failures result.

A significant percentage of maintenance activities are routine and, to a degree, repetitive. TVA's and Sequoyah's goal is to control these activities through preplanning, use of in-house and industry experience, and increased trending. Troubleshooting and corrective maintenance should be systematic so that root cause of failures are identified, and that technically sound solutions are developed and implemented to prevent recurrence.

Selected nuclear maintenance objectives - including procedural improvement, trending, training, management involvement, improvement in work controls, root cause analysis, performance monitoring, planning, and organizational improvements - are addressed in the NPP, Section II.4, and in items -005, -013, and -014 of this report.

5. A02841129011-012, Number of Design Changes

The SQN NPP, Section II.3.3 describes the action plan for TVA's development of an improved design control program. A Change Control Board (CCB) has been established to provide overall control. Onsite DNE personnel are performing necessary reviews to reduce interference problems, field changes, and design errors. Frequent face-to-face meetings between those requesting design changes and the design engineer is also improving the quality of design work. Centralizing responsibilities for design changes has established greater accountability. TVA's goal is a design control system based on INPO Good Practice Guidelines, with a single, stand-alone plant modification package becoming the key document to maintain design control.

6. A02841129011 - 013, Number of Temporary Modifications

The SQN NPP, Section II.1.2.8, describes corrective actions to improve the planning and scheduling of plant modifications, noting that one-third of approved modifications for unit 1 have later been cancelled. Corrective actions include: |R1

- Revision to the modification organization to place the Planning and Scheduling section directly under the Site Director
- Preparation of improved estimates and implementation plans
- Incorporation of the engineering design phase of modifications into the site modification schedule
- Stabilizing of Modifications work force
- Additional training for craft, engineer, and managers.

7. A02841129011 -014, Number of NPRDS Failures

The SQN Nuclear Performance Plan, section II.4 discusses the emphasis now being placed on nuclear maintenance. Corrective actions to improve reliability and reduce plant equipment failures include the following:

- Improvement of maintenance procedures
- More emphasis on trending activities to improve preventative maintenance
- Improved training of craft personnel
- Greater management involvement
- Improvements in work control systems
- Improved program for employee performance reporting

C. Verification Methodology

The SWEC concerns identified for Employee Concerns Task Group (ECTG) verification were stated as follows:

RIMS NUMBER	ISSUE	RIMS ITEM
A02841129011	Industry median 15 out of service control room instruments. 1983 number for BFN 1 was 22. SQ1&2 similar.	RIMS-002

A02841129011	Industry median for unplanned auto. reactor scrams = 4. BFN 2 = 11. SQN = 9.	RIMS-005
A02841129011	Industry median for SRO turnover = 0%. BFN = 28%. SQ = 15%.	RIMS-010
A02841129011	Industry median 5.3% forced outage rate. 1983 % for SQN = 18.1%. 9.68% for SQ2.	RIMS-011
A02841129011	Industry median 346 for active design changes. SQ = 1591.	RIMS-012
A02841129011	Industry median 37 for temp. modifications installed. 210 temporary modifications installed SQN.	RIMS-013
A02841129011	Industry median = 59 NPRDS failure reports 9 monthly 1984. SQ1 = 280. 133 for SQ 2.	RIMS-014

ECTG reviewed the INPO documentation on these concerns, SQN objectives and TVA's planned improvements as reported in the Corporate NPP (reference 3) and SQN Performance Plan (reference 4). This documentation review formed the basis for this verification activity.

D. Verification Analysis

The revised Corporate NPP and the revised SQN NPP provide an overall account of the actions which TVA is taking to improve its nuclear program for SQN. The planned implementation of improved programs in the areas of management, training, maintenance, design control, modifications, quality assurance, and other areas is for the purpose of improving overall plant performance including all areas identified by the SWEC concerns.

E. Completion Status

Adequate corrective actions have been initiated for the INPO items identified in these SWEC concerns. The SWEC concerns are closed, with INPO follow-up review to be conducted after plant startup. |R1

III. References

1. INPO letter, "First Report of Plant Performance Data," dated November 27, 1984, Z. T. Pate to H. G. Parris

2. NRC letter, "Systematic Assessment of Licensee Performance - Attachment 2, Sequoyah," dated September 17, 1985, W. J. Dircks to C. Dean

3. Tennessee Valley Authority, Revised Corporate Nuclear Performance Plan, dated March 10, 1986

4. Tennessee Valley Authority, Revised Sequoyah Nuclear Performance Plan, dated July 17, 1986