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JUL 20 1993

Docket Nos.: 50-390, 50-391
License Nos.: CPPR-91, CPPR-92

Tennessee Valley Authority
ATTN: Dr. Mark O. Medford
Vice President, Technical Support
3B Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Gentlemen:

SUBJECT: MEETING SUMMARY - WATTS BAR UNITS 1 AND 2

This letter refers to the meeting conducted in the NRC Region II office in Atlanta, Georgia, on July 13, 1993. The meeting was at our request to discuss the current status of your Program for Assurance of Completion and Assurance of Quality (PAC/AQ). A list of attendees and a copy of the TVA handout are enclosed. It is our opinion that this meeting was beneficial and provided a better understanding of TVA's activities.

Should you have any questions concerning this letter, please contact me.

Sincerely,

(Original signed by J. Johnson)

Ellis W. Merschoff, Director
Division of Reactor Projects

- Enclosures:
1. List of Attendees
 2. Presentation Summary

cc w/encls: (See page 2)

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The Honorable Garland Lanksford
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bcc w/encls: (See page 3)

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Tennessee Valley Authority

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B. M. Bordenick, OGC
M. S. Callahan, GPA/CA
A. F. Gibson, DRS/RII
B. S. Mallett, DRSS/RII
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DRP/RII

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DRP/RII

JCrlenjak
07/21/93

ENCLOSURE 1

LIST OF ATTENDEES

NRC Staff

S. D. Ebnetter, Regional Administrator, Region II (RII)
E. W. Merschhoff, Director, Division of Reactor Projects (DRP), RII
A. F. Gibson, Director, Division of Reactor Safety, RII
G. C. Lainas, Assistant Director for Region II Reactors, Office of Nuclear
Reactor Regulation (NRR)
G. G. Zech, Branch Chief, Performance & Quality Evaluation Branch (RPEB), NRR
G. A. Walton, Senior Resident Inspector, DRP, RII
R. A. Gramm, Section Chief, RPEB, NRR
R. M. Latta, Senior Operations Engineer, RPEB, NRR

TVA Staff

M. O. Medford, Vice President, Technical Support
D. E. Nunn, Vice President, Nuclear Projects
N. C. Kazanas, Vice President, Completion Assurance
G. L. Pannel, Site Licensing Manager
B. Martocci, Public Relations Manager
A. P. Capozzi, PAC/AC Project Manager

**PROGRAM FOR ASSURANCE OF COMPLETION AND
ASSURANCE OF QUALITY (PAC/AQ)
STATUS AND RESULTS**

PAC/AQ BACKGROUND

- Five Phase Program
 - Over 50 man-years of effort

- Program Implementation
 - Independent Contractor (same essential team)
 - Multi-Discipline Reviews
 - Experienced Senior Personnel
 - Building on Past Reviews

- Program Designed to Find Problems If They Exist

- Examples of Sampling Considerations For PAC/AQ VSRs
 - Historical Problems and Weaknesses at WBN
 - Exclusion Areas in Previous Reviews
 - SQN IDI Identified Issues Applicable to WBN
 - High Risk Issues and Industry Problems (EQ, Appendix R, etc.)
 - WBPT Closure Report
 - Design Basis Requirements
 - Employee Concern Issues
 - Identified Concerns From PAC/AQ Phases I, II, & III

PAC/AQ STATUS AND RESULTS

PROTOTYPE

- The prototype review was performed on the Essential Raw Cooling Water (ERCW System 67) to debug program and obtain early data on the plant.
- This prototype effort expended over 16,000 man-hours.

PHASE I - Identification of Commitments

- All commitments are known, tabulated, and accessible in one data base.
- Approximately 13,000 commitments identified.
- This phase expended over 12,000 man-hours.

PHASE II - Matching of Commitments

- Commitments have been matched to their implementing documents.
- This phase expended over 25,000 man-hours.

PHASE III - Technical Review of Implementing Documents

- Detailed technical reviews were performed on all the Corrective Action Programs (CAPs), Special Programs (SPs), and selected processes.
- This phase expended over 6,000 man-hours.

PHASE IV - Implementation Verification Including the Review of Plant Hardware

- Three Vertical Slice Reviews (VSRs) were performed on the following systems:
 - 6.9 kV Shutdown Power (System 211)
 - Control Air (System 32)
 - Component Cooling (System 70)
- Extensive walkdowns and desk top reviews were performed for all three systems.
- This phase expended over 18,000 man-hours.

PHASE V - Oversight of Operational Readiness and Work Completion

- To start 11/93 and continue to one month prior to fuel load.
- This phase will expend approximately 10,000 man-hours.

PAC/AQ PROJECT STATUS AND RESULTS

Prototype Program

<u>Phase</u>	<u>Activities</u>	<u>Status</u>	<u>Findings</u>
PHASE I	Identify all ERCW System commitments.	COMPLETE	0
PHASE II	Match ERCW System commitments to their implementing documents.	COMPLETE	24
PHASE III	Verify technical adequacy of implementing documents.	COMPLETE	8
PHASE IV	Verify implementation by performing a VSR of ERCW System.	COMPLETE	13

Plant-Wide Program Schedule

<u>Phase</u>	<u>Activities</u>	<u>Status</u>	<u>Findings</u>
PHASE I	All commitments are known, tabulated, and accessible in one data base.	COMPLETE	15
PHASE II	Commitments have been matched to their implementing documents.	COMPLETE	189
PHASE III	Review all CAPs, SPs, and selective processes.	COMPLETE	22
PHASE IV	Perform VSRs on one electrical and two mechanical systems.	COMPLETE	115
PHASE V	Oversight of ORR and work completion.	11/93 - FL(-1M)	

Total Findings = 386

DBVP RELATIONSHIP TO PAC/AQ

- **TVA Letter to NRC dated 11/08/91 Defined DBVP Relationship to PAC/AQ.**

- **PAC/AQ catalogued all commitments, the source of implementation verified, and transferred data base to licensing.**
 - **This extended DBVP commitment review to 11/18/91 at which time that proper procedure control was implemented.**
 - **Made commitment data much more user friendly.**
 - **Required actions for ensuring that programmatic commitments are properly maintained (source noting).**

- **Commitments inadequately captured in an implementing document were submitted to Licensing for tracking and resolution by both DBVP and PAC/AQ.**

- **Site Standard Practice on managing and tracking NRC commitments was placed in effect on November 18, 1991.**

OVERVIEW OF PAC/AQ FINDINGS AS OF JUNE 30, 1993

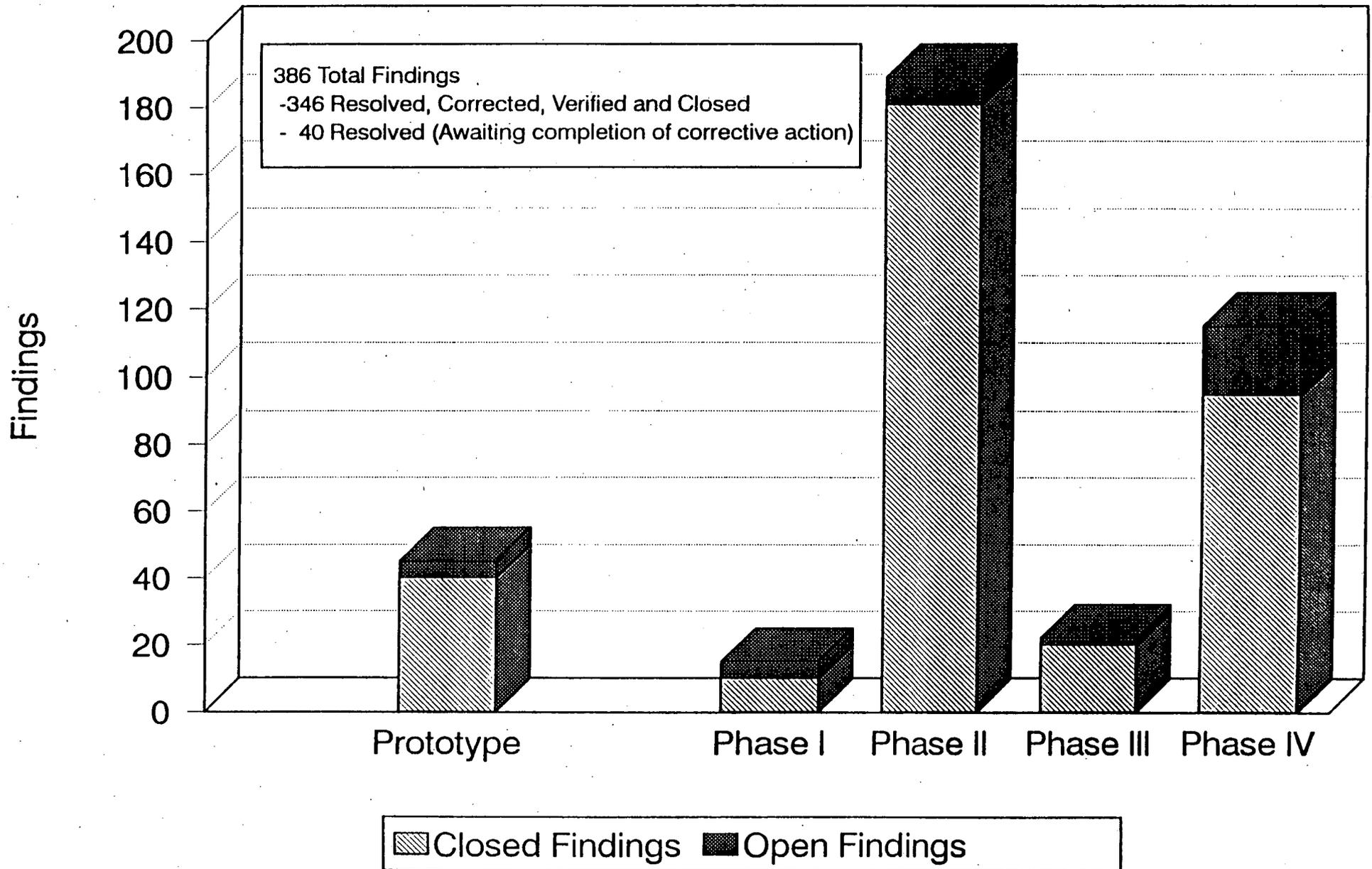
- **386 Total Findings**

- 346 resolved, corrected, verified, and closed
- 40 resolved (awaiting completion of corrective action and verification)

- **Organizational Responsibility of Findings**

<u>Organization</u>	<u>Number of Findings</u>
Engineering	262
Operations and Maintenance	56
Modifications	11
Licensing	26
Completion Assurance/Corporate QA	16
Startup and Test	6
Miscellaneous (Materials, Site Support, etc.)	<u>9</u>
	Total = 386

PAC/AQ Identified Findings and Status



PAC/AQ VERTICAL SLICE REVIEWS

- **Essential Raw Cooling Water (ERCW System 67)**

- Prototype Review performed in Third Quarter 1991
- Extensive walkdowns and desk top review
- 36 findings identified

Conclusion: 1) Premature system turnover.
2) Major work needed in mechanical calculation area.

- **6.9 kV Shutdown Power (System 211)**

- Performed in Third Quarter 1992
- Extensive walkdowns and desk top review
- 43 findings identified

Conclusion: 1) Improvement needed in material condition, configuration control, and interface control.
2) Improved SPAE Process noted, Operations training excellent, Employee Concern Horizontal Review very positive, and system found technically adequate.

- **Control Air (System 32)**

- Performed in Fourth Quarter 1992
- Extensive walkdowns and desk top review
- 46 findings identified

Conclusion: 1) Improvement needed in fuse identification/control and vendor interface.
2) System material condition above average, adequate EQ Program, and system found technically adequate.

- **Component Cooling (System 70)**

- Performed in Second Quarter 1993
- Extensive walkdowns and desk top review
- 20 findings identified

Conclusion: 1) The design, construction, and operational aspects were found technically adequate.
2) Major improvement noted in mechanical calculation area.
3) Lessons learned being applied very effectively by line.

Total Findings = 145 (from VSRs) + 6 (from Horizontal Reviews) = 151

- 48 - Additional information provided which required no further corrective action
- 103 - Required additional corrective action

PAC/AQ HORIZONTAL REVIEWS

- 1992 NRC Identified Employee Concerns Transmitted to TVA
- Field Calculations Process
- QA Effectiveness
- SPAE Process
- Implementation of the WBN EQ Program
- The SPAE process for systems 202, RCP Power, and 030, Insulating Oil
- Maintenance
- Large Safety-Related Motor Heaters Issues
- Commitment Management Review
- SU&T Program

PHASE IV FINDINGS BREAKDOWN

(By Corrective Action)

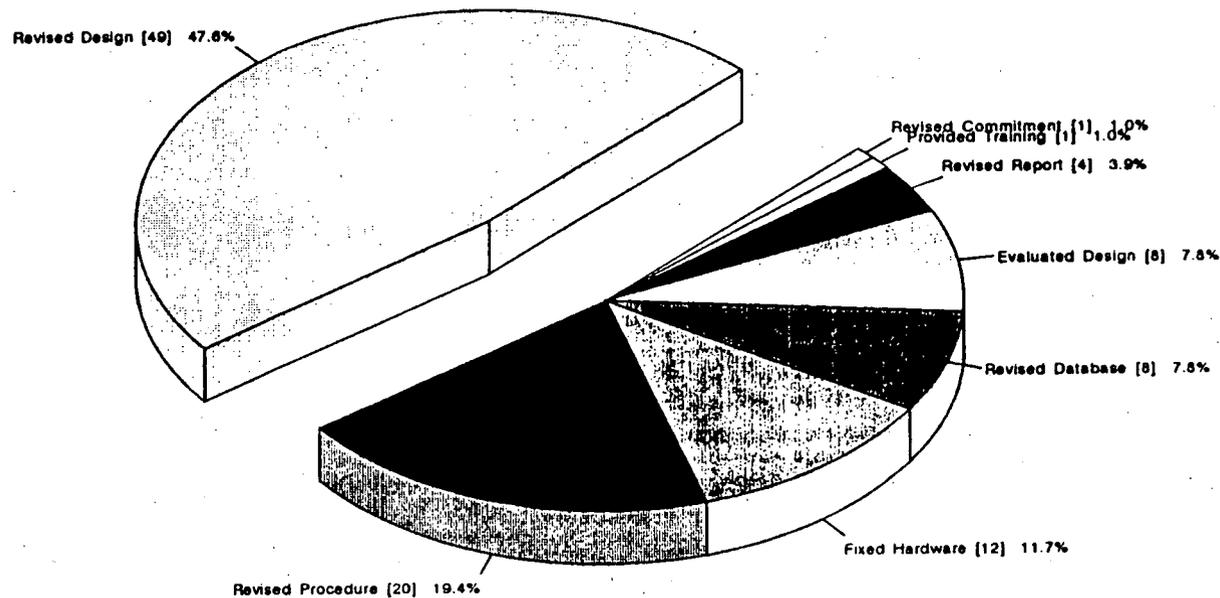


Figure 1

[] = Number of Findings
Total Findings = 103

PAC/AQ HARDWARE FINDINGS

<u>VSR</u>	<u>Description</u>
1. System 67	A missing bolt in an electrical panel, a broken conduit support identification tag, and a mispositioned sprinkler head reflector pan.
2. System 211	Various discrepancies such as nicked wire insulation, damaged wire guides, etc., in the 1A-A S/D Board and associated relay panels.
3. System 211	Improper temperature switch setpoints for the 6.9 kV S/D board room cooling units.
4. System 211	A missing damper in the S/D board room HVAC system.
5. System 211	A missing wire cable support for a light fixture.
6. System 211	Wrong relay identification tags.
7. System 211	Non-safety related panel indicating lights.
8. System 32	A concern regarding the location of the local controls for the steam generator power operated relief valves.
9. System 32	Misaligned flex hose assemblies on the auxiliary air compressor heat exchangers.
10. System 32	Missing fuse identification labels.
11. System 70	Minor discrepancies with various breakers.
12. System 70	Missing fuse identification tags.

- * In addition to the above listed 12 hardware findings, one other finding which did not require a hardware change for Unit 1, has the possibility that hardware may be marginal for two-unit operation. This finding documents that only single unit heat exchanger flow is being tested which is not the most limiting condition for two unit operation.

All the above findings are fixed or being fixed.

EXAMPLES OF PAC/AQ PHASE IV NON-HARDWARE FINDINGS

- **Failure to Update Control Room Drawings (PACR 0279)**
- **Inappropriate Voiding of Existing Calculation (PACR 0292)**
- **ASME XI Testing Program Missing Several Valves (PACR 0321)**
- **Vendor Manual Inconsistent With Operating Procedure (PACR 0320)**
- **Flex Hose Drawings List Incorrect Design Pressures (PACR 0319)**
- **Test Scoping Document Incomplete (PACR 0381)**
- **System Description Incomplete (PACR 0382)**

OVERALL PAC/AQ CONCLUSIONS

- PAC/AQ Findings are Being Identified, Tracked, Fixed, and Verified Prior to Closure
- Lessons Learned Utilized By Line and QA
- Commitments Known, Captured, Tracked, and Met
- Plant Meets Design and Regulatory Requirements
- Quality of Hardware Excellent