

*Official*

APR 21 1994

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

Tennessee Valley Authority  
ATTN: Mr. Oliver D. Kingsley, Jr.  
President, TVA Nuclear and  
Chief Nuclear Officer  
6A Lookout Place  
1101 Market Street  
Chattanooga, Tennessee 37402-2801

Gentlemen:

SUBJECT: MEETING SUMMARY - WATTS BAR UNITS 1 AND 2

This letter refers to the Management Meeting held at your request on April 18, 1994, in the NRC Region II office in Atlanta, Georgia. This meeting was conducted so that your staff could present a self-assessment of the Watts Bar facility during the present SALP cycle.

Your staff's presentation and response to the NRC staff's questions provided additional knowledge of your facility's performance during this period. A list of attendees and a copy of the TVA handout are enclosed.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

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

Sincerely,

Original Signed By:  
J. P. Jaudon

Johns P. Jaudon, Acting Deputy Director  
Division of Reactor Projects

Enclosures:

1. List of Attendees
2. Presentation Summary

cc w/encls: (See page 2)

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PDR ADDCK 05000390  
G PDR

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*TELE*

APR 21 1994

cc w/encl:

Mr. Craven Crowell, Chairman  
Tennessee Valley Authority  
ET 12A  
400 West Summit Hill Drive  
Knoxville, TN 37902

Mr. W. H. Kenney, Director  
Tennessee Valley Authority  
ET 12A  
400 West Summit Hill Drive  
Knoxville, TN 37902

Mr. Johnny H. Hayes, Director  
Tennessee Valley Authority  
ET 12A  
400 West Summit Hill Drive  
Knoxville, TN 37902

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

Mr. D. E. Nunn, Vice President  
Nuclear Projects  
Tennessee Valley Authority  
3B Lookout Place  
1101 Market Street  
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M. W. J. Museler, Site Vice Pres.  
Watts Bar Nuclear Plant  
Tennessee Valley Authority  
Route 2, P. O. Box 2000  
Spring City, TN 37381

General Counsel  
Tennessee Valley Authority  
ET 11H  
400 West Summit Hill Drive  
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Mr. B. S. Schofield, Manager  
Nuclear Licensing and  
Regulatory Affairs  
4G Blue Ridge  
1101 Market Street  
Chattanooga, TN 37402-2801  
bcc w/encl:  
S. D. Ebner, ORA/RII

Mr. G. L. Pannell  
Site Licensing Manager  
Watts Bar Nuclear Plant  
Tennessee Valley Authority  
Route 2, P. O. Box 2000  
Spring City, TN 37381

Mr. Roger W. Huston  
Tennessee Valley Authority  
11921 Rockville Pike  
Suite 402  
Rockville, MD 20852

The Honorable Robert Aikman  
County Executive  
Rhea County Courthouse  
Dayton, TN 37321

The Honorable Garland Lanksford  
County Executive  
Meigs County Courthouse  
Decatur, TN 37322

Danielle Droitsch  
Energy Project  
The Foundation for Global  
Sustainability  
P. O. Box 1101  
Knoxville, TN 37901

Mr. M. H. Mobley, Director  
Division of Radiological Health  
3rd Floor, L and C Annex  
401 Church Street  
Nashville, TN 37243-1532

Mr. Bill Harris  
Route 1, Box 26  
Ten Mile, TN 37880

bcc w/encls: (See page 3)

APR 21 1994

bcc w/encl:

S. D. Ebnetter, ORA/RII  
E. W. Merschhoff, DRP/RII  
A. F. Gibson, DRS/RII  
B. S. Mallett, DRSS/RII  
F. J. Hebdon, NRR  
J. R. Johnson, DRP/RII  
G. C. Lainas, NRR  
B. M. Bordenick, OGC  
M. S. Callahan, GPA/CA  
L. C. Plisco, OEDO  
P. E. Fredrickson, DRP/RII  
P. S. Tam, NRR  
P. A. Taylor, DRS/RII  
NRC Document Control Desk

NRC Resident Inspector  
U.S. Nuclear Regulatory Commission  
Route 2, Box 700  
Spring City, TN 37381

DRP/RII

*AR*  
ARuff  
04/20/94

DRP/RII

*PF*  
PFredrickson  
04/20/94

ENCLOSURE 1

LIST OF ATTENDEES

Name

Title

NRC Staff

S. D. Ebnetter, Regional Administrator, Region II (RII)  
E. W. Merschhoff, Acting Deputy Regional Administrator, RII  
J. P. Jaudon, Acting Deputy Director, Division of Reactor Projects (DRP), RII  
A. F. Gibson, Director, Division of Reactor Safety (DRS), RII  
B. S. Mallett, Deputy Director, Division of Radiation Safety and  
Safeguards (DRSS), RII  
C. A. Julian, Branch Chief Watts Bar (WB) Startup, DRP, RII  
P. E. Fredrickson, Branch Chief WB Construction, DRP, RII  
P. S. Tam, Senior Project Manager, NRR  
K. M. Clark, Public Affairs Officer, RII  
G. A. Walton, Senior Resident Inspector, WB Construction Branch, DRP, RII  
P. K. Van Doorn, Senior Resident Inspector, WB Startup Branch, DRP, RII  
A. B. Ruff, Project Engineer, RII  
A. Tillman, Safeguards Inspector, RII

TVA Staff

M. O. Medford, Vice President, Technical Support  
W. J. Museler, Site Vice President  
J. A. Scalice, Vice President, Nuclear Operations  
R. R. Baron, General Manager, Nuclear Assurance  
R. J. Daly, Manager, Startup and Test  
W. L. Elliott, Engineering and Modifications Manager  
B. V. E. Martocci, Public Relations Manager  
G. L. Pannell, Licensing Manager  
R. T. Purcell, Acting Plant Manager  
L. B. Spiers, Nuclear Assurance

ENCLOSURE 2

**TVA/NRC MEETING**  
**SELF-ASSESSMENT AT WATTS BAR**  
**APRIL 18, 1994**

# **INTRODUCTION**

**W. MUSELER**

## **AGENDA**

- |             |  |                   |
|-------------|--|-------------------|
| <b>I.</b>   | <b>INTRODUCTION</b>  | <b>W. MUSELER</b> |
| <b>II.</b>  | <b>CURRENT SALP<br/>PERIOD OVERVIEW</b>                    | <b>W. MUSELER</b> |
| <b>III.</b> | <b>SITE QUALITY<br/>EFFECTIVENESS</b>                      | <b>W. MUSELER</b> |
| <b>IV.</b>  | <b>EFFECTIVENESS OF<br/>NUCLEAR ASSURANCE</b>              | <b>R. BARON</b>   |
| <b>V.</b>   | <b>TEST PROGRAM &amp;<br/>TRANSITION TO<br/>OPERATIONS</b> | <b>J. SCALICE</b> |
| <b>VI.</b>  | <b>OVERALL SUMMARY/<br/>CLOSING REMARKS</b>                | <b>W. MUSELER</b> |

## BACKGROUND

- OVERALL PERFORMANCE DURING PRIOR SALP CONSIDERED "GOOD" BY NRC
- EXAMPLES OF STRENGTHS INCLUDE:
  - (1) CONTROL OF CABLE DESIGN/INSTALLATION
  - (2) EFFECTIVE IMPLEMENTATION OF CAPs/SPs
  - (3) MANAGEMENT ATTENTION TO AUXILIARY SYSTEMS AREA
  - (4) MICROBIOLOGICAL-INDUCED CORROSION PROGRAM
  - (5) PRE-SERVICE INSPECTION
  - (6) WELD PROGRAM
- PRINCIPAL WEAKNESSES INCLUDE:
  - (1) PRE-OPERATIONAL TESTING
  - (2) QUALITY PERFORMANCE
- OTHER SALP COMMENTS
  - (1) STAFFING
  - (2) OPERATIONAL READINESS



# OVERALL PROJECT PROGRESS

## I. UNIT 1 STATUS

- BASE ENGINEERING COMPLETE
- QUALITY/EMPLOYEE CONCERN ISSUES SHOW POSITIVE TREND
- HFT UNDERWAY
  - OVERALL PERSONNEL & EQUIPMENT PERFORMANCE HAS BEEN GOOD
  - NO IMPEDIMENTS TO 557 F PLATEAU
- FINAL COMPLETION/FUEL LOAD SCHEDULE TO BE DEVELOPED DURING HFT

## II. SYSTEM COMPLETION

- ENGINEERING -- 135 OF 135
- MODIFICATIONS -- 95 OF 135
- STARTUP -- 51 OF 135

# **CURRENT SALP PERIOD OVERVIEW**

**W. MUSELER**

# COMPARISON OF PERFORMANCE PRIOR SALP vs. CURRENT SALP

## I. WORK COMPLETE (10/92 - 6/93 vs. 7/93 - 3/94)

- MORE MODIFICATIONS DIRECT WORK
  - PARTICULARLY IN ELECTRICAL (50% MORE CONDUIT & 7% MORE CABLE)
  - 20% MORE SYSTEM COMPLETION (45 vs. 54)

## II. OPERATIONS/TESTING (10/92 - 6/93 vs. 7/93 - 3/94)

- SIGNIFICANT OPERATIONS ACTIVITIES (e.g., HFT, S/G HYDROs, & ORR PROGRAM)
- SIGNIFICANT INTEGRATED & COMPLEX TESTING
  - MORE COMPLEX COMPONENT TESTING (e.g., INSTRUMENT LOOP CALIBRATIONS)
  - 17 vs. 38 PTIs

## III. DOCUMENTATION (10/92 - 6/93 vs. 7/93 - 3/94)

- SIGNIFICANTLY MORE DCN CLOSURES IN 1994 (1,048 vs. 1,763)

## IV. PROBLEM IDENTIFICATION (10/92 - 6/93 vs. 7/93 - 3/94)

- 59% INCREASE IN TVA-IDENTIFIED PROBLEMS (386 vs. 613) -LITTLE HARDWARE IMPACT

## V. NRC/TVA LICENSING CLOSURE ACTIVITIES

- WBN SUBMITTING MORE CLOSURE PACKAGES TO NRC (e.g., OPEN ITEMS, CAPs/SPs, etc.)
- NRC INSPECTION HOURS (LAST 3 QUARTERS)
  - 7/93 - 9/93 = 8,748
  - 10/93 - 12/93 = 11,520
  - 1/94 - 3/94 = 14,432

# **CURRENT SALP PERIOD QUALITY & REGULATORY ACCOMPLISHMENTS**

- **HARDWARE/WORKMANSHIP QUALITY REMAINS HIGH**
- **CAPs/SPs**
  - 25 OF 28 SUBMITTED AS 75% COMPLETE
  - ALL CAPs/SPs REVIEWED BY NRC -- CONSIDERED ACCEPTABLE
- **QA RECORDS INSPECTION ALMOST COMPLETE -- POSITIVE RESULTS**
- **EMPLOYEE CONCERNS**
  - LOW INCOMING RATE
  - NRC INSPECTION POSITIVE
  - "LOOKBACK" RESULTS SHOW NO SIGNIFICANT HARDWARE PROBLEMS
- **AGGRESSIVE RESPONSES TO STARTUP PROBLEMS**
  - STRENGTHENED EXPERIENCE/ORGANIZATION
  - PTI PROCEDURES REWRITTEN (OR IN PROCESS)
  - NRC REVIEWS SHOW IMPROVED PERFORMANCE
  - CONDUCT OF TESTS SHOW NO MAJOR DEFICIENCIES (CONTROL ROOM PERFORMANCE CONSIDERED A POSITIVE)
- **AGGRESSIVE RESPONSE TO QUALITY CONCERNS**
  - EXTENSIVE EVALUATION OF QUALITY ISSUES -- BEYOND JUST PRODUCTION
  - LINE AND NUCLEAR ASSURANCE HAVE DEVELOPED QUALITY IMPROVEMENT PLANS
  - LINE ORGANIZATION OWNERSHIP OF QUALITY INCREASING
- **OPERATIONAL READINESS**
  - ORR PLAN IN PLACE
  - PERFORMANCE EVALUATION PROGRAM (PEP) BEING UTILIZED
  - SITE OPERATIONS VICE PRESIDENT IN PLACE

# OVERVIEW

## CONCLUSIONS & REMAINING CHALLENGES

### I. OVERALL CONCLUSIONS

- SIGNIFICANTLY MORE WORK ACCOMPLISHED
- POSITIVE PROGRESS IN AREAS FOR IMPROVEMENT FROM PRIOR SALP -- PARTICULARLY IN THE STARTUP & QUALITY AREAS
- WE RECOGNIZE THE CHALLENGES AHEAD AND ARE AGGRESSIVELY PURSUING SOLUTIONS

### II. REMAINING CHALLENGES

- FURTHER IMPROVE WORK CONTROL
  - CURRENT TREND IS POSITIVE - SOME ISOLATED PROBLEMS
  - GOAL IS ZERO HARDWARE & DESIGN DOCUMENT PROBLEMS
- FURTHER IMPROVE CORRECTIVE ACTION PROGRAM (TO BE DISCUSSED FURTHER AT TVA/NRC MEETING ON 4/25/94)
  - EXTENT OF CONDITION
  - ROOT CAUSE ANALYSIS
- CONTINUE TO IMPROVE OPERATIONAL READINESS
- ENSURE QUALITY OF FINAL CLOSURE DOCUMENTATION TO ALLOW ADEQUATE TVA MANAGEMENT AND NRC REVIEW TIME

**SITE  
QUALITY EFFECTIVENESS**

**W. MUSELER**

## **TARGET AREAS FOR IMPROVEMENT FROM PREVIOUS SALP**

- PERFORMANCE OF CAPs/SPs
- LINE IDENTIFICATION OF ISSUES
- SIGNIFICANCE OF ISSUES
- TIMELINESS OF CLOSURE
- OWNERSHIP OF SITE QUALITY

## EXAMPLES OF CAPs/SPs PERFORMANCE

### I. PRIOR SALP PERIOD

- MASTER FUSE LIST -- REQUIRED SIGNIFICANT CORRECTION
- ACTION TAKEN -- IMPLEMENTED LINE ORGANIZATION REVIEW & INDEPENDENT ASSESSMENT PRIOR TO NRC REVIEW

### II. CURRENT SALP PERIOD

- SHOWED POSITIVE RESULTS

HAAUP  
Q-LIST  
HVAC  
WELDING

CONT. COOLING  
ESQ  
CABLE  
QA RECORDS

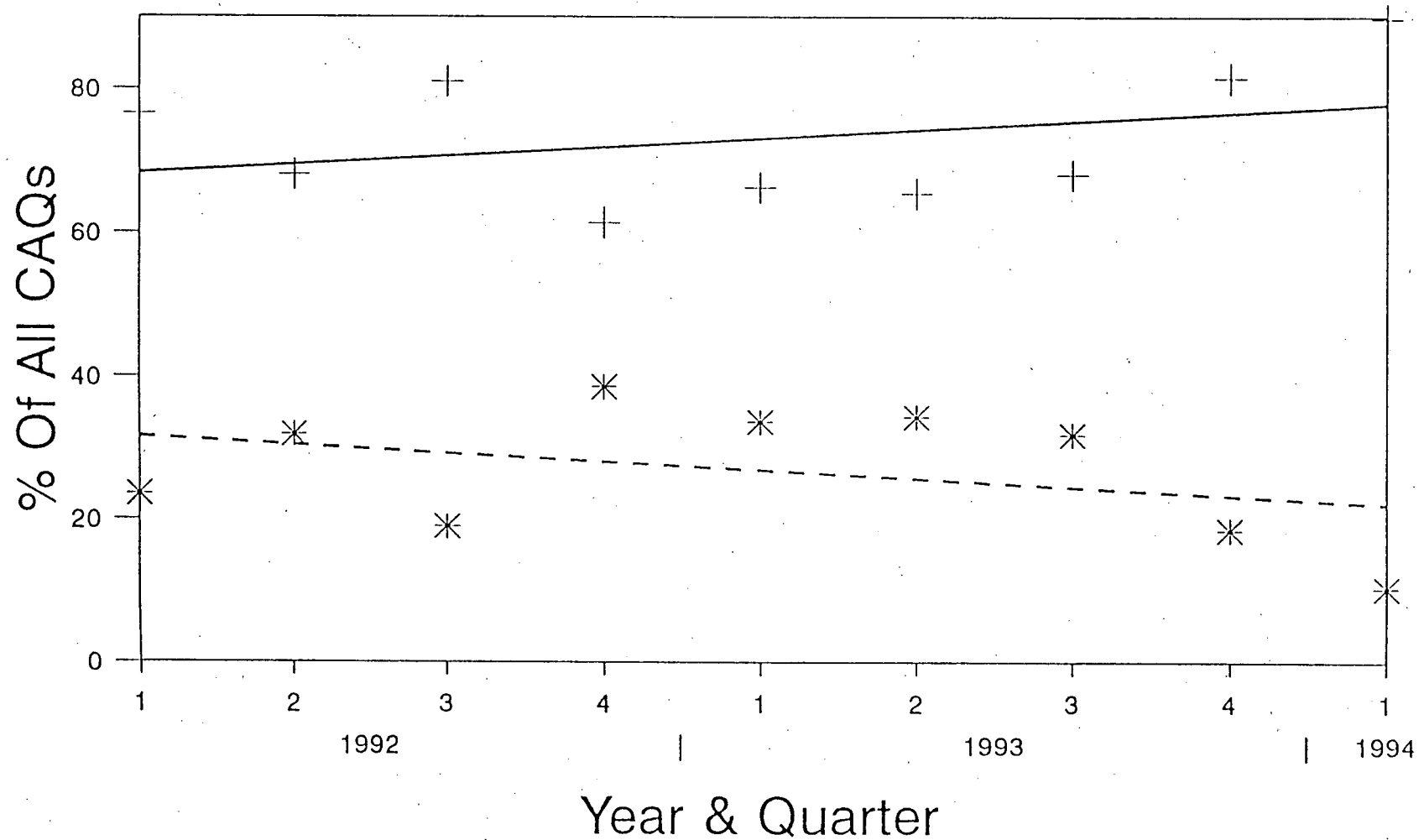
DBVP  
MELB  
MIC

- ELECTRICAL -- IDENTIFIED SEPARATION ISSUES
- OVERALL -- IMPROVED PERFORMANCE



# CAQ IDENTIFICATION TRENDS

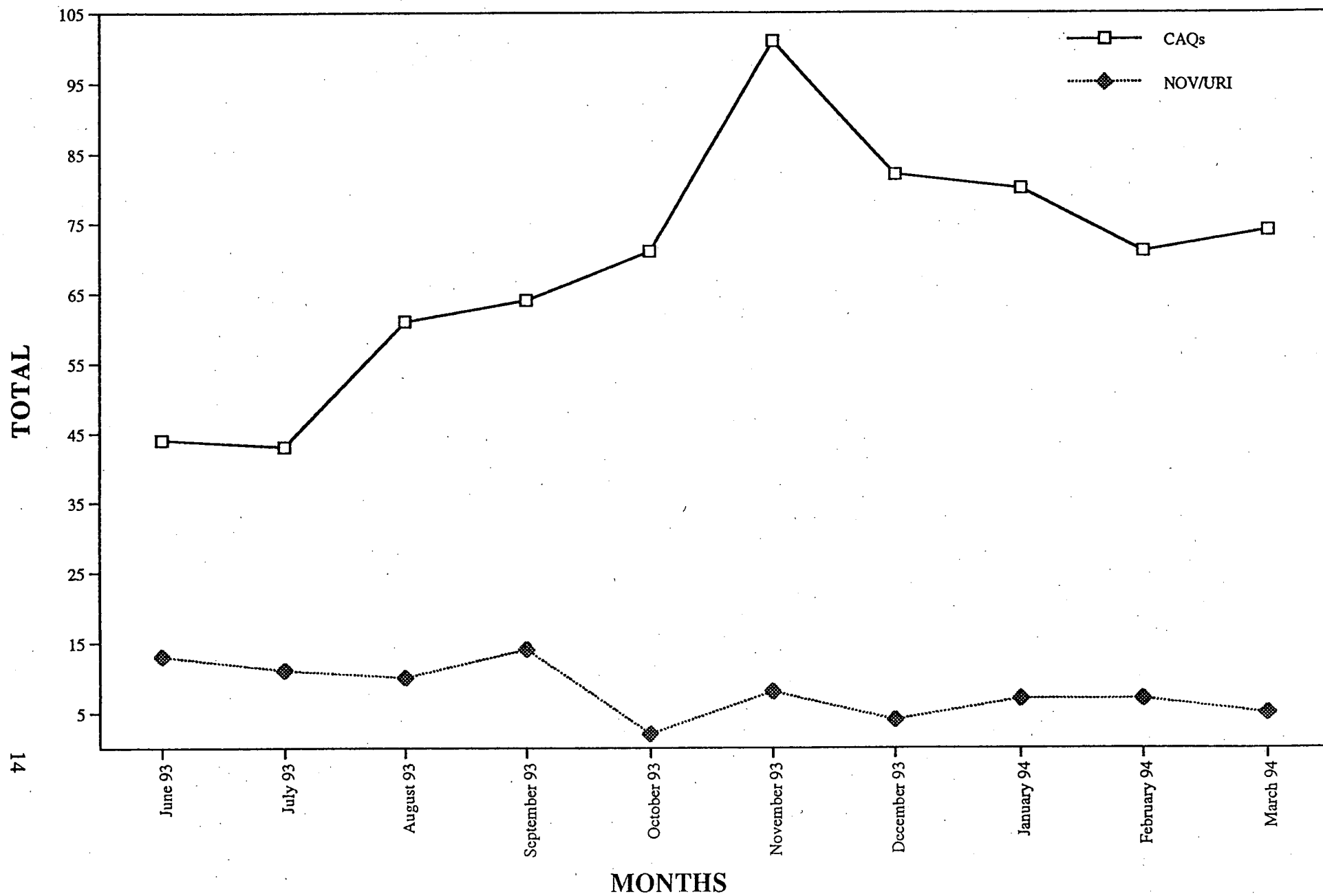
## Line Organizations & QA



+ Line Identified \* QA Identified

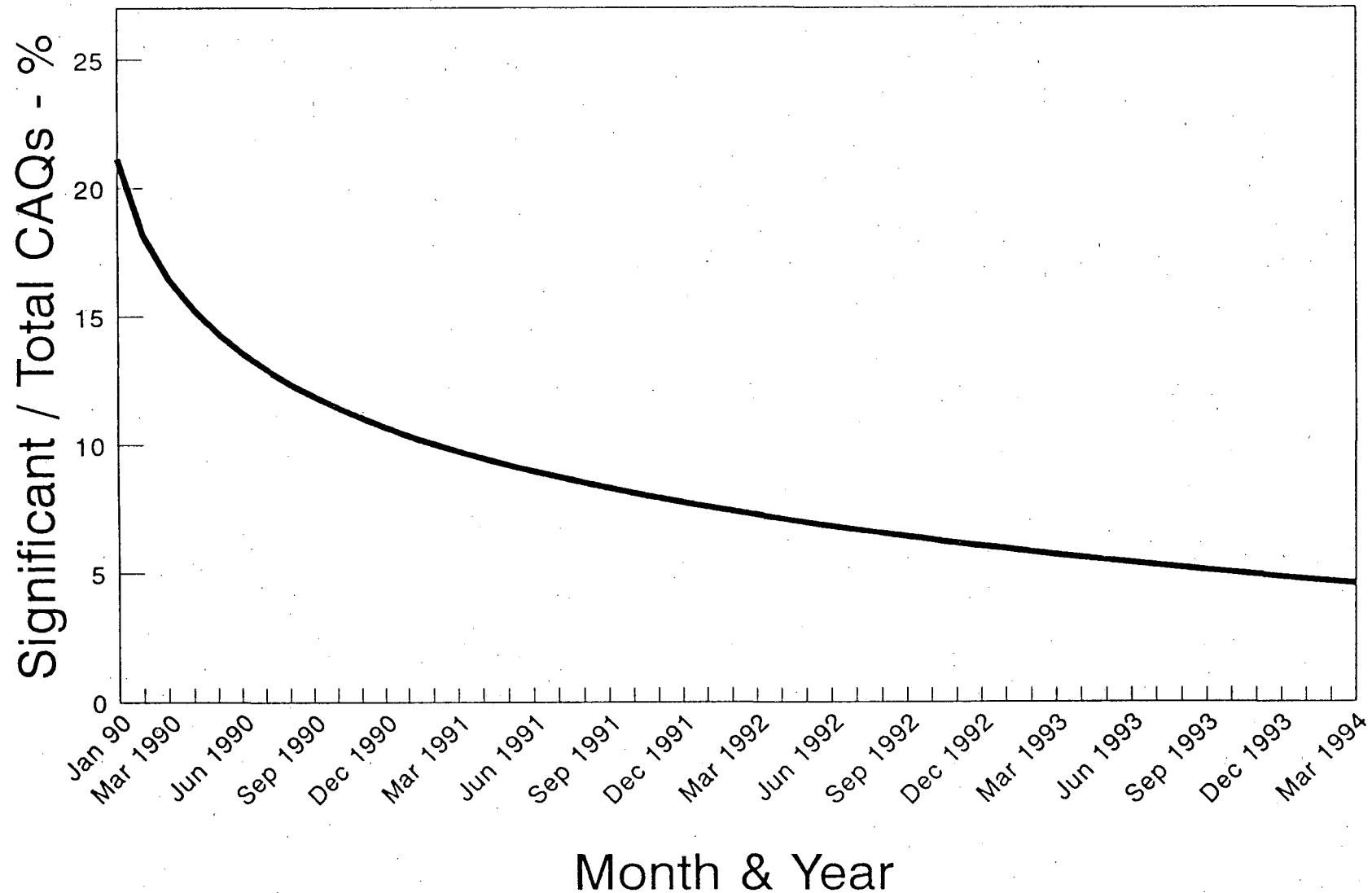
# WATTS BAR NUCLEAR PLANT

## CAQs vs. NOV/URI



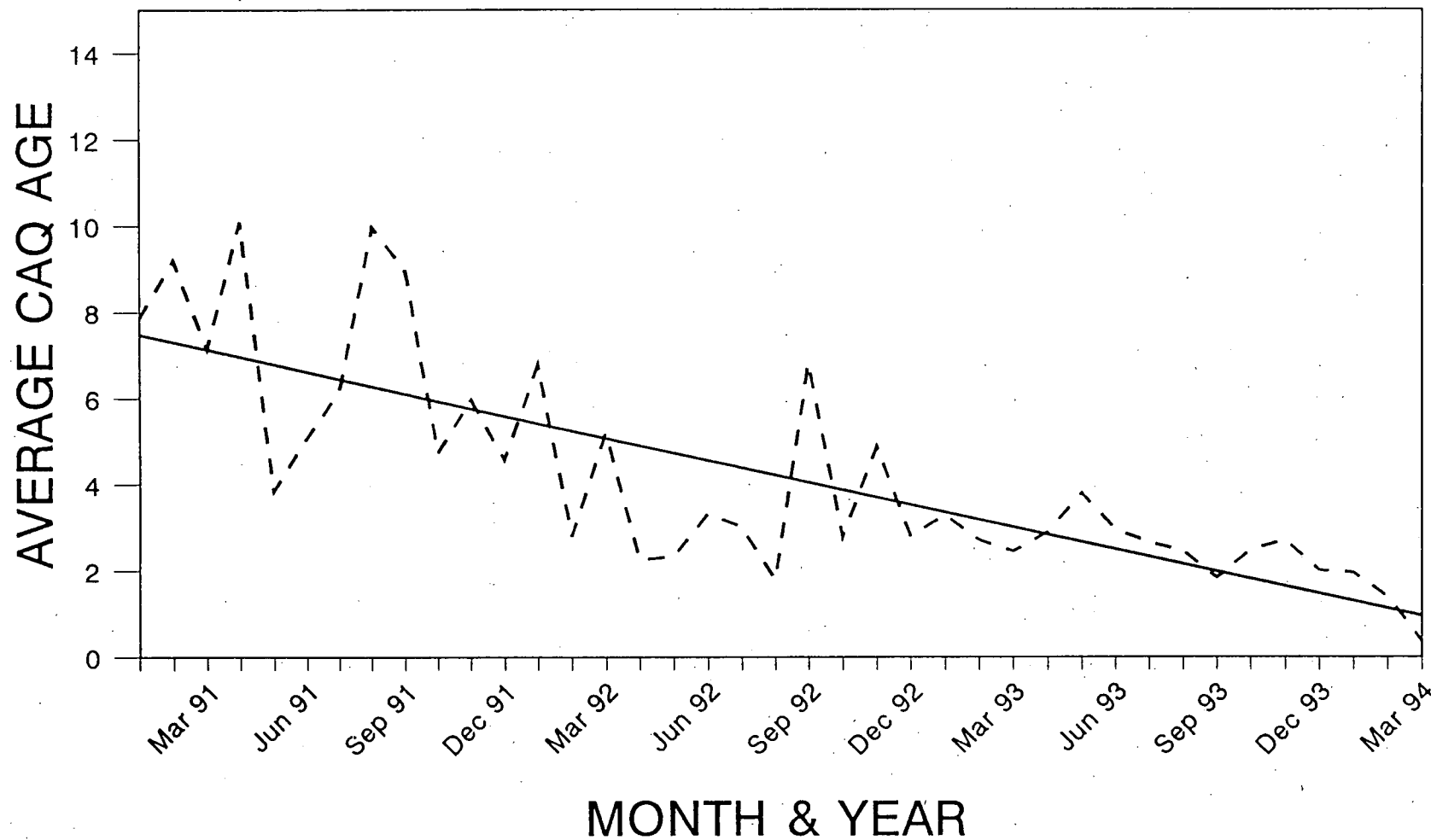
# WBN CAQ SIGNIFICANCE

## Ratio of Significant to Total CAQs



# ENGINEERING & MODIFICATIONS

## Trend Of Average CAQ Age - 1/91 to 3/94



16

- Monthly Age — Trend

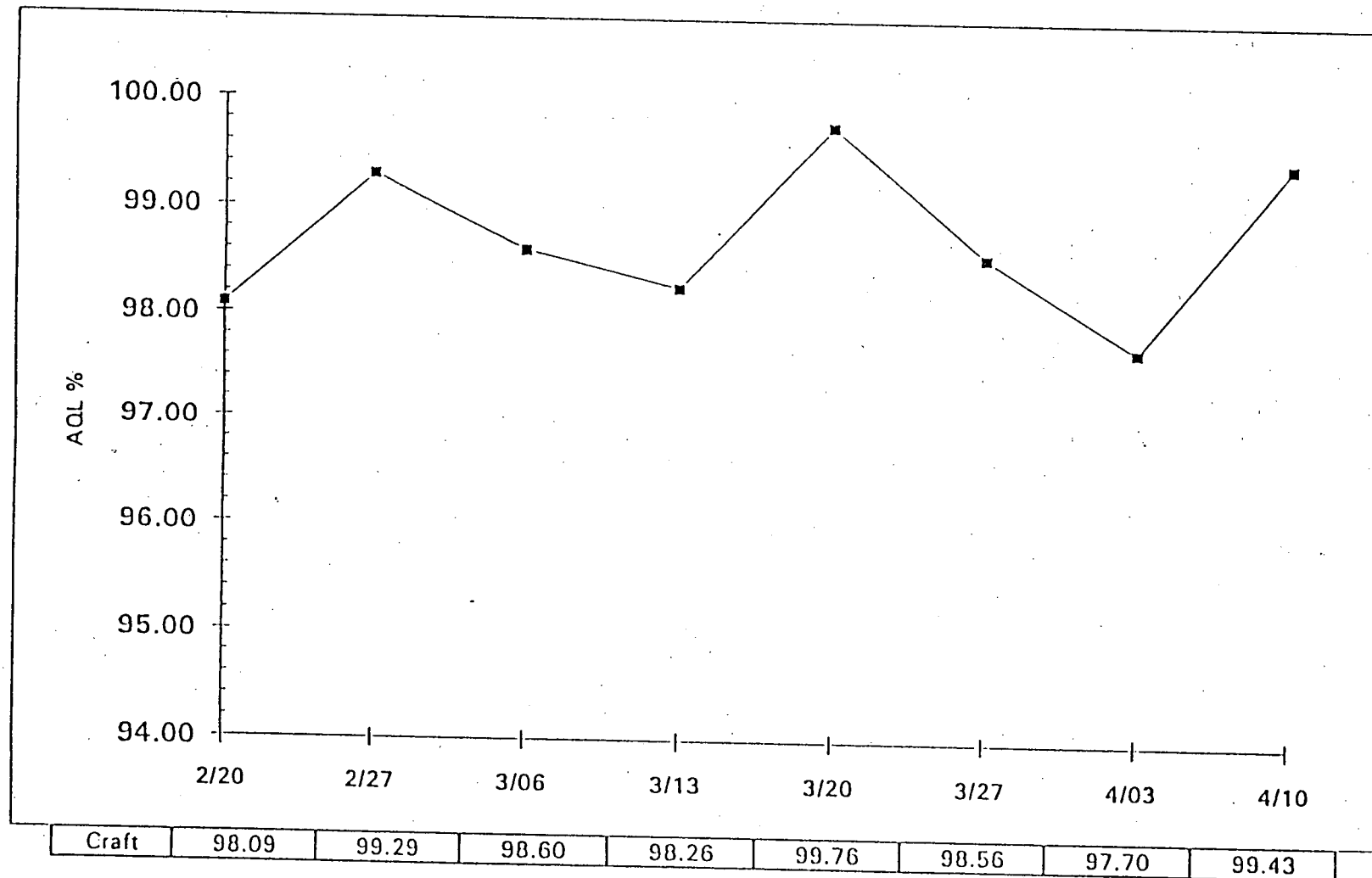
# WBN LINE ORGANIZATIONS' ACTION PLAN

## OBJECTIVES & KEY ELEMENTS

- INCREASED EMPHASIS OF LINE MANAGEMENT ACCOUNTABILITY FOR QUALITY
  - MONITORING QUALITY INDICATORS "CLOSE TO THE WORK" TO ENSURE QUALITY IS "BUILT IN" RATHER THAN "INSPECTED IN"
  - SITE SENIOR MANAGEMENT REVIEW OF QUALITY INDICATOR TRENDS IN THE WEEKLY MANAGEMENT MEETING
  - FEEDBACK TO FIRST LINE EMPLOYEES ON QUALITY PERFORMANCE
  - SITE QUALITY IMPROVEMENT MEETING MONTHLY THAT INCLUDES FEEDBACK ON QUALITY FROM NA, EMERGING QUALITY ISSUES & QUALITY CONCERNS
- INCREASED QUALITY AWARENESS
  - QUALITY IMPROVEMENT TEAMS
  - RECOGNITION OF QUALITY PERFORMANCE ACHIEVEMENTS
  - IMPROVED QUALITY ORIENTATION FOR NEW EMPLOYEES
  - FORMAL "QUALITY AWARENESS PROGRAM"

# Workplan Closure Group

## Workplan Document Deficiency Trending for Craft



18

1. Provided update for desktop.
2. Instructed craft, engineers, and closure personnel on Rev. 10 to MAI 3.3.

## EXAMPLES OF QUALITY AWARENESS

- MODS WELDER IDENTIFIED IMPROPER WELD
- MODS ELECTRICIAN IDENTIFIED A BOLTING MATERIAL PROBLEM
- DCRM CLERK IDENTIFIED CORPORATE SOFTWARE PROBLEM
- MAINTENANCE CREW IDENTIFIED PROCEDURE PROBLEM  
TERRY TURBINE GOVERNOR VALVE

# SUMMARY OF QUALITY EFFORTS

## I. OVERALL CONCLUSIONS

- DEMONSTRATED AGGRESSIVE & QUALITY RESPONSES TO PROBLEMS
- LINE ORGANIZATION IDENTIFYING GREATER PERCENTAGE OF PROBLEMS
- SIGNIFICANCE OF PROBLEMS DECREASING
- TIME TO CLOSURE OF PROBLEMS DECREASING

## II. FURTHER CHALLENGES

- FURTHER IMPROVEMENTS IN WORK CONTROL PROCESS
- IMPROVE EFFECTIVENESS OF EXTENT OF CONDITION AND CAUSE REVIEWS ON CORRECTIVE ACTION DOCUMENTS
- FURTHER IMPROVEMENTS IN THE QUALITY OF CLOSURE DOCUMENTS
- TIMELINESS TO ACHIEVE A HIGH-LEVEL OF PERFORMANCE TO SUPPORT OPERATIONS



**NUCLEAR ASSURANCE  
QUALITY EFFECTIVENESS**

**R. BARON**

## QUALITY ISSUES

- NUCLEAR ASSURANCE

- CONCERNS FROM THE PREVIOUS SALP PERIOD (JUNE/92 TO JUNE/93) INCLUDED:

1. QUALITY ASSURANCE PROGRAM DID NOT PROVIDE CONSISTENT ASSURANCE THAT THE ACTIVITIES WERE BEING PERFORMED IN ACCORDANCE WITH THE ESTABLISHED QA REQUIREMENTS
2. AN INQUISITIVE VIEW OF LICENSED ACTIVITIES WAS LACKING
3. INADEQUATE QA DEPARTMENT OVERSIGHT
4. WEAKNESS IN THE ORGANIZATION'S ABILITY TO FOCUS ON NEW EMERGING ACTIVITIES AND TO PROVIDE AN INFLUENTIAL ON-SITE PRESENCE
5. INSTANCES WERE NOTED WHERE MANAGEMENT ASSESSMENTS DID NOT PROVIDE ASSURANCE THAT THE IMPLEMENTATION OF SEVERAL CORRECTIVE ACTION PROGRAMS WAS ADEQUATE

- CONCERNS IDENTIFIED DURING THIS SALP PERIOD INCLUDE:

1. CORRECTIVE ACTION PROGRAM IMPLEMENTATION
2. QUALITY CONTROL DID NOT INSPECT TO THE LATEST DOCUMENT ON A HANGER FABRICATION
3. CONDUIT SEPARATION PROBLEMS
4. TEST DEFICIENCY REPORTABILITY EVALUATION PROBLEMS
5. TOO MANY REPEAT EVENTS

## CORRECTIVE ACTIONS

1. CONDUCTED BOTH INTERNAL AND EXTERNAL ASSESSMENTS OF THE EFFECTIVENESS OF BOTH THE QA PROGRAM AND THE QA ORGANIZATION
2. DEVELOPED AN EFFECTIVENESS ENHANCEMENT PLAN TO ADDRESS THE CONCERNS IDENTIFIED FROM THESE ASSESSMENTS:
  - IMPROVE THE OVERALL COVERAGE AND EFFECTIVENESS OF THE SITE QUALITY VERIFICATION PROGRAM
  - PROMOTE QUALITY PROGRAM OWNERSHIP BY LINE ORGANIZATIONS
  - ASSURE QUALITY ISSUES ARE PROMPTLY IDENTIFIED TIMELY AND RESOLUTION IS AGGRESSIVELY PURSUED.
3. IMPROVED ORGANIZATIONAL STRUCTURE TO INCREASE INDEPENDENCE, STRENGTHEN MANAGEMENT PRESENCE, AND ESTABLISH A BASIS FOR CONTINUOUS IMPROVEMENTS.
  - SITE NUCLEAR ASSURANCE BEGAN REPORTING TO CORPORATE (JULY/93).
  - RESTRUCTURED ORGANIZATION TO PROVIDE MANAGEMENT FOCUS ON CONSTRUCTION, STARTUP AND OPERATIONAL ACTIVITIES (FEB/94 & APRIL/94):
    - \* CONSTRUCTION COMPLETION NA MGR
    - \* STARTUP AND TEST NA MGR
    - \* OPS QUALITY AUDITS & ASSESSMENTS MGR
    - \* OPS QUALITY CONTROL MGR
    - \* INDEPENDENT REVIEW & ANALYSIS MGR

- CORRECTIVE ACTIONS (cont'd)

4. IMPROVED NRC/NUCLEAR ASSURANCE COMMUNICATION AND RESPONSE TO EMERGING ISSUES BY ESTABLISHING A MANAGER AS THE SINGLE POINT OF CONTACT (NOV/93) WHICH HAS RESULTED IN:
  - COORDINATING RESOLUTION OF APPROXIMATELY 73 QUESTIONS, ISSUES AND/OR CONCERNS THROUGH APRIL 1, 1994
  - ESTABLISHING WEEKLY NRC/NA INTERFACE MEETINGS TO SHARE INFORMATION (OCT/93)
  - ORIGINATING BI-WEEKLY INTERFACE WITH NRC SENIOR RESIDENT & GENERAL MANAGER NA (OCT/93)
  - INSTITUTING PERIODIC MEETINGS WITH REGION NRC MANAGEMENT TO DISCUSS NUCLEAR ASSURANCE ISSUES (FEB/94)
  
5. IMPROVED STARTUP AND OPERATIONAL EXPERIENCE IN THE NUCLEAR ASSURANCE DEPT. 300 PERCENT TO PROVIDE AN INCREASED UNDERSTANDING OF BOTH STARTUP AND OPERATIONAL ISSUES AND IMPROVE THE OPERATIONAL QUALITY PROGRAM BY:
  - HIRING TEMPORARY CONTRACTOR PERSONNEL WITH STARTUP AND OPERATIONS EXPERIENCE FROM OTHER NUCLEAR PLANTS (OCT/93 TO MARCH/94)
  - SELECTING AND HIRING A NEW SQM WITH BOTH STARTUP AND OPERATIONAL EXPERIENCE FROM OUTSIDE TVA (MAR/94)

## CORRECTIVE ACTIONS (cont'd)

6. NUCLEAR ASSURANCE HAS IMPROVED ITS INVOLVEMENT IN SITE ACTIVITIES AND ITS AGGRESSIVENESS IN RESOLVING MAJOR ISSUES:

### CONSTRUCTION

- ° INSTITUTED INSPECTOR OF THE DAY (IOD) PROGRAM, WHICH:
  - DEDICATES A FULL TIME QC INSPECTOR TO FIELD OBSERVATIONS
  - PROVIDES OVERSIGHT OF EMERGING ISSUES
  - HAS IDENTIFIED SEVERAL PROBLEMS, SUCH AS:
    - \* OPERATION OF THE AUXILIARY BOILER WITHOUT PROPER CONSIDERATION OF SQN IDENTIFIED PROBLEMS
    - \* VENDOR MANUAL REVISION REFERENCED IN A WORK DOCUMENT DID NOT MATCH THE LATEST REVISION IN DCRM
    - \* IMPROPER CHEMICAL TRAFFIC CONTROL
- ° INCOMPLETE INSPECTION/REPAIR OF 1E ELECTRICAL SPLICES RESULTED IN THE INITIATION OF A MANAGEMENT HOLD ON ALL SAFETY RELATED ELECTRICAL WORK DUE TO QA ESCALATION OF INCOMPLETE WORK PROBLEMS
- ° AN NA HOLD WAS ISSUED DUE TO IDENTIFYING PROBLEMS WITH CONTRACTOR CONTROL (SEPT/93)
- ° IDENTIFIED A RECURRING PROBLEM WITH THE ADEQUACY OF TRAINING OF PERSONNEL USING THE Q-LIST PRIOR TO 100% CAP CLOSURE.
- ° ONGOING CONTROL OF THE QUALITY OF COMPLETED WORK PLANS/WORK ORDERS USING SAMPLING REVIEW PROCESS.

## CORRECTIVE ACTIONS (cont'd)

### STARTUP

- A MANAGEMENT HOLD WAS PLACED ON ALL SAFETY RELATED SYSTEM TESTING DUE TO QA ESCALATION OF STARTUP PROGRAM DEFICIENCIES (SCAR 151, AUG/93)
- CONDUCTED THREE SPECIAL ASSESSMENTS OF THE STARTUP AND TEST ORGANIZATION:
  - TEST CONDUCT - WHICH EVALUATED THE SUT ORGANIZATION'S GENERIC/COMPONENT TESTING, ACCEPTANCE TESTING, AND PRE-OPERATIONAL TESTING.
  - SAFETY RELATED SYSTEM TESTING READINESS - WHICH DETERMINED IF THE CORRECTIVE ACTIONS TAKEN TO IMPROVE STARTUP PERFORMANCE (WBSCA930151) HAD BEEN PROPERLY DOCUMENTED AND IMPLEMENTED. A SUBSEQUENT NRC INSPECTION ALSO CONFIRMED READINESS.
  - SAFETY RELATED TESTING COMMENCEMENT - WHICH FOCUSED ON THE FIRST PRE-OPERATIONAL TESTS CONDUCTED AFTER THE CLOSURE OF THE STARTUP SCAR (151).
- CONDUCTED A SPECIAL ASSESSMENT OF OPERATIONS READINESS FOR HFT. ORR EVALUATION WAS POSTPONED BASED UPON NUCLEAR ASSURANCE ASSESSMENT.
- INDEPENDENTLY VERIFIED APPROXIMATELY 350 VALVES AND 120 BREAKERS IN RESPONSE TO EMERGING PLANT STATUS CONTROL ISSUES PRIOR TO HFT.

### OTHER ISSUES IDENTIFIED BY NUCLEAR ASSURANCE MONITORING OF SUT ACTIVITIES:

- USE OF PROCEDURES BY OTHER TVA ORGANIZATIONS NOT PROPERLY EVALUATED
- SOME PERSONNEL PERFORMING TESTING WITHOUT REQUIRED LEVEL II CERTIFICATION
- ACCEPTANCE CRITERIA WERE NOT ADEQUATE TO SUPPORT THE PLANT INSTRUMENTATION (RVLIS)
- IDENTIFIED THREE INSTANCES OF INCORRECT VALVE/BREAKER STATUS. OPERATIONS TOOK IMMEDIATE ACTION ON ALL OF THESE.

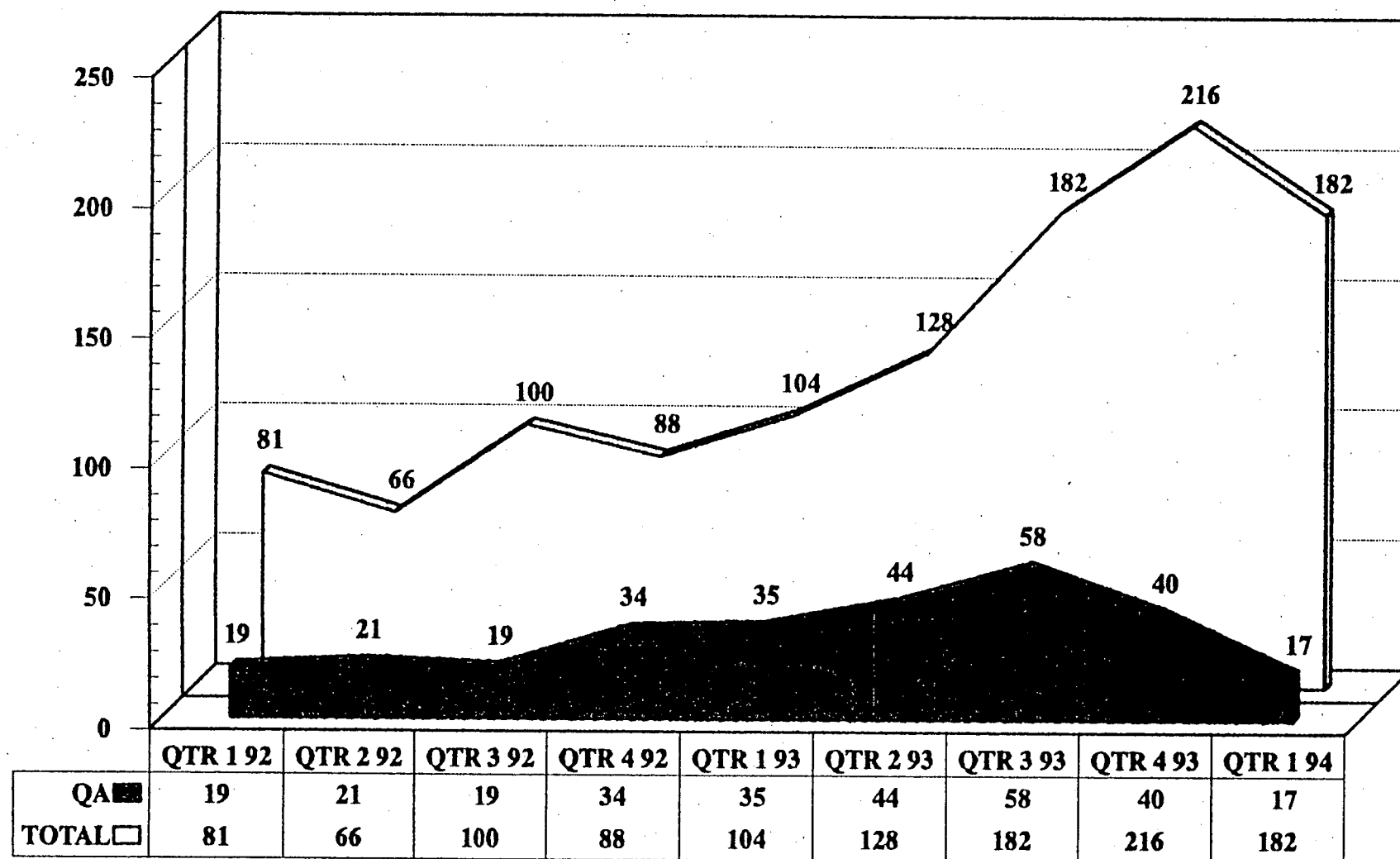
## CORRECTIVE ACTIONS (cont'd)

### OPERATIONS

- INITIATED A PERFORMANCE ENHANCEMENT PLAN (PEP) FOR OPERATIONS WHICH RESULTED IN THE IDENTIFICATION OF SEVERAL ISSUES:
  - SOME OPERATORS WERE OVERLOOKING MATERIAL, EQUIPMENT ACCESS, AND INDUSTRIAL SAFETY DEFICIENCIES UNTIL PROMPTED.
  - INCORRECT IMPLEMENTATION OF ADMINISTRATIVE CONTROLS FOR LOG KEEPING, OPERATOR AIDS, AND THE NIGHT ORDER BOOK.
  - TOO LITTLE SHIFT MANAGEMENT PRESENCE IN THE FIELD.
- 7. IMPROVED COMMUNICATIONS WITH THE RESPONSIBLE LINE ORGANIZATION THROUGH IMPROVED INDICATORS OF THE AREAS REQUIRING MANAGEMENT ATTENTION:
  - HFT READINESS WINDOWS REPORT WHICH CONTINUOUSLY MONITORED 39 AREAS FOR HFT READINESS
  - QUARTERLY TREND REPORT
  - FUEL LOAD READINESS WINDOWS REPORT
- 8. REINFORCED AND REITERATED PERSONNEL PERFORMANCE EXPECTATIONS TO BOTH NUCLEAR ASSURANCE PERSONNEL AND THE LINE ORGANIZATIONS REGARDING ACCOUNTABILITY FOR CONDITIONS ADVERSE TO QUALITY.
  - AS A RESULT LINE ORGANIZATIONS HAVE TAKEN A LARGER OWNERSHIP ROLE IN BOTH THE IDENTIFICATION AND DISPOSITION OF THE PLANT ISSUES.

# WATTS BAR NUCLEAR PLANT

## CORRECTIVE ACTION DOCUMENTS INITIATED BY QUARTER

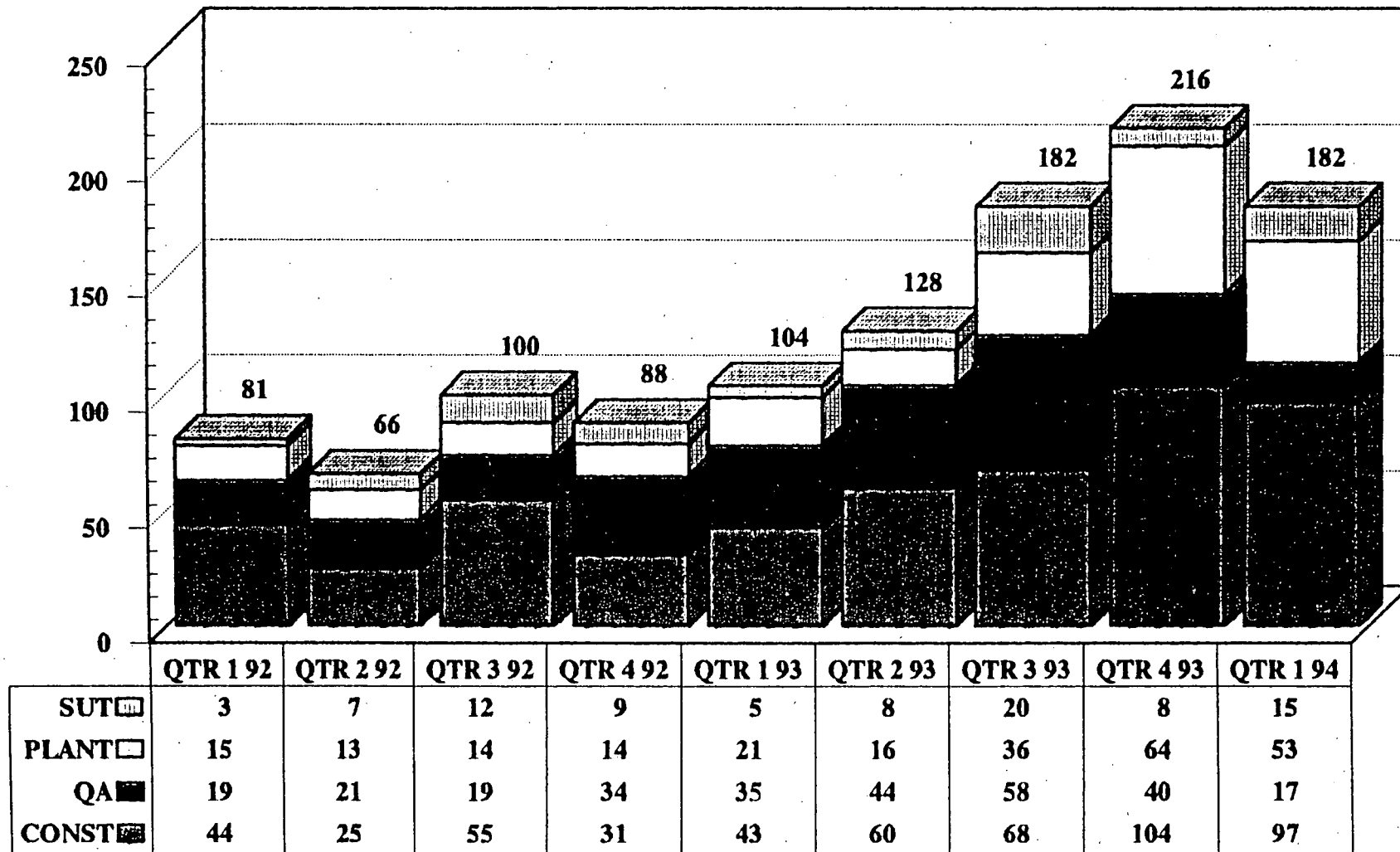


DATA AS OF MARCH 31, 1994



# WATTS BAR NUCLEAR PLANT

## CORRECTIVE ACTION DOCUMENTS INITIATED BY QUARTER



DATA AS OF MARCH 31, 1994

# SUMMARY: ACCOMPLISHMENTS & CHALLENGES

## I. MAJOR ACCOMPLISHMENTS

- IMPROVED ORGANIZATION, PERSONNEL SKILLS, AND ASSESSMENT METHODS.
- RESOURCES AND METHODS ARE MORE FOCUSED ON CRITICAL AREAS AND EMERGING ACTIVITIES
- MORE DIRECT INVOLVEMENT BY NUCLEAR ASSURANCE MANAGEMENT

## II. CHALLENGES

- IMPROVE CORRECTIVE ACTION PROGRAM
- IMPROVE NUCLEAR ASSURANCE PLANNING AND OBSERVATION SKILLS
- INCORPORATE HFT LESSONS LEARNED INTO FUTURE NUCLEAR ASSURANCE PLANS
- CONTINUE TO DEVELOP AND IMPROVE WBN ATTITUDE TOWARD QUALITY, ACCOUNTABILITY, AND OWNERSHIP
- DEVELOP THE OPERATIONAL NUCLEAR ASSURANCE TEAM
- STRIVE TO EVALUATE ERRORS, DETERMINE ROOT CAUSE, AND IMPLEMENT PLANS FOR CONTINUOUS IMPROVEMENT

# **TEST PROGRAM & TRANSITION TO OPERATIONS**

**J. SCALICE**

## OPERATIONAL READINESS PROGRAM

- OPERATIONAL READINESS PROGRAM PLAN COMPLETE
- HOT FUNCTIONAL OBSERVATION PLANS FOR THE HAVE BEEN PREPARED AND ARE BEING IMPLEMENTED
- SELF-ASSESSMENT PLANS HAVE BEEN COMPLETED FOR A NUMBER OF PROGRAMS AND THEY ARE CURRENTLY BEING IMPLEMENTED
- NUCLEAR ASSURANCE (NA) IS PERFORMING INDEPENDENT ASSESSMENTS

# OVERVIEW

## PLANT STAFF READINESS STATUS

- SELF-ASSESSMENTS

- APPROXIMATELY 46% OF THE PROGRAMS ARE READY FOR SELF-ASSESSMENT
- APPROXIMATELY 27% OF THE PROGRAM SELF-ASSESSMENTS ARE IN PROCESS OF COMPLETION OR COMPLETE

- PROCEDURES

- APPROXIMATELY 50% OF THE PROCEDURES HAVE BEEN UPDATED AND APPROVED
- APPROXIMATELY 30% OF THE PROCEDURES ARE IN DRAFT COMPLETE OR THE REVIEW CYCLE
- TOTAL PROCEDURE UPDATING EFFORT IS ON SCHEDULE

- STAFFING

- SITE STAFFING IS APPROXIMATELY 91% COMPLETE (BULK OF REMAINING STAFF IS LIMITED TO SECURITY GUARDS)
- CONTRACTORS HAVE BEEN HIRED FOR SPECIAL AREAS (e.g., STARTUP & HFT)

- TRAINING/EXPERIENCE

- SITE-WIDE TRAINING IS APPROXIMATELY 74% COMPLETE (BULK OF REMAINING TRAINING PRIOR TO FUEL LOAD IS FOR SECURITY GUARDS)
- LICENSED OPERATOR TRAINING PASS RATE APPROXIMATELY 95%
- REDUCTION IN CLEARANCE ERROR RATE

# ACCOMPLISHMENTS & CHALLENGES

## OPERATIONS - ACCOMPLISHMENTS

- SUCCESSFUL COMPLETION OF NRC OPERATOR TRAINING
- OPERATING CREWS HAVE BEEN PLACED ON 6 GROUP ROTATION
- CONFIGURATION/STATUS CONTROL PROCEDURES HAVE BEEN IMPLEMENTED TO MAINTAIN CONTROL OF SYSTEMS TURNED OVER TO OPERATIONS
- QA & INPO EVALUATIONS HAVE NOTED CONTROL ROOM CONDUCT AS A STRENGTH
- OPERATIONS HAS TAKEN OWNERSHIP OF PLANT EQUIPMENT AND AREAS
- QA ASSESSMENTS HAVE NOTED IMPROVEMENT IN COMMUNICATIONS (e.g., OPERATIONS/STARTUP INTERFACE)
- OPERATIONS PERSONNEL HAVE DEMONSTRATED AGGRESSIVENESS & OWNERSHIP IN RESOLVING IDENTIFIED PROBLEMS
- QA & MANAGEMENT REVIEWS HAVE IDENTIFIED IMPROVEMENT IN LOG KEEPING

## OPERATIONS - FURTHER CHALLENGES

- CLEARANCE ERROR RATE NEEDS TO IMPROVE FURTHER
- ENHANCE CONFIGURATION/STATUS CONTROL EFFECTIVENESS
- CONTINUE IMPROVEMENT IN COMMUNICATION BETWEEN OPERATIONS AND OTHER DEPARTMENTS
- ENHANCE RECOGNITION OF ACTIVITIES ON-GOING BY OTHER ORGANIZATIONS IN ORDER TO SUPPORT SUCCESSFUL OPERATIONS
- IMPROVE SUPPORT TO OTHER ORGANIZATIONS

# ACCOMPLISHMENTS & CHALLENGES

## NE/MODS - ACCOMPLISHMENTS

- FORMED OPERATIONS SUPPORT GROUP (WITH POINT OF CONTACT) TO IMPROVE RESPONSIVENESS & QUALITY OF SUPPORT TO STARTUP
- FORMED NE/MODS CAQ CLOSURE GROUP TO IMPROVE TECHNICAL QUALITY OF CORRECTIVE ACTIONS AND CLOSURE DOCUMENTS
- FORMED CONSOLIDATED AREA TURNOVER GROUP TO PERFORM WALKDOWNS FOR DAMAGED, LOOSE & MISSING HARDWARE
- TURNOVER MANAGEMENT REVIEW TEAM FORMED TO REVIEW OVERALL PROCESS & ISSUES AND SAMPLE SYSTEM 68 -- IMPLEMENTING ADDITIONAL HARD COPY VERIFICATION AT CLOSURE
- IMPROVED VISIBILITY OF QUALITY INDICATORS TO ALL PERSONNEL AND INCREASED FREQUENCY OF MEETINGS TO DISCUSS PROBLEMS
- AGGRESSIVE APPROACH TO PROBLEM AREAS USING MULTI-DISCIPLINE TEAMS FOR IN-DEPTH ANALYSIS OF CAUSE, EXTENT OF CONDITION, CORRECTIVE ACTIONS, & RECURRENCE CONTROLS
- MODIFIED WORKPLAN PROCESS TO BETTER ASSURE COMPLETE IDENTIFICATION OF REQUIREMENTS AND THEIR IMPLEMENTATION

## NE/MODS - FURTHER CHALLENGES

- FURTHER IMPROVEMENTS IN WORK CONTROL PROCESS
- IMPROVE EFFECTIVENESS OF EXTENT OF CONDITION AND CAUSE REVIEWS ON CORRECTIVE ACTION DOCUMENTS
- CONTINUE IMPROVEMENTS IN THE QUALITY OF CLOSURE DOCUMENTS
- TIMELINESS TO ACHIEVE A HIGH-LEVEL OF PERFORMANCE TO SUPPORT OPERATIONS

# ACCOMPLISHMENTS & CHALLENGES

## MAINTENANCE - ACCOMPLISHMENTS

- IMPROVED COMMUNICATIONS & RAISED EXPECTATIONS THROUGH OPERATIONAL READINESS TRAINING
- ACHIEVED HIGH QUALITY WORK LEVEL WITH LESS THAN 1% QUALITY REJECTION RATE (AVERAGING 1,000 COMPONENTS/MONTH)
- HAVE CONTROLLED BACKLOG EVEN WITH INCREASED SUPPORT FOR STARTUP (e.g., SNUBBER TESTING & MOVs)
- INSTITUTED EPRI ENHANCE PACKING PROGRAM IN OVER 2,500 VALVES
- IMPROVED PRE-JOB PLANNING & BRIEFINGS ON MAJOR EVOLUTIONS (e.g., RV ASSEMBLY & SNUBBER TESTING)
- IMPROVED PREDICTIVE & PREVENTIVE TECHNIQUES (e.g., THERMOGRAPHY & LUBRICATION ANALYSIS)
- IMPROVED FACILITIES & TRAINING MOCKUPS (e.g., MOV DEDICATED SHOP)
- KNOWLEDGE LEVEL OF PERSONNEL IMPROVED THROUGH EXPERIENCE AT SQN AND USE OF VENDORS (e.g., REACTOR COOLANT PUMP)
- IMPROVED OWNERSHIP AND COMPLIANCE IN FME & CHEMICAL TRAFFIC CONTROL PROGRAMS

## MAINTENANCE - FURTHER CHALLENGES

- CONTINUE TO IMPROVE COMMUNICATIONS & EXPECTATIONS
- DEVELOP MORE PROCEDURES FOR SPECIFIC COMPONENTS
- IMPROVE SPARE PARTS AVAILABILITY & STAGING OF WORK
- ENHANCE SCHEDULING & COORDINATION OF WORK TO REDUCE IMPACT ON OTHER ORGANIZATIONS
- CONTINUE TO UPGRADE EMPLOYEE MANAGEMENT & TECHNICAL SKILLS



# ACCOMPLISHMENTS & CHALLENGES

## TECHNICAL SUPPORT - ACCOMPLISHMENTS

- ESTABLISHED OWNER FOR EACH PLANT PROGRAM & DEFINED RESPONSIBILITIES
- TAKEN AGGRESSIVE APPROACH TO PLANT PERFORMANCE MONITORING
- DEMONSTRATED COMPETENT & PROFESSIONAL CAPABILITIES DURING PLANNING & ORGANIZATION OF VESSEL RESTACK
- VANTAGE 5 UPGRADE FOR NUCLEAR FUEL
- AGGRESSIVELY PURSUING MEASURES TO ASSURE FULL CONSISTENCY WITH MAINTENANCE RULE
- SIGNIFICANT PROGRESS IN PROCEDURES UPGRADE EFFORT
- DEVELOPING INTEGRATED SCHEDULE TO PERFORM SIs PRIOR TO FUEL LOAD
- INITIATED & IMPLEMENTED FILTRATION REDUCTION PROGRAM
- ACHIEVED REDUCTION OF BORIC ACID STORED IN BATs

## TECHNICAL SUPPORT - FURTHER CHALLENGES

- ENHANCE SYSTEM ENGINEER OPERATING EXPERIENCE
- IMPROVE COMMUNICATIONS WITHIN TECHNICAL SUPPORT AND WITH OTHER ORGANIZATIONS

# ACCOMPLISHMENTS & CHALLENGES

## STARTUP - ACCOMPLISHMENTS

- HFT GENERALLY PROCEEDING AS EXPECTED
- TEST PROCEDURES NOW BEING PERFORMED WITH NO MAJOR IMPLEMENTATION PROBLEMS
- COMPONENT TESTING CONTINUES WITH SUCCESSFUL NRC AUDIT OF PROCESS
- NEW PRE-OPERATIONAL TESTING INSTRUCTIONS (PTIs) BEING PRODUCED WITH FEWER SIGNIFICANT ERRORS
- ACHIEVED BETTER INTERFACES WITH OTHER ORGANIZATIONS

## STARTUP - FURTHER CHALLENGES

- CONTINUE TO IMPROVE COMMUNICATIONS WITH ALL ORGANIZATIONS
- GENERATE ERROR FREE PTIs
- SUCCESSFUL COMPLETION OF HFT AND OTHER TESTING

# ACCOMPLISHMENTS & CHALLENGES OVERVIEW

## SUPPORTING ORGANIZATIONS - ACCOMPLISHMENTS

### - EMERGENCY PREPAREDNESS

- (1) FIRST PWR TO SUBMIT EALs UNDER NUMARC GUIDANCE (NESP-007)
- (2) DEDICATED OPERATIONS SUPPORT CENTER & EQUIPMENT
- (3) ALL LETTERS OF AGREEMENT IN PLACE
- (4) SIRENS FULLY OPERATIONAL SINCE 1/93

### - SECURITY

- (1) FITNESS-FOR-DUTY PROGRAM IN PLACE
- (2) ENHANCED SAFEGUARDS INFORMATION PROGRAM
- (3) FUEL STORAGE PHYSICAL SECURITY PROGRAM

### - RADCON

- (1) PURCHASED & INSTALLED REACTOR HEAD SHIELD
- (2) OBTAINED NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM CERTIFICATION FOR TLD PROCESSING
- (3) PURCHASED & INSTALLED CCTV TO BE USED ON "HOT" JOBS (36 MAN-REM/REFUEL OUTAGE)
- (4) REPLACE FUEL GRID STRAPS (30 MAN-REM/OPERATING CYCLE)
- (5) S/G ELECTROPOLISHING (25 MAN-REM/REFUEL OUTAGE)

### - CHEMISTRY

- (1) UPGRADED RAW WATER CHEMICAL TREATMENT SYSTEM FOR MIC INSTALLED
- (2) INSTALLING UPGRADED CHEMISTRY MONITORING SYSTEMS (e.g., UNRELIABLE CHEMICAL FEED EQUIPMENT)
- (3)

### - LICENSING

- (1) TECHNICAL SPECIFICATION IMPROVEMENT EFFORT
- (2) BASELINED FSAR - SUBMITTED
- (3) NRC/WBN AGREEMENT ON MAJOR FOCUS AREAS

### - TRAINING

- (1) ACHIEVED 95% OPERATOR PASS RATE
- (2) ALL PROGRAMS FULLY ACCREDITED BY INPO

# ACCOMPLISHMENTS & CHALLENGES SUMMARY

## SUPPORTING ORGANIZATIONS - FURTHER CHALLENGES

- CONTINUE TO ENHANCE THE OPERATIONS MENTALITY OF SUPPORT ORGANIZATIONS
- INSTILL SENSITIVITY TO RADIOLOGICAL CONTROLS IN ALL PERSONNEL
- CREATE AN AREA INSIDE THE RCA FOR "HOT TOOLS"
- ENSURE FULL & TIMELY TRAINING OF SECURITY PERSONNEL
- ASSURE THAT INPO-ACCREDITED PROGRAMS ARE RE-ACCREDITED IN THE FALL OF 1994
- REINFORCE THE IMPORTANCE OF CHEMICAL CONTROL AS IT RELATES TO RELIABLE PLANT OPERATIONS
- EFFECTIVELY UTILIZE INDUSTRY "LESSONS LEARNED" TO IMPROVE OVERALL PLANT SAFETY PERFORMANCE

## CURRENT SALP PERIOD EXPERIENCE

- HFT EXPERIENCE

- EQUIPMENT ISSUES BEING IDENTIFIED & TEST PROBLEMS HANDLED PROMPTLY
- USED OF JTG REVIEWS PLATEAU PROGRESSION
- CONDUCT OF OPERATIONS CONSIDERED ADEQUATE -- INPO, QA & PEP TEAM REVIEWS SUPPORT THIS CONCLUSION
- PERFORMANCE OF SUPPORTING ORGANIZATIONS GENERALLY GOOD
- QA ASSESSMENTS THROUGH 450 F HAVE NOT IDENTIFIED IMPEDIMENTS TO PROGRESSION
- CONTROL ROOM BEING HANDLED PROFESSIONALLY (CONDUCT GOOD, CLEAN & FACILITIES UPGRADED) -- SHOWING TEAMWORK & QUALITY

- EXAMPLES OF SUCCESSFUL EVOLUTIONS

- VESSEL RESTACK
- FUEL RECAGING

- RECENT 50-MILE EPZ DRILL SHOWS RADCON READINESS

- MATERIALS PERSONNEL SHOW IMPROVED RECURRENCE CONTROL

- MATERIALS PROPERLY IDENTIFIED
- MATERIALS PROPERLY SEGREGATED
- PROCEDURES FOR MATERIALS CONTROL ENHANCED

# MANAGEMENT INITIATIVES

- DEPARTMENT MANAGERS REGULARLY MEETING WITH SUBORDINATES TO OBTAIN FEEDBACK & PROVIDE COACHING
- PROCESS TO IMPROVE EFFECTIVENESS -- 5 PRINCIPAL COMPONENTS EXAMINED:
  - (1) ORGANIZATIONAL STRUCTURE
  - (2) QUALIFICATIONS
  - (3) EFFECTIVE MANAGEMENT PERFORMANCE
  - (4) EFFECTIVE PERSONNEL PERFORMANCE
  - (5) ACCOUNTABILITY & OWNERSHIP
- 5 PROGRAM PLANS DEVELOPED AND IN EARLY STAGES OF IMPLEMENTATION
- PERFORMANCE EVALUATION PROGRAM
  - MAINTENANCE, MODIFICATIONS & STARTUP ALREADY EVALUATED
  - OPERATIONS EVALUATION ON-GOING
- PROCEDURES UPGRADE PROGRAM (UPGRADE TECHNICAL INSTRUCTIONS TO ENHANCE HUMAN FACTORS ASPECT)
  - 625 TECHNICAL INSTRUCTIONS (TIs) INVOLVED
  - 285 TIs ISSUED FOR USE
  - 170 TIs IN PROCESS
  - 270 TIs NOT STARTED
- OTHER SELF-ASSESSMENT PROCESSES
  - ENHANCED QUALITY INDICATORS USED TO TRACK PERFORMANCE
  - ESTABLISHMENT/EFFECTIVENESS OF ORGANIZATIONAL ELEMENTS SUCH AS PORC, ISEG, etc.
  - PROCEDURES FOR IIs, ROOT CAUSE ANALYSIS IN PLACE AND BEING USED
  - DEPARTMENTAL SELF-ANALYSIS MECHANISMS ARE BEING DEVELOPED AS PART OF OPERATIONAL READINESS PROGRAM

**OVERALL SUMMARY/CLOSING REMARKS**

**W. MUSELER**

# OVERALL SUMMARY

## I. SUMMARY OF MAJOR ACCOMPLISHMENTS

- PLANT NEAR COMPLETION AND DESIGN ADEQUACY BEING CONFIRMED
- STEADILY PROGRESSING TOWARD OPERATIONAL READINESS
- DEMONSTRATING CONSERVATIVE/SAFE OPERATIONS APPROACH DURING HFT
- TESTING AND SELF-ASSESSMENTS SUPPORT READINESS
- MANAGEMENT HAS IMPLEMENTED PRO-ACTIVE INITIATIVES TO IMPROVE:
  - QUALITY
  - PERSONNEL
  - PROCESSES
  - PLANT
- NUCLEAR ASSURANCE ORGANIZATION, PERSONNEL SKILLS, AND ASSESSMENT METHODS IMPROVED
- OVERALL -- TVA BELIEVES IT IS ON TRACK FOR ITS OPERATING LICENSE IN ALL AREAS

## II. SUMMARY OF FURTHER CHALLENGES

- AGGRESSIVELY PURSUE FURTHER QUALITY IMPROVEMENTS (IN PARTICULAR IN CAQ & PROCEDURE ADHERENCE AREAS)
- ENSURE FINAL CLOSURE PROCESS IS THOROUGH & TIMELY
- FURTHER ENHANCE PERSONAL ACCOUNTABILITY TO MEET PERFORMANCE EXPECTATIONS
- CONTINUE TO ENHANCE OPERATIONS MENTALITY ACROSS-THE-BOARD