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DEC 13 1991

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

Tennessee Valley Authority
ATTN: Mr. D. A. Nauman
Senior Vice President,
Nuclear Power
6N 38A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Gentlemen:

SUBJECT: MEETING SUMMARY - WATTS BAR UNIT 1

This letter refers to the meeting conducted at our request at Region II, Atlanta, Georgia, on November 19, 1991. The purpose of the meeting was for TVA to present results of construction restart related work, and to request concurrence for restart. Areas presented were overview, root cause closure, management objective results, carefully monitored slow restart, Balance of Plant workplan results, interfaces of design/modification/quality control, and completion assurance assessment. The NRC expressed a concern that there were too many outstanding calculation unverified assumptions. TVA committed to bring to closure as many as possible and to issue new unverified assumptions only after review by the site vice president. TVA committed that they would not change or delete program requirements without prior discussion with NRC. Enclosure 1 provides a list of attendees and Enclosure 2 is a copy of TVA's meeting handout. Enclosure 3 includes material that was provided by TVA on November 22, 1991 and discussed in a telecon between K. Barr (NRC) and J. Garrity (TVA). Enclosure 3 includes updated work plan test results, detailed information on TVA's intent to control unverified assumptions and a discussion on the new start-up organization.

It is our opinion that this meeting was beneficial and provided a better understanding of TVA's activities and plans to restart construction work. Should you have any questions concerning this letter, please contact me.

Sincerely,

Original Signed By:
BRUCE A. WILSON

Bruce A. Wilson, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Enclosures: (See page 2)
See Reports

IE01

Enclosures:
1. List of Attendees
2. Presentation Summary
3. Post Meeting Material

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(cc w/encls: continue on Page 3)

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cc w/encls: (continued)
Honorable Robert Aikman
County Judge
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Honorable Johnny Powell
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State of Tennessee

bcc w/encls:
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J. L. Milhoan, RII
G. C. Lainas, NRR
F. J. Hebdon, NRR
J. F. Wechselberger, NRR
A. F. Gibson, DRS/RII
K. P. Barr, DRP/RII
B. Bordenick, OGC
M. S. Callahan, GPA/CA
H. H. Livermore, DRP/RII
J. B. Brady, DRP/RII
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DRP/RII
HLivermore:vyg
12/[illegible]/91

DRP/RI
KBarr
12/[illegible]/91
12/13/91

50-390 TVA WATTS BAR 1

SUMMARY OF MEETING AT REGION II

REC'D W/LTR DTD 12/13/91....9112270084

ENCLOSURE 1

LIST OF ATTENDEES

Name	Title
S. Ebneter	Regional Administrator, Region II, (RII)
J. Milhoan	Deputy Regional Administrator, RII
A. Gibson	Director, Division of Reactor Safety, (DRS) RII
B. Wilson	Chief, TVA Projects, RII
K. Barr	Section Chief, TVA Projects, RII
A. Ignatonis	Technical Assistant, TVA Projects, RII
J. Brady	Project Engineer, TVA Projects, RII
A. Long	Project Engineer, TVA Projects, RII
R. Gibbs	Project Engineer, TVA Projects, RII
H. Livermore	Senior Project Engineer, TVA Project, RII
B. Crowley	Reactor Engineer, DRS, RII
G. Walton	Senior Reactor Inspector, Watts Bar, TVA Projects, RII
C. Smith	Reactor Engineer, DRS, RII
G. Lainas	Assistant Director, Office of Nuclear Reactor Regulation, (NRR)
F. Hebdon	Director, Project Directorate II-4, NRR
P. Tam	Senior Project Manager, Office of Nuclear Reactor Regulation
J. Segala	Project Engineer, NRR

TVA Staff

O. Kingsley	President, Generating Group
D. Nauman	Senior Vice President, Nuclear Power
D. Nunn	Vice President, Nuclear Projects
J. Elliott	Engineering Manager, WBN
J. Garrity	Site Vice President, Watts Bar
L. Martin	Site Quality Assurance Manager
M. Medford	Vice President and Nuclear Technical Director
G. Pannell	Site Licensing Manager
H. Weber	Manager, Engineering and Modifications
R. Mays	Licensing Engineer
E. Wallace	Manager, Licensing
R. Johnson	Manager, Mods/Facilities
M. Bellamy	Manager, Projects
M. Kazanas	Vice President, Completion Assurance

ENCLOSURE 2

PRESENTATION SUMMARY

TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT

NRC MANAGEMENT MEETING

CONSTRUCTION RESTART

NOVEMBER 19, 1991

REGION II - ATLANTA

OUTLINE

I.	OVERVIEW	GARRITY
	- STOP WORK	
	- ROOT CAUSES ANALYSIS	
	- MANAGEMENT OBJECTIVES FOR RESTART	
II.	ROOT CAUSE CLOSURE	BELLAMY
III.	MANAGEMENT OBJECTIVES RESULTS	
	- HISTORICAL PROBLEMS	PANNELL
	- ORGANIZATIONAL CHANGES	WEBER
	- BACKLOG	WEBER
	- ENGINEERING AHEAD OF MODIFICATIONS	ELLIOTT
	- SIMPLIFIED WORKPLANS	JOHNSON
	- TRAINING	JOHNSON
	- QUALITY MONITORING AND PERFORMANCE	BELLAMY
	- PROCESS IMPROVEMENTS	BELLAMY
	MODIFICATIONS	
	ENGINEERING	
	MATERIALS	
	SYSTEM STATUS CONTROL	
	PRESTART TESTING	
	PROCEDURES	
	SCHEDULING	
IV.	CAREFULLY MONITORED SLOW RESTART	WEBER
V.	BOP WORKPLAN TEST RESULTS	WEBER
VI.	INTERFACE DESIGN/MODIFICATION/QUALITY CONTROL	
	- ENGINEERING TO ESI INTERFACE	WEBER
	- MODIFICATIONS TO ECI INTERFACE	WEBER
	- MODIFICATIONS TO QC/SWEC INTERFACE	KAZANAS
VII.	COMPLETION ASSURANCE ASSESSMENT	
	- BOP WORKPLAN TEST	MARTIN
	- CORRECTIVE ACTION PROGRAM IMPROVEMENTS	KAZANAS
	- QUALITY ASSURANCE ORGANIZATION READINESS	
	- CERT	
	- OVERALL COMPLETION ASSURANCE ASSESSMENT	
	SUMMARY - MANAGEMENT CONCLUSION AND REQUEST FOR NRC CONCURRENCE TO RESTART CONSTRUCTION	NUNN/NAUMAN

I. OVERVIEW

PURPOSE OF MEETING

PRESENT RESULTS OF CONSTRUCTION RESTART RELATED WORK, REQUEST CONCURRENCE FOR RESTART

OVERALL STATUS

- **WORK ITEMS COMPLETE**
- **MANAGEMENT OBJECTIVE CLOSURE REPORTS FINAL**
- **TEST WORKPLANS COMPLETE, SATISFACTORY RESULTS**
- **QA HAS VERIFIED ALL WORK, AFFIRMED READINESS FOR RESTART**
- **NRC INSPECTION TEAM EXITED 11/15**
- **EXPECT TURNOVER OF SYSTEMS TO STARTUP ORGANIZATION UPON NRC CONCURRENCE FOR RESTART 11/22**

I. OVERVIEW (cont.)

STOP WORK

DECEMBER 21, 1990	ELECTRICAL WORK STOPPED BASED ON WORKPLAN 8413 AND CORRECTIVE ACTION PROGRAM PROBLEMS
DECEMBER 28, 1990	MECHANICAL WORK AND OTHER CONSTRUCTION STOPPED BASED ON EXTENT OF CONDITION
RESULT	CRAFTSMEN RELEASED SELF-ASSESSMENT AND ROOT CAUSE ANALYSIS INITIATED

ROOT CAUSE ANALYSIS

- WORK CONTROL
  - SELF-ASSESSMENT
  - KEPNER TREGOE
  - CAUSAL CHAIN

- CORRECTIVE ACTION PROGRAM
  - MANAGEMENT ASSESSMENT
  - KEPNER TREGOE
  - CAUSAL CHAIN

I. OVERVIEW (cont.)

MANAGEMENT OBJECTIVES FOR RESTART

- ASSURANCE THAT HISTORICAL PROBLEMS ARE UNDERSTOOD AND WILL NOT REPEAT
- NEW WORKPLAN FORMAT AND PROCEDURES, RELATED PROCEDURES SIMPLIFIED AND COMBINED
- BACKLOGGED PROBLEMS ADDRESSED
- PROCESS IMPROVEMENTS
  - DESIGN ENGINEERING
  - CONSTRUCTION AND INSPECTION
  - MATERIALS
  - SYSTEM STATUS CONTROL
  - PRESTART TESTING
- CORRECTIVE ACTION PROGRAM IMPROVEMENTS
- QUALITY MONITORING PIPELINE AND QUALITY PERFORMANCE INDICATORS IN PLACE
- ORGANIZATION CHANGES
- TRAINING
- ENGINEERING AHEAD OF MODIFICATIONS
- PLANS FOR CAREFULLY MONITORED, SLOW RESTART

II. ROOT CAUSE CLOSURE

ROOT CAUSE ANALYSIS

° GENERAL PERFORMANCE COMPONENT
- INATTENTION TO DETAIL
- SUPERVISORY INEFFECTIVENESS
- PROCEDURAL COMPLEXITY
- PROCEDURAL LACK OF CLARITY
- PROCEDURAL NONCOMPLIANCE
- INEFFECTIVE IMPLEMENTATION OF QUALITY ASSURANCE/QUALITY CONTROL PROGRAM

RESULT: DOCUMENTATION AND SOME HARDWARE DEFICIENCIES

° ATTITUDINAL COMPONENT
- DENIAL OF THE NEED FOR CHANGE
- FAILURE TO IMPLEMENT RESPONSIBILITIES
- INEFFECTIVE FOLLOW-THROUGH OF CORRECTIVE ACTIONS
- INATTENTION TO DETAIL

RESULT: CONTINUATION OF PREVIOUSLY IDENTIFIED UNACCEPTABLE PERFORMANCE

° ENVIRONMENTAL COMPONENT
- ORGANIZATIONAL STRUCTURE
- CHANGING LEADERSHIP DIRECTION
- INCORRECT FOCUS
- INAPPROPRIATE PRIORITIES
- UNCLEAR EXPECTATIONS

RESULT: INEFFECTIVENESS IN RESOLVING ISSUES

° INDIVIDUAL PERFORMANCE COMPONENT
- INAPPROPRIATE BELIEFS REGARDING PERSONNEL RESPONSIBILITIES FOR QUALITY
- INCORRECT MINDSET THAT "INSPECTING IN QUALITY" WAS APPROPRIATE

RESULT: FAILURE OF INDIVIDUALS TO COMPLETE QUALITY WORK RIGHT THE FIRST TIME

ROOT CAUSE MAPPING OF OF MANAGEMENT OBJECTIVES FOR RESTART

GENERAL PERFORMANCE COMPONENTS	
INATTENTION TO DETAIL	6,7,8
SUPERVISORY INEFFECTIVENESS	7
PROCEDURAL COMPLEXITY	2,4
PROCEDURE LACK OF CLARITY	2,4
PROCEDURAL NONCOMPLIANCE	7,8
INEFFECTIVE IMPLEMENTATION OF QA/QC	5,7
ATTITUDINAL COMPONENTS	
DENIAL OF THE NEED FOR CHANGE	1,6,7
FAILURE TO IMPLEMENT RESPONSIBILITIES	7,8
INEFFECTIVE FOLLOW-THRU OF CORRECTIVE ACTIONS	5,6
INATTENTION TO DETAIL	6,7,8
ENVIRONMENTAL COMPONENT	
ORGANIZATIONAL STRUCTURE	7
CHANGING LEADERSHIP DIRECTION	3,6,8,9,10
INCORRECT FOCUS	3,6,8,10
UNCLEAR EXPECTATIONS	7,8
INDIVIDUAL PERFORMANCE COMPONENT	
INAPPROPRIATE BELIEFS REGARDING PERSONNEL RESPONSIBILITIES REGARDING QUALITY	1,6,7,8
INCORRECT MIND-SET THAT "INSPECTING IN QUALITY" WAS APPROPRIATE	1,6,7,8

MANAGEMENT OBJECTIVES FOR RESTART

1. ASSURANCE THAT HISTORICAL PROBLEMS ARE UNDERSTOOD AND NOT REPEATED.
2. NEW WORKPLAN FORMAT AND PROCEDURES,RELATED PROCEDURES SIMPLIFIED AND COMBINED.
3. BACKLOGGED PROBLEMS ADDRESSED
4. PROCESS IMPROVEMENTS
   - DESIGN ENGINEERING
   - CONSTRUCTION AND INSPECTION
   - MATERIALS
   - SYSTEM STATUS CONTROL
   - PRESTART TESTING
   - CLOSURE
5. CORRECTIVE ACTION PROGRAM IMPROVEMENTS
6. QUALITY MONITORING PIPELINE AND QUALITY INDICATORS IN PLACE.
7. ORGANIZATION CHANGES
8. TRAINING
9. ENGINEERING AHEAD OF CONSTRUCTION
10. PLANS FOR CAREFULLY MONITORED, SLOW RESTART

III. MANAGEMENT OBJECTIVES RESULTS

HISTORICAL PROBLEMS

DESCRIPTION

- HISTORICAL PROBLEM DOCUMENTS HAVE BEEN REVIEWED TO IDENTIFY PREVIOUS PROCESS/MANAGEMENT PROBLEMS TO SERVE AS REFERENCE POINTS FOR CURRENT CORRECTIVE ACTION ACTIVITIES

OBJECTIVE

- CURRENT RESTART ACTIONS MUST ADDRESS PAST PROBLEMS THAT HAVE CONTINUED AT WBN

METHOD OF IMPLEMENTATION

- THE FOLLOWING DOCUMENTS HAVE BEEN REVIEWED TO RECORD PROCESS/MANAGEMENT DEFICIENCIES AND DOCUMENT ACTIONS IN PLACE TO PREVENT RECURRENCE:
  - SHUTDOWN ASSESSMENT (1991)
  - EMPLOYEE CONCERNS SPECIAL PROGRAM (1988)
  - NUCLEAR PERFORMANCE PLAN, VOLUME IV (1989)
  - WATTS BAR PROGRAM TEAM CLOSURE REPORT (COBEAN REPORT INCLUDED) (1991)
  - INSTITUTE OF NUCLEAR POWER OPERATIONS (INPO) SITE AUDIT (1985)
  - QA AUDIT FINDINGS (JUNE 1990 - APRIL 1991)
  - NRC NOTICES OF VIOLATIONS (1987 - 1990)
  - NRC UNRESOLVED ITEMS/INSPECTION FOLLOW-UP ITEMS (1987 - 1990)
  - SIGNIFICANT CAQRs (MARCH 1987 - DECEMBER 1990)

III. MANAGEMENT OBJECTIVES RESULTS

HISTORICAL PROBLEMS (cont.)

RESULTS

- TOTAL OF 186 ISSUES
- REVIEW OF CONSOLIDATED DATA
  - NOV ISSUES
  - URIs/IFIs/CAQ 500
  - PARETO ANALYSIS OF PROBLEMS
- ALL ISSUES ARE NOW CLOSED

CURRENT STATUS

- REVIEW COMPLETE, CLOSURE PACKAGE COMPLETE

III. MANAGEMENT OBJECTIVES RESULTS

ORGANIZATION CHANGES

DESCRIPTION

- PREVIOUS ORGANIZATION DID NOT PROMOTE ACCOUNTABILITY AND OWNERSHIP OF WORK QUALITY
- PREVIOUS MANAGEMENT AND WORKFORCE CULTURE HAS NOT EMPHASIZED PROJECT COMPLETION, PLANT OPERATION, AND QUALITY
- IN THE PAST RESPONSIBILITIES HAVE NOT BEEN CLEARLY DEFINED, UNDERSTOOD, AND COMMUNICATED
- INDIVIDUAL/GROUP PERFORMANCE HAD NOT BEEN EVALUATED AND COMMUNICATED

OBJECTIVE

- ORGANIZE AND STAFF PROJECT FOR THE LONG TERM. FOCUS ON OPERATIONS AND MAINTENANCE OF THE PLANT
  - OVERALL SITE STAFFING LEVELS STREAMLINED TO ALLOW FOCUSING
  - SENIOR MANAGEMENT CHANGES HAVE BEEN ACHIEVED
    - VICE PRESIDENT OF COMPLETION ASSURANCE
    - MANAGER OF ENGINEERING AND MODIFICATIONS
    - MANAGER OF MODIFICATIONS AND FACILITIES
    - MANAGER OF NUCLEAR QUALITY ASSURANCE
  - SITE ENGINEERING HAS SHIFTED FROM A DESIGN PRODUCTION ROLE TO A DESIGN REVIEW MANAGER
  - MODIFICATIONS RESTRUCTURED TO SUPPORT A CONTRACTED CRAFT LABOR WORK FORCE

III. MANAGEMENT OBJECTIVES RESULTS

ORGANIZATION CHANGES (cont.)

- PROVIDE INCENTIVES AND MOTIVATION TO COMPLETE PROJECT
- CLEARLY DEFINE AND COMMUNICATE RESPONSIBILITIES AND EXPECTATIONS FOR QUALITY
  - SITE-WIDE USE OF QUALITY INDICATORS, AS WELL AS BROAD DISTRIBUTION OF THE SITE WEEKLY REPORT, WILL CLEARLY DEFINE AND COMMUNICATE EXPECTATIONS FOR QUALITY
  - RESPONSIBILITY MATRICES HAVE BEEN DEVELOPED AND DISTRIBUTED FOR PERSONNEL IN QUALITY ASSURANCE, MODIFICATIONS, AND ENGINEERING
- INCREASE AWARENESS OF AND COMMITMENT TO QUALITY
  - PERIODIC SITE-WIDE MESSAGES HAVE BEEN RELEASED TO RENEW AWARENESS AND COMMITMENT TO QUALITY
- PROVIDE JOB-RELATED FEEDBACK TO ALL EMPLOYEES IN A FREQUENT AND SYSTEMATIC MANNER
  - A PERFORMANCE FEEDBACK PROGRAM HAS BEEN INSTITUTIONALIZED TO PROVIDE MEANINGFUL PERFORMANCE FEEDBACK
- ORGANIZE TVA QUALITY CONTROL MANAGEMENT TO A CONSTRUCTION/INSTALLATION QUALITY CONTROL MANAGER VERSUS QUALITY CONTROL IMPLEMENTATION
  - SITE QUALITY ORGANIZATION HAS BEEN RESTRUCTURED TO PROVIDE OVERSIGHT TO CONTRACTOR INSPECTION WORKFORCE
- ORGANIZE TVA STARTUP ORGANIZATION TO ESTABLISH A TVA MANAGEMENT CORE
  - STARTUP AND TEST HAS BEEN REORGANIZED INTO A TEST CONTRACTOR MANAGEMENT ROLE

III. MANAGEMENT OBJECTIVES RESULTS

BACKLOG

BACKLOG	06/27/91	10/10/91	11/19/91
CORRECTIVE ACTIONS 735 = 411 BLUE DOT + 324 POST RESTART	1372	763	735
CATDs 202 = 25 BLUE DOT + 177 POST RESTART	565	206	202
CAT 45 = 24 BLUE DOT + 21 POST RESTART	90	64	45
IDIs (TVA)	58	6	0
NRC OPEN ITEMS AFFECTING RESTART	265	31	0
OLD WORKPLANS CLOSE (GROUPS 1 & 2A)	563	149	0
NEW WORKPLANS WRITE	0	387	653
PROCUREMENT ENGINEERING GROUP	605	227	239 (PL)*
VSR/DRs 342 = 17 BLUE DOT + 325 POST RESTART	698	342	342
NE DRAFTING BACKLOG	950	244	227 (PL)*
CALC CROSS-REFERENCE INDEX SYSTEM (CCRIS)	15142	NA	0 (PL)*
FILE MAINTENANCE BACKLOG	12890	NA	0 (PL)*
CONFIGURATION CONTROL DRAWINGS 90 = ADDITIONAL CCDs REQUESTED BY OPERATIONS (NON-RESTART)	527	NA	90
OLD PROGRAM DRAWING DEVIATIONS	111	NA	0

* BEING MAINTAINED AT NORMAL PROCESS LEVEL

III. MANAGEMENT OBJECTIVES RESULTS

ENGINEERING AHEAD OF MODIFICATIONS

DESCRIPTION

- DEVELOP BACKLOG OF DESIGN CHANGES TO SUPPORT MODIFICATIONS AND A PROGRAM THAT ALLOWS NE TO STAY AHEAD OF MODIFICATIONS AND MAINTAIN QUALITY

OBJECTIVES

- ESTABLISH BACKLOG OF DCNs FOR MODIFICATION'S WORKPLAN WRITERS
- IMPLEMENT A PROGRAM THAT MONITORS PRODUCTION SUCH THAT NE CAN STAY AHEAD
- IMPLEMENT A PROGRAM THAT MONITORS NE PRODUCT QUALITY

CURRENT STATUS

- NE GOAL WAS 250 DCNs TO SUPPORT 500 MODIFICATION WORKPLANS. THIS GOAL WAS SUBSEQUENTLY INCREASED TO 350 DCNs. AS OF NOVEMBER 15, 1991, 628 DCNs ARE AVAILABLE FOR WORKPLAN DEVELOPMENT
- AS OF NOVEMBER 15, 1991, NE IS 349 DCNs AHEAD OF MODIFICATIONS
- A PROGRAM HAS BEEN DEVELOPED AND IS IN PLACE TO MONITOR WEEKLY PRODUCTION
- AN NE QUALITY MONITORING PROGRAM HAS BEEN IMPLEMENTED

III. MANAGEMENT OBJECTIVES RESULTS

SIMPLIFIED WORKPLANS

DESCRIPTION

- PREVIOUS WORK PROCESS SYSTEM COULD NOT CONSISTENTLY ACHIEVE REQUIRED QUALITY
- PROCEDURAL LACK OF CLARITY AND COMPLEXITY
- INCONSISTENT WORKPLAN FORMAT
- WORKPLANS COMPLEX AND HARD TO FOLLOW

OBJECTIVE

- PROVIDE A NEW CLEAR AND CONCISE WORKPLAN FORMAT
- SIMPLIFY PROCEDURES USED IN MODIFICATION IMPLEMENTATION
- CLEARLY DEFINE RESPONSIBILITIES OF FIELD ENGINEERS, CRAFT, CRAFT SUPERVISION
- REDUCE THE SCOPE OF WORKPLANS TO FACILITATE SHORT CYCLE TIME AND SIMPLIFY CLOSURE

III. MANAGEMENT OBJECTIVES RESULTS

SIMPLIFIED WORKPLANS (cont.)

CURRENT STATUS

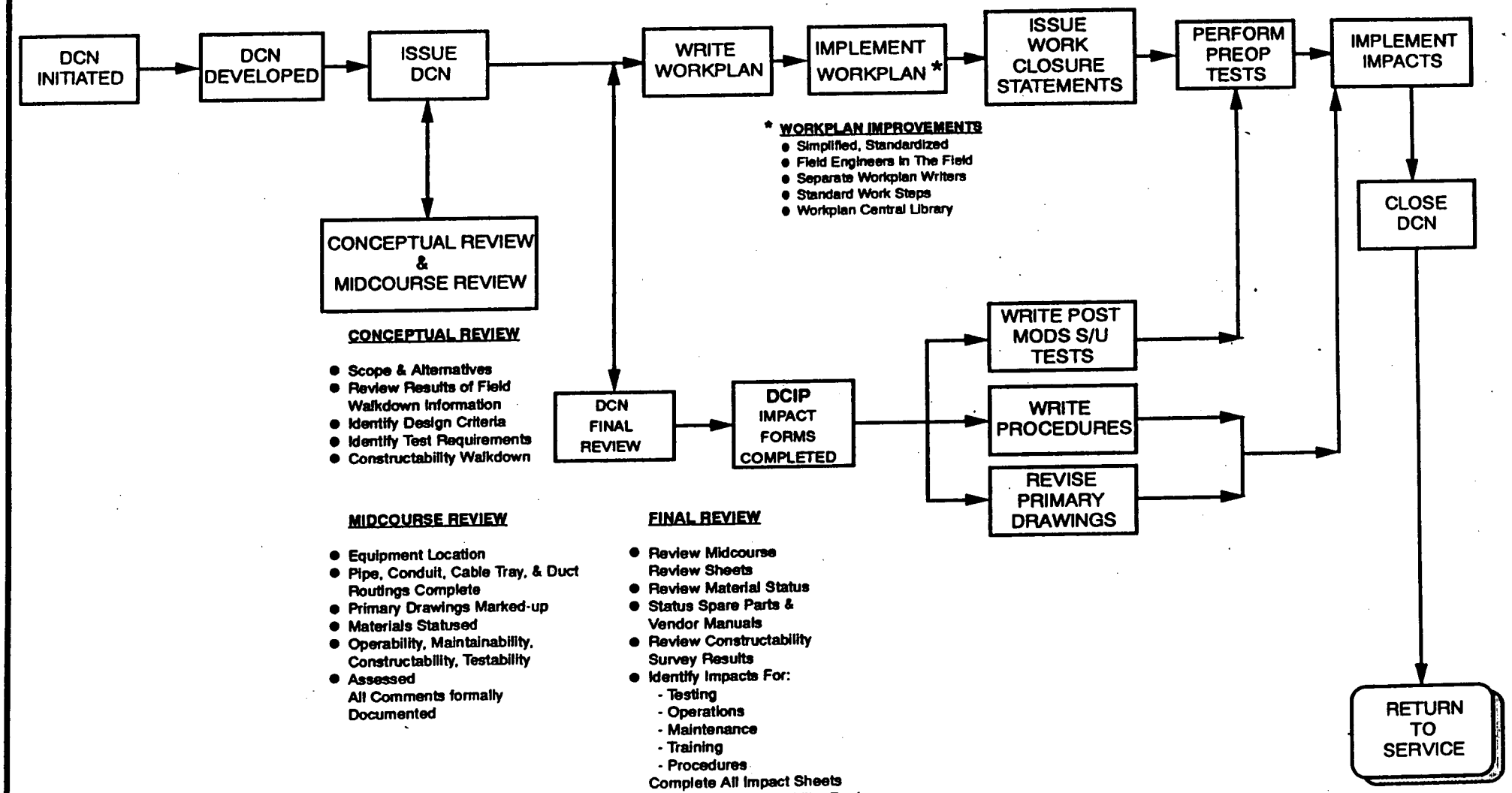
- WBN ADMINISTRATIVE PROCEDURES THAT CONTROL THE PLANT MODIFICATION PROCESS ARE APPROVED FOR USE
- WBN CONSTRUCTION PROCESS INSTRUCTIONS (CPIs) [70] HAVE BEEN REPLACED BY WBN MODIFICATION ADDITION INSTRUCTIONS (MAIs) [43] AND ARE APPROVED FOR USE
- SOFTWARE FOR AUTOMATED WORKPLAN DATA BASE HAS BEEN INSTALLED, VERIFIED AND IS IN USE
- ALL GENERAL CONSTRUCTION INSTRUCTIONS (GCIs) [64] HAVE BEEN UPDATED OR CANCELED. SINCE THIS OBJECTIVE WAS ESTABLISHED, WBN HAS INITIATED A SITE PROCEDURE UPGRADE PROGRAM AND THE REMAINING GCIs HAVE BEEN CONVERTED TO CONSTRUCTION ADMINISTRATIVE INSTRUCTIONS (CAIs).
- 500 WORKPLAN BACKLOG FOR CRAFT RESTART COMPLETED 10/15/91. AN ADDITIONAL 200 WORKPLANS HAVE BEEN COMPLETED BY 11/19/91 - PRIOR TO CRAFT RESTART
- AS OF 10/11/91 THE 500 WORKPLANS READY FOR CRAFT RESTART REPRESENTS APPROXIMATELY 170,000 CRAFT MANHOURS

III. MANAGEMENT OBJECTIVES RESULTS

SIMPLIFIED WORKPLANS (cont.)

KEY POINTS

- ADOPTED BFN SYSTEM - BUILT ON SUCCESS
- UPGRADED TO WBN COMMITMENTS, ETC
- BROUGHT ON KEY BFN PERSONNEL
- QUALITY MONITORING SYSTEM FOR WP WRITING
- NE SUPPORT


DCN INITIATED
DCN DEVELOPED
ISSUE DCN
WRITE WORKPLAN
IMPLEMENT WORKPLAN *
ISSUE WORK CLOSURE STATEMENTS
PERFORM PREOP TESTS
IMPLEMENT IMPACTS
CLOSE DCN
RETURN TO SERVICE
CONCEPTUAL REVIEW & MIDCOURSE REVIEW
DCN FINAL REVIEW
DCIP IMPACT FORMS COMPLETED
WRITE POST MODS S/U TESTS
WRITE PROCEDURES
REVISE PRIMARY DRAWINGS
* WORKPLAN IMPROVEMENTS
• Simplified, Standardized
• Field Engineers In The Field
• Separate Workplan Writers
• Standard Work Steps
• Workplan Central Library
CONCEPTUAL REVIEW
• Scope & Alternatives
• Review Results of Field Walkdown Information
• Identify Design Criteria
• Identify Test Requirements
• Constructability Walkdown
MIDCOURSE REVIEW
• Equipment Location
• Pipe, Conduit, Cable Tray, & Duct Routings Complete
• Primary Drawings Marked-up
• Materials Statused
• Operability, Maintainability, Constructability, Testability
• Assessed
All Comments formally Documented
FINAL REVIEW
• Review Midcourse Review Sheets
• Review Material Status
• Status Spare Parts & Vendor Manuals
• Review Constructability Survey Results
• Identify Impacts For:
- Testing
- Operations
- Maintenance
- Training
- Procedures
Complete All Impact Sheets
• Required Constructability Review

III. MANAGEMENT OBJECTIVES RESULTS

TRAINING

DESCRIPTION

- PERSONNEL DID NOT FULLY UNDERSTAND HOW TO IMPLEMENT PROCEDURES
- PERSONNEL DID NOT FULLY UNDERSTAND AND IMPLEMENT JOB RESPONSIBILITIES

OBJECTIVES

- PROVIDE TRAINING TO EMPLOYEES SO THEY FULLY UNDERSTAND PERFORMANCE EXPECTATIONS
- GENERAL EMPLOYEE TRAINING FOR ALL PERSONNEL FOR PROCESS AND PROCEDURES
- TASK TRAINING FOR CRAFT ASSIGNED SPECIALIZED JOB FUNCTIONS
- CERTIFIED ON CRITICAL TASKS
- TRAINING FOR CRAFT SUPERVISION SIMILAR TO CRAFT TRAINING WITH EMPHASIS PLACED ON CONTROL, COMPLETION, AND DOCUMENTATION OF WORK

III. MANAGEMENT OBJECTIVES RESULTS

TRAINING (cont.)

CURRENT STATUS

- 26 GENERAL TRAINING MODULES HAVE BEEN DEVELOPED
- TASK TRAINING, IMPLEMENTING PROCEDURE TRAINING (ENGINEERING TRAINING) AND SPECIALIZED TASK TRAINING MODULES ARE COMPLETE
- REPRESENTATIVES FROM THE TRADES AND LABOR UNIONS WERE GIVEN INTRODUCTORY PRESENTATIONS OF THE DAMAGED EQUIPMENT MOCK-UP TRAINING AND A TOUR OF THE MOCK-UP FACILITY
- A VIDEO OF THE MOCK-UP FACILITY WAS DEVELOPED FOR DISTRIBUTION TO LOCAL UNIONS
- MODIFICATIONS EMPLOYEES HAVE RECEIVED REQUIRED PRESENTATION TRAINING. PRESENTATION TRAINING FOR CONTRACTORS IS ONGOING AS CONTRACTORS ARE BROUGHT ONSITE. PROCEDURAL SELF-STUDY TRAINING IS ONGOING AT THE DISCRETION OF UNIT MANAGERS
- QC INSPECTORS TRAINING
- FIELD ENGINEER, OTHER PERSONNEL TRAINING
- A SYSTEM HAS BEEN ESTABLISHED TO ENSURE THAT ALL WBN SITE PERSONNEL ARE PROPERLY TRAINED ON ADMINISTRATIVE PROCEDURES AND SUBSEQUENT REVISIONS

III. MANAGEMENT OBJECTIVES RESULTS

TRAINING (cont.)

CURRENT STATUS

PROVIDE TRAINING FOR MODIFICATIONS, QC, AND THEIR CONTRACTOR EMPLOYEES TO ENSURE THAT MANAGEMENT EXPECTATIONS, AS WELL AS IMPLEMENTATION METHODS FOR JOB PERFORMANCE, ARE CLEARLY UNDERSTOOD

- **MODIFICATIONS/QC EMPLOYEE GENERAL TRAINING - PROVIDES MANAGEMENT EXPECTATION, DIRECTION, RESPONSIBILITY, AND ACCOUNTABILITY**
  - **"EMPLOYEE RESPONSIBILITIES" - PROVIDES EXPECTATIONS AND STRESSES ACCOUNTABILITY FOR THE PERFORMANCE OF WORK FOR MODIFICATIONS EMPLOYEES**
  - **"TOTAL QUALITY CONCEPT" - PROVIDES EXPECTATIONS AND STRESSES ACCOUNTABILITY FOR QUALITY WORK PERFORMANCE**

    "PREVENTION OF EQUIPMENT DAMAGE" - (TOUR AND TRAINING)

- **CRAFT/ENGINEERING GENERAL TRAINING - WORK CONTROL PROCESS AND ENVIRONMENTAL QUALIFICATIONS**
  - **WORK CONTROL PROCESS/SSP-7.53 - TRAINING FOR THE NEW WORKPLAN FORMAT**
  - **PRINCIPLES OF ENVIRONMENTAL QUALIFICATIONS - MAINTAINING EQ ON PLANT**

III. MANAGEMENT OBJECTIVES RESULTS

QUALITY MONITORING AND PERFORMANCE

OBJECTIVES DEFINED

- RIGHT FIRST-TIME THROUGH
- REVIEW CHECKLISTS FOR QUALITY INDICATORS
- DATA COLLECTION FOR REPORTING AND FEEDBACK TO PREVENT DEFECTS

PROGRAM IN PLACE

- COVERS DESIGN CONTROL PROCESS CALCULATIONS AND DCNs
- COVERS WORK CONTROL PROCESS WORKPLANS AND WO/WRs BY MODIFICATIONS
- COVERS MATERIALS AND PROCUREMENT PROCESS DOCUMENTS

CURRENT IMPLEMENTATION STATUS

- REVISION 3 OF PIPELINE USER MANUAL TO REFLECT PROCESS/PROCEDURE IMPROVEMENTS COMPLETE
- PIPELINE OWNERSHIP TRANSFERRED TO LINE ORGANIZATIONS
- KEY QUALITY INDICATORS IN USE
- PIPELINE WEEKLY REPORTS PRODUCED BY LINE ORGANIZATIONS FOR MANAGEMENT INFORMATION
- PIPELINE IN PLACE AS A SELF-CORRECTING FEEDBACK PROCESS FOR THE LINE ORGANIZATION
- QUALITY INDICATORS AND TRENDING ASSESSMENTS REVIEWED IN MEETINGS AND ADDRESSED IN SITE WEEKLY REPORT FOR MANAGEMENT INFORMATION

III. MANAGEMENT OBJECTIVES RESULTS

QUALITY MONITORING AND PERFORMANCE (cont.)

EFFECTIVENESS CONCLUSIONS

- DCNs STARTED WITH AN AVERAGE END PRODUCT REJECT RATE OF 73% AND CURRENTLY IN-PROCESS REJECT RATE OF 1.1% BY SECOND REVIEWER
- CALCULATIONS STARTED WITH AN AVERAGE REJECT RATE OF 92% AND CURRENTLY IN-PROCESS REJECT RATE OF 0% BY SECOND REVIEWER
- MATERIAL AND PROCUREMENT QUALITY INDICATORS SHOW DECREASING REJECT RATE-CURRENT IN-PROCESS AVERAGE < 3%
- MODIFICATIONS QUALITY INDICATORS SHOW DECREASING REJECT RATE-CURRENT IN-PROCESS AVERAGE < 2-5%

III. MANAGEMENT OBJECTIVES RESULTS

PROCESS IMPROVEMENTS

MODIFICATIONS

- FIELD ENGINEERING
  - DEDICATED WORKPLAN WRITERS - OFFICE
  - DEDICATED FIELD ENGINEERS - FIELD
  - DEFINITION OF RESPONSIBILITIES
  - ADDITIONAL TRAINING
- MODS WORK CONTROL
  - SIMPLIFIED WORKPLANS WITH PROVEN PLAN
  - REPLACED CONSTRUCTION PROCESS INSTRUCTIONS AND GENERAL CONSTRUCTION INSTRUCTIONS WITH THE MODIFICATIONS ADDITION INSTRUCTION AND 6 UNIT 2 CONSTRUCTION ADMINISTRATION INSTRUCTIONS
  - 134 VERSUS 49 PROCEDURES
  - UPGRADED MAIs TO CURRENT GENERAL CONSTRUCTION SPECIFICATIONS AND LICENSING COMMITMENTS
  - INCORPORATED QC ATTRIBUTES FROM MODEL INSPECTION PLAN INTO MAIs
  - WORKPLAN DATA SHEET IS NOW A TOTAL DOCUMENT OF RECORD (WORK AND INSPECTION REPORT AS BACKUP)
  - ESTABLISHED TVA/CONTRACTOR INTERFACE
  - ESTABLISHED MANAGEMENT OVERVIEW ON WORK IN PROGRESS (ALSO PART OF QI PROGRAM)

III. MANAGEMENT OBJECTIVES RESULTS

PROCESS IMPROVEMENTS (cont.)

ENGINEERING

- REDUCED FROM 3 TO 1 THE NUMBER OF DESIGN CHANGE PROCESSES
- ESTABLISHED A CROSS DISCIPLINE REVIEW MATRIX IN NE TO ENSURE TOTAL CROSS DISCIPLINE REVIEW
- SIMPLIFIED DCN PROCESS

MATERIALS

- RETURNED CONTROL OF STAGED MATERIAL TO THE MATERIALS GROUP FROM MODIFICATIONS
- BUILT/REFURNISHED MAJOR WAREHOUSE AND 2 STAGING BUILDINGS
- PUT IN PLACE MATERIAL IMPROVEMENT PROGRAM (MIP) THAT WILL INSURE THAT ALL MATERIAL THAT GOES INTO NEW STRUCTURES HAVE CORRECT QUALITY LEVELS ASSIGNED
- PUT IN PLACE A QUALITY RELEASE PROGRAM FOR QUALITY LEVEL I, II, AND III MATERIAL

SYSTEM STATUS CONTROL

- SSP-2.50 TAGGING CONTROL HAS REDUCED THE ALLOWED NUMBER OF TAGS FROM 34 TO 9
- A WALKDOWN HAS BEEN PERFORMED THAT REVIEWED AND EVALUATED 33,700 TAGS, AND 24,921 WERE REMOVED FROM THE PLANT
- A PER HAS SHOWN NEED TO SIMPLIFY TAGS AND A PROGRAM IS BEING DEVELOPED TO IMPROVE THE TAGGING PROCESS

III. MANAGEMENT OBJECTIVES RESULTS

PROCESS IMPROVEMENTS (cont.)

PRESTART TESTING

- WATTS BAR WILL PERFORM A REGULATORY GUIDE 1.68 STARTUP TEST PROGRAM

PROCEDURES

- ALL ADMINISTRATIVE INSTRUCTIONS HAVE BEEN REVISED TO THE NEW CORPORATE STANDARD PROGRAM
- THE NUMBER OF ADMINISTRATIVE INSTRUCTIONS WERE REDUCED FROM IN EXCESS OF 900 TO LESS THAN 270
- THE ROLLDOWN OF UPPER-TIER REQUIREMENTS TO ALL PROCEDURES HAS BEEN CENTRALIZED THROUGH SITE SUPPORT
- CONTROLLED DRAWING LOCATIONS WERE REDUCED FROM 34 TO 11

SCHEDULING

- REBUILT THE P-2 SCHEDULE NETWORK
- STANDARDIZED THE LEVEL 2 LOGIC (MILESTONE/INTEGRATED SITE SCHEDULE)
- STANDARDIZED THE LEVEL 3 LOGIC (DEPARTMENT WORKING SCHEDULE)
- REWORKED THE STARTUP LOGIC
- REBASELINED THE TO-GO WORK PROJECT BY PROJECT
- ESTABLISHED WITHIN EACH OF THE MAJOR DEPARTMENTS A DAILY PROGRESS MEETING
- ESTABLISHED A SITE MILESTONE/CRITICAL PATH MEETING

IV. CAREFULLY MONITORED SLOW RESTART

- CONTRACTOR MANAGEMENT GROUP IS ONSITE
- TVA MODS, CONTRACTOR MANAGEMENT, QC, AND INITIAL CRAFT ARE TRAINED
- AT LEAST 16 DUMMY WORKPLANS ARE BEING WORKED IN A SHOP ENVIRONMENT
- THE DUMMY WORKPLANS ARE RECEIVING FULL QA AND QC COVERAGE. A CRITIQUE OF THE RESULTS WILL BE HELD AFTER EACH IS COMPLETE
- NRC APPROVAL HAS BEEN RECEIVED TO PERFORM WORKPLANS ON BALANCE OF PLANT SYSTEMS. THESE WORKPLANS RECEIVE FULL QA/QC COVERAGE
- RECEIVE NRC CONCURRENCE TO RESTART WORK
- BEGIN SIMPLE WORK IN THE SAFETY-RELATED AREAS WITH A FEW CRAFT. SLOWLY INCREASE THE NUMBER OF WORKPLANS IN WORK AS GOOD QUALITY PERFORMANCE IS PROVEN
- A DETAILED MONITORING PLAN HAS BEEN ESTABLISHED USING PREPLANNED CHECKLISTS THAT WILL PROVIDE RESPONSIBLE MANAGER AND SECOND PARTY REVIEWS OF IN PROGRESS WORK
- THE RESULTS OF THE MONITORING PROGRAM WILL BE REVIEWED WEEKLY BY SITE SENIOR MANAGEMENT. ANY INCREASE IN STAFFING WILL BE APPROVED BY THIS GROUP CONSIDERING QUALITY PERFORMANCE, BACKLOG OF WORKPLANS AVAILABLE FOR WORK, MATERIALS AVAILABLE TO SUPPORT THE PLANNED WORK, AND OTHER RESTRAINTS
- BRING CONTRACTOR UP SLOWLY IN STEP CHANGES TO SCHEDULE. PLANNED NUMBER 50 PER WEEK BASED ON OVERVIEW RESULTS (APPROXIMATELY 600 DAY SHIFT, 300 SECOND SHIFT)

VI. INTERFACE DESIGN/MODIFICATION/QUALITY CONTROL

- OVERVIEW OF ESI, ECI, SWEC INTERFACES
  - ENGINEERING TO ESI INTERFACE
  - MODIFICATIONS TO ECI INTERFACE
  - MODIFICATIONS TO QC/SWEC INTERFACE

VI. INTERFACE DESIGN/MODIFICATION/QUALITY CONTROL

ENGINEERING TO EBASCO (ESI) INTERFACE

REPORTING

- ESI REPORTS TO TVA ENGINEERING MANAGER
- DETAILED INTERFACE IS THROUGH TASK MANAGERS IN THE PROJECT ENGINEERING ORGANIZATION

PROGRAM

- ESI PROCEDURES IMPLEMENT TVA REQUIREMENTS OR USE TVA PROCEDURES DIRECTLY
- PROBLEM RESOLUTION THROUGH CORRECTIVE ACTION PROGRAM, FDCN PROGRAM

APPROVAL OF ESI PERSONNEL

- PROVIDES APPROPRIATE ENGINEERING RESOURCES TO SUPPORT WORK TASKS
- TVA REVIEWS/APPROVES KEY MANAGEMENT POSITIONS

TVA OVERVIEW

- TVA TASK MANAGERS DIRECT TECHNICAL DISCIPLINE REVIEW OF SELECTED ESI PRODUCTS FOR ACCEPTABILITY
- TVA QUALITY SPECIALIST REVIEW OF SELECTED ESI PRODUCTS
- TVA QA MONITORING AND AUDIT

TRAINING

- INCLUDES SITE SPECIFIC
- TECHNICAL/LESSONS LEARNED

VI. INTERFACE DESIGN/MODIFICATION/QUALITY CONTROL

MODIFICATIONS TO EBASCO (ECI) INTERFACE

SCOPE

- ECI PROVIDES QUALIFIED LABOR AND LABOR MANAGEMENT

REPORTING

- ECI REPORTS TO TVA MODIFICATIONS/FACILITIES MANAGER
- TVA SHIFT FIELD MANAGER PROVIDES PROJECT DIRECTION/CONTROL TO ECI

PROGRAM

- ECI IMPLEMENTS TVA PROGRAM/PROCEDURES
- PROBLEM RESOLUTION - TVA (FIELD PROJECT ENGINEER) AND THROUGH THE CORRECTIVE ACTION PROGRAM, FDCN, ETC.
- ASME WORK PER TVA PROGRAM/N-STAMP

APPROVAL OF ECI PERSONNEL

- TVA APPROVES KEY MANAGEMENT POSITIONS
- TVA APPROVES MANLOADING
- ECI PROVIDES QUALIFIED CRAFT/SUPERVISION

TVA OVERVIEW

- TVA TASK MANAGERS OVERVIEW ECI IMPLEMENTATION
- TVA FIELD PROJECT ENGINEERS VERIFY FIELD IMPLEMENTATION

TRAINING

- ECI PROVIDES JOURNEYMAN CRAFT
- TVA SPECIFIES REQUIRED TRAINING
- TVA PROVIDES STRUCTURED TRAINING AND SPECIFIC CRAFT CERTIFICATION

VI. INTERFACE DESIGN/MODIFICATION/QUALITY CONTROL

MODIFICATION TO QC/SWEC INTERFACE

REPORTING

- SWEC/QC REPORTS TO TVA/QC MANAGER
- SWEC SHIFT QC MANAGER CORDINATES WITH SHIFT FIELD MANAGER FOR SCHEDULE/WORK PRIORITIES
- SUPPORT BY QA ENGINEERS
- VOLUMETRIC NDE BY TVA/QC

PROGRAM

- TVA QA PROGRAM/PROCEDURES
- PROBLEM RESOLUTIONS THROUGH FDCN, CORRECTIVE ACTION PROGRAM, INSPECTION REPORTS

APPROVAL OF SWEC/QC PERSONNEL

- SWEC CERTIFIES
- TVA REVIEWS/APPROVES
- TVA INSPECTOR CAPABILITY DEMONSTRATION TESTING

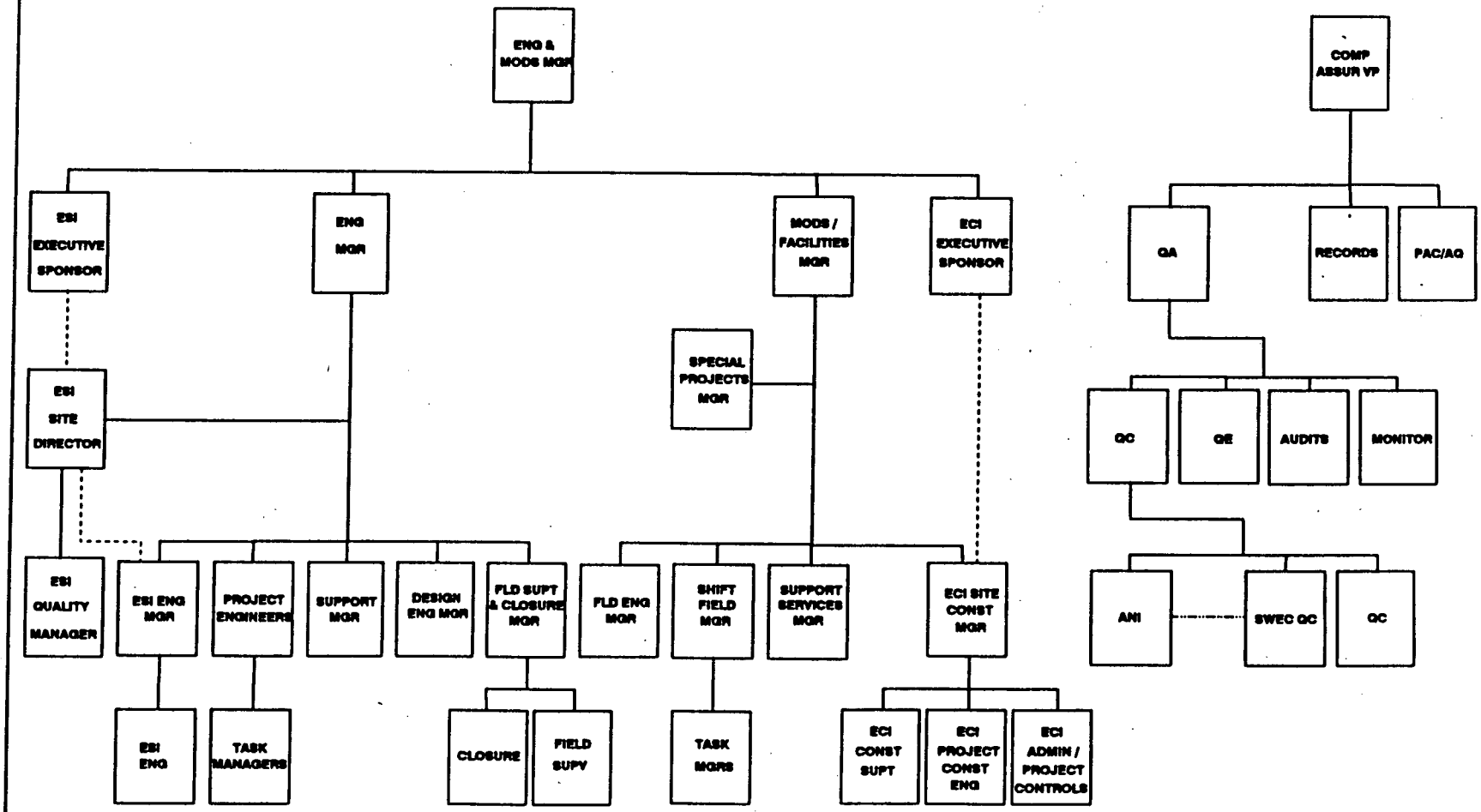
TVA OVERVIEW

- OVER INSPECTION
- MONITORING AND AUDIT

TRAINING

- INCLUDES SITE SPECIFIC
- TECHNICAL

OVERALL WORK FUNCTION
[CONTROL DIAGRAM FOR FIELD MODIFICATION WORK]

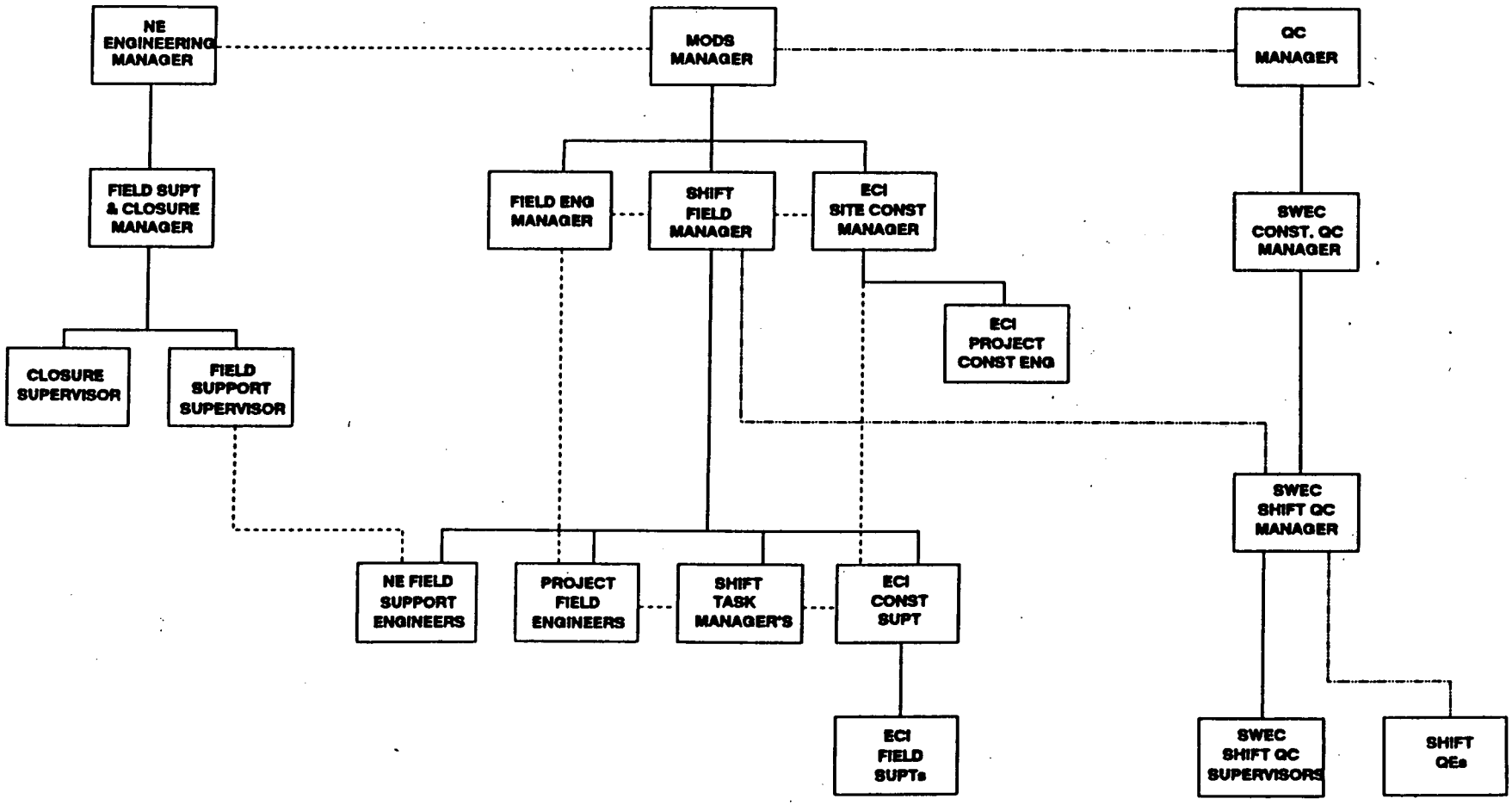


NOTE: UNLESS OTHERWISE NOTED POSITION HELD BY TVA.

FORM4a.DRW

WBN-31

SHIFT WORK FUNCTION
[CONTROL DIAGRAM FOR FIELD MODIFICATION WORK]



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WRN-32

VII. COMPLETION ASSURANCE ASSESSMENT

BOP WORKPLAN TEST

GENERAL

- STORAGE BUILDING FOR STAGED ITEMS NOT MEETING STORAGE LEVEL REQUIREMENTS
- CONFINED SPACE ENTRY PERMIT NOT COMPLETED (LIGHTING ENTRY) NOT A SAFETY ISSUE
- INCORRECT FORM UTILIZED TO DOCUMENT HOUSEKEEPING DEFICIENCIES (NOT DOCUMENTED ON APPENDIX C TO SSP-12.07 ON HOUSEKEEPING)

DESIGN RELATED

- FDCN NUMBER TRANSPOSED ON FDCN ATTACHMENT SHEETS
- DCN NUMBER NOT RECORDED ON 2 PAGES OF THE DCN

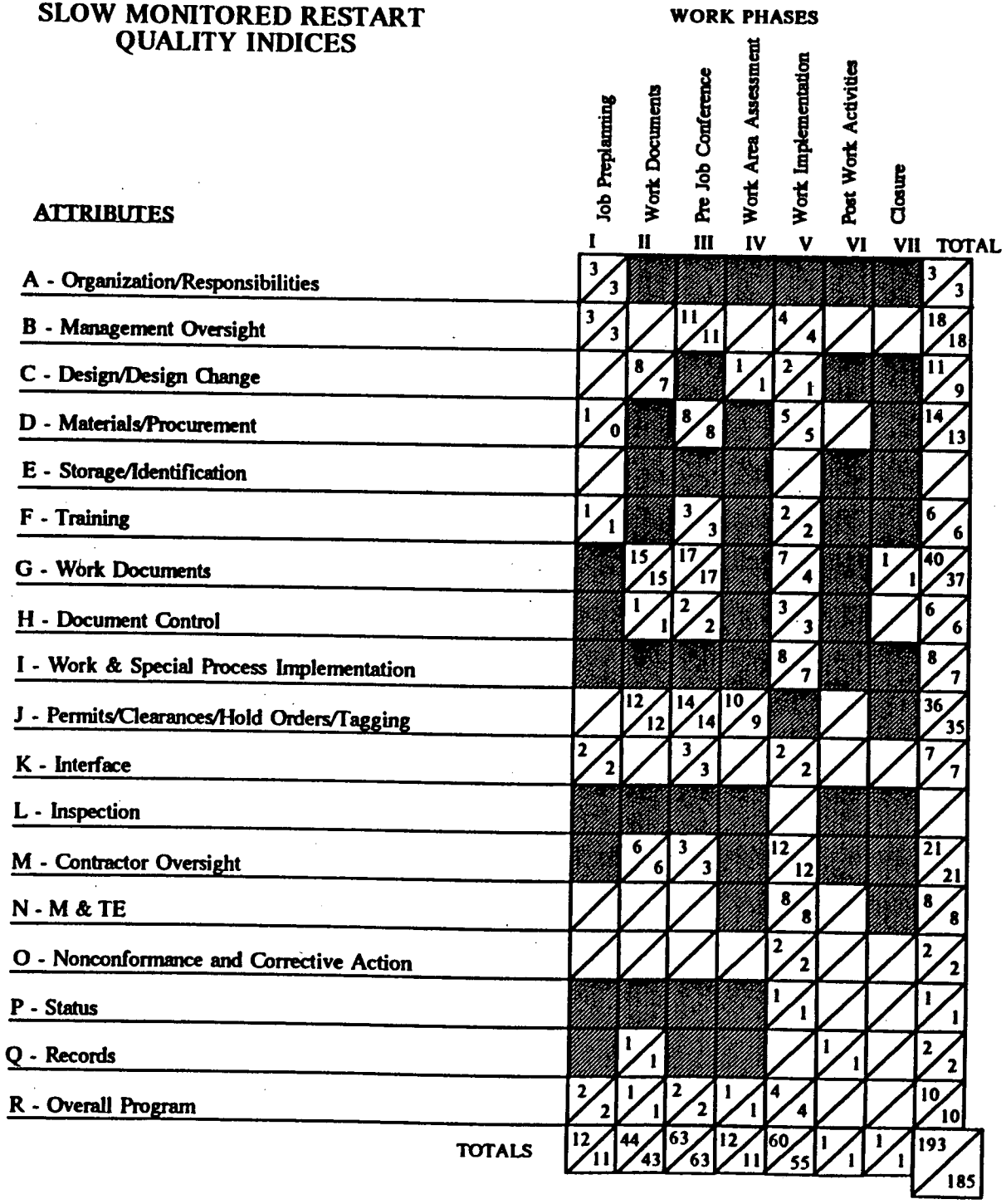
WORKPLAN RELATED

- UNAUTHORIZED SKETCHES (XEROX COPIES OF ACTUAL APPROVED, STAMPED SKETCHES) IN CRAFT POSSESSION AND USED TO RECORD PHYSICAL MEASUREMENTS
- 2 WORKPLANS DID NOT REQUIRE QC INSPECTION OF COATINGS (COMMUNICATIONS PROBLEM)

OVERALL ASSESSMENT

- A TOTAL OF 193 ATTRIBUTES HAVE BEEN LOOKED AT WITH 8 CORRECTED ON THE SPOT (COTS) ITEMS ISSUED (NOTHING OF MAJOR SIGNIFICANCE WAS NOTED, COMMUNICATIONS, CLARITY, ETC.)
- THE RESTART EFFORT SHOULD CONTINUE WITH THE SAME LEVEL OF QA OVERSIGHT AND LESSONS LEARNED TO DATE SHOULD CONTINUE TO BE INCORPORATED

SLOW MONITORED RESTART QUALITY INDICES



VII. COMPLETION ASSURANCE ASSESSMENT

CORRECTIVE ACTION PROGRAM IMPROVEMENTS

IMPLEMENTATION AND STATUS

°	IMPLEMENT NEW CORPORATE PROGRAM	(COMPLETE)
°	CONSOLIDATE PROGRAMS	(COMPLETE)
°	EMPHASIZE MANAGEMENT INVOLVEMENT, ACCOUNTABILITY, AND PROCEDURAL COMPLIANCE	(COMPLETE)
°	ESTABLISH SENIOR MANAGEMENT REVIEW COMMITTEE	(ONGOING)
°	PROJECT MANAGER ASSIGNED TO BACKLOG	(ONGOING)
°	IMPROVE TRENDING	(ONGOING)

VII. COMPLETION ASSURANCE ASSESSMENT

CORRECTIVE ACTION PROGRAM IMPROVEMENTS (cont.)

QUALITY ASSURANCE OVERVIEW

° **BACKLOG REDUCTION**

MARCH 1991	PERs 610	SCARs/FIRs 365
SEPTEMBER 15, 1991	PERs 446	SCARs/FIRs 318
NOVEMBER 1, 1991	PERs 434	SCARs/FIRs 265
BLUE DOT	PERs 266	SCARs/FIRs 145

° **PER REVIEW**

	MARCH	APRIL	MAY-JUNE 14	JUNE-SEPT
FRONT END	132	103	67	70
REJECTS %	11%	9%	1%	1%

RESTART CLOSURES:

- 25% REJECT OF SEVERAL SITE ORGANIZATIONS
- RESPONSIBLE ORGANIZATIONS REVIEWED 100% RESTART PERs
- PROCEDURE CHANGED TO ENHANCE CLOSURE CRITERIA
- QA WILL CONTINUE HIGH LEVEL OF OVERSIGHT

° **12-6-2 REVIEW**

FEBRUARY	–	15 DEFICIENCIES
MARCH	–	4 DEFICIENCIES
APRIL TO DATE	–	NO DEFICIENCIES

° **FRONT END/BACK END ENG. REVIEW SCAR/FIR**

AUGUST	FRONT END 67%	BACK END 85%
SEPTEMBER	FRONT END 95%	BACK END 95%
OCTOBER	FRONT END 95%	BACK END 93%
TO DATE	FRONT END 100%	BACK END 100%

VII. COMPLETION ASSURANCE ASSESSMENT

CORRECTIVE ACTION PROGRAM IMPROVEMENTS (cont.)

- AUDITS/ASSESSMENTS

MARCH REVIEW	-	NO ADVERSE CONDITIONS
	-	ALL RECOMMENDATIONS RESOLVED
MAY AUDIT	-	TWO FINDINGS CLOSED
AUGUST AUDIT	-	TWO FINDINGS CLOSED

<u>CONCLUSION</u>

- THE END PRODUCT CONTINUES TO BE ACCEPTABLE WITH QA AND SENIOR MANAGEMENT OVERVIEW. THE CORRECTIVE ACTION PROGRAM IS READY TO SUPPORT THE RESTART OF WBN CONSTRUCTION ACTIVITY MANAGEMENT OBJECTIVES FOR RESTART

VII. COMPLETION ASSURANCE ASSESSMENT

QUALITY ASSURANCE ORGANIZATION READINESS

SOURCES OF INFORMATION

- GTS ASSESSMENT
- QA MANAGEMENT ASSESSMENT OF STOP WORK
- INSPECTION REPORT ASSESSMENT
- SENIOR MANAGEMENT INTERVIEWS
- QA ANNUAL SELF ASSESSMENT

PROBLEMS

- MANAGEMENT ESCALATION PROCESS NOT EFFECTIVE
- QA NOT LOOKING AT THE RIGHT THINGS
- QC INSPECTION QUESTIONS ON ADEQUACY
- PRIORITY ISSUE - TOO MUCH ADMINISTRATIVE

VII. COMPLETION ASSURANCE ASSESSMENTS

QUALITY ASSURANCE ORGANIZATION READINESS (cont.)

CORRECTIVE ACTION IMPROVEMENTS

ROOT CAUSE	CORRECTIVE ACTIONS										
	1	2	3	4	5	6	7	8	9	10	11
POOR COMMUNICATIONS			X		X				X		
INATTENTION TO DETAIL	X	X	X	X		X	X	X	X	X	X
OPERATIONAL FOCUS	X	X	X			X		X	X		X
PRIORITY ADMINISTRATION		X	X			X		X	X		

1 - QA ORG/STAFF
2 - ROLE DEFINITIONS
3 - MGT. OVERVIEW/PROCESS
4 - QE/QC INTERFACE
5 - QA/LINE INTERFACE AND COMMUNICATION
6 - QUALITY EVALUATORS/AUDITORS PERFORMANCE BASED TRAINING
7 - QC CREDIBILITY
8 - MONITORING ENHANCEMENTS
9 - ACTIONS TO GTS
10 - TRAINING TO NEW PROCESS
11 - WORKOFF BACKLOG

PLANT CONTROL CHANGES

In preparation for resumption of construction, control of all site work will (from now on) be coordinated by the newly implemented Site Integrated Work Control Center, located in the lower level of the Plant Service Building.

Ownership of control of all plant systems will roll forward from the Plant Organization to the Startup Organization. This is to be implemented through the Site Integrated Work Control Center.

The procedures to accomplish the transfer of system and operation of the Site Integrated Work Control Center have been approved and issued, and key personnel affected have been trained. Other affected personnel will soon receive a briefing on these procedure changes.

These changes are necessary to maintain the appropriate configuration control of systems with all the coming work being performed, and to facilitate completion of a full Startup Test Program. The plant will then enter a turnover process that will return it to the Plant Organization.

The changes that you will observe are as follows:

- Startup Engineers will be assigned system responsibilities.
- All physical work on plant systems will be coordinated by and through the Startup Engineers and will require their approval.
- Work, including operations, (except emergency work) will have to be scheduled in advance to obtain the priority necessary to assign resources.
- The Site Plan of the Day meeting will establish and publish the only approved list of authorized work.

The physical operation of the plant's equipment will continue to be the responsibility of the Operations Department.

VII. COMPLETION ASSURANCE ASSESSMENT

QUALITY ASSURANCE ORGANIZATION READINESS (cont.)

QUALITY ASSURANCE ACTION PLAN

° QA ORGANIZATION AND STAFFING	COMPLETE
° ROLE DEFINITION	COMPLETE
° MANAGEMENT OVERVIEW/PROCESS	COMPLETE
° QE/QC INTERFACE IMPROVEMENT	COMPLETE
° IMPROVE QA/LINE INTERFACE AND COMMUNICATION	COMPLETE
° ALL QUALITY EVALUATOR AND AUDITOR PERFORMANCE BASED TRAINING	COMPLETE
° QC CREDITABILITY	COMPLETE
° MONITORING ENHANCEMENTS	COMPLETE
° ACTIONS TO GTS REPORT	COMPLETE
° TRAINING TO NEW PROCESS (QE/QC)	COMPLETE
° WORK OFF BACKLOGS	COMPLETE

VII. COMPLETION ASSURANCE ASSESSMENT

CONSTRUCTION RESTART EXECUTIVE REVIEW TEAM (CERT)

CHARTER

- PROVIDE REASONABLE ASSURANCE THAT TVA IS PREPARED TO RESTART WBN CONSTRUCTION. . . WITHOUT RECURRENCE OF PAST MAJOR PROBLEMS
  - SHOULD TVA RESTART WBN CONSTRUCTION
  - CAN TVA SUSTAIN QUALITY CONSTRUCTION

PROCESS

- LISTEN TO SENIOR MANAGEMENT
- READ ASSESSMENTS, PLANS, RESULTS, TRAINING MANUALS, PROCEDURES, WORKPLANS, DCNs, INTERFACE DOCUMENTS
- PARTICIPATE IN TRAINING
- TEST PROCESS
- EVALUATE ALL ORGANIZATIONS AGAINST ACCEPTANCE BASES

VII. COMPLETION ASSURANCE ASSESSMENT

CONSTRUCTION RESTART EXECUTIVE REVIEW TEAM (CERT) (cont.)

MEMBERSHIP

CHAIRMAN	-	N. C. KAZANAS	TVA, VICE PRESIDENT, COMPLIANCE ASSURANCE
	-	D. E. NUNN	TVA, VICE PRESIDENT, NUCLEAR PROJECTS
	-	M. O. MEDFORD	TVA, VICE PRESIDENT, NUCLEAR ASSURANCE, LICENSING & FUELS
	-	TOM BRANDT	EBASCO, QUALITY PROGRAMS DIVISION, QUALITY ASSURANCE VICE PRESIDENT
	-	GEORGE ROGERS	EBASCO CONSTRUCTOR, INC., VICE PRESIDENT
	-	JIM SALDARINI	EBASCO SERVICES, INC., NUCLEAR PROGRAMS REGIONAL MANAGER
	-	RON PINSON	VIATECH
	-	JOHN BECK	TENERA, SENIOR VICE PRESIDENT
	-	ED FULLER	TENERA, SENIOR VICE PRESIDENT

CERT REPORTED TO DAN A. NAUMAN, SENIOR VICE PRESIDENT, NUCLEAR POWER

VII. COMPLETION ASSURANCE ASSESSMENT

CONSTRUCTION RESTART EXECUTIVE REVIEW TEAM (CERT) (cont.)

ACCEPTANCE BASES

- COMMITMENTS MET
- PROCESS IMPROVEMENTS COMPLETE
- QUALITY ASSURANCE ENHANCED
- PERFORMANCE AND QUALITY INDICATORS IN PLACE
- CAREFULLY MONITORED RESTART BUILDUP
- HUMAN PERFORMANCE AND MANAGEMENT EFFECTIVENESS
- HISTORICAL PROBLEMS WILL NOT BE REPEATED
- TVA/CONTRACTOR INTERFACES IMPLEMENTED

VII. COMPLETION ASSURANCE ASSESSMENT

CONSTRUCTION RESTART EXECUTIVE REVIEW TEAM (CERT) (cont.)

WHAT HAS CHANGED AT WBN SINCE STOP WORK

- NEW ORGANIZATION
- NEW PROCESS, MANAGEABLE AND SIMPLER
  - ENGINEERING
  - MODIFICATIONS
  - MATERIALS
- NEW ATTITUDE
- ADDED QUALITY STANDARDS AND MEASUREMENTS
  - MORE MEASUREMENT
  - MORE FEEDBACK
- CONTRACT MANAGEMENT
  - EXPERIENCE
  - INCENTIVE BASED
  - UNIONS DECREASED FROM 17 TO 5
- MORE TRAINING
  - CRAFT
  - ENGINEERING
- MORE FIELD SUPPORT
- SYSTEMS TRANSFERRED TO STARTUP AND TEST
- BACKLOG REDUCED
- QA PROGRAM STRENGTHENED
- TOTAL QUALITY INITIATED

VII. COMPLETION ASSURANCE ASSESSMENT

CONSTRUCTION RESTART EXECUTIVE REVIEW TEAM (CERT) (cont.)

OBSERVATIONS

- WORK REQUIRED TO ESTABLISH PROCEDURES REQUIRED FOR RESTART IS COMPLETE. PROCESS IMPROVEMENTS ARE IN PLACE
- QUALITY ASSURANCE PROGRAM PROGRAMS ENHANCEMENTS HAVE BEEN ESTABLISHED AND SUFFICIENTLY IMPLEMENTED TO SUPPORT RESTART
- PERTINENT PERFORMANCE AND QUALITY INDICATORS HAVE BEEN ESTABLISHED AND TRENDS ARE SATISFACTORY FOR RESTART
- THE PLAN FOR A CAREFULLY MONITORED RESTART IS ADEQUATE FOR FIELD WORK
- INITIATIVES TAKEN ARE RESULTING IN A POSITIVE TREND IN HUMAN PERFORMANCES AND MANAGEMENT EFFECTIVENESS AND WILL SUPPORT RESTART
- ROOT CAUSES OF HISTORICAL PROBLEMS ARE EFFECTIVELY BEING ADDRESSED BY PROGRAM TO SUPPORT RESTART
- TVA/CONTRACTOR INTERFACES AND ROLES ARE WELL DEFINED, WILL WORK, AND ARE BEING IMPLEMENTED. UNDERSTANDING IS IMPROVING AND WITH WORK SESSIONS, THIS AREA WILL BE READY FOR RESTART

VII. COMPLETION ASSURANCE ASSESSMENT

CONSTRUCTION RESTART EXECUTIVE REVIEW TEAM (CERT) (cont.)

FINDINGS

- COMMITMENTS ARE BEING MET
- PROCESS IMPROVEMENTS ARE IN PLACE
- QUALITY ASSURANCE PROGRAM HAS BEEN ENHANCED
- PERFORMANCE AND QUALITY INDICATORS ARE WORKING
- CAREFULLY MONITORED RESTART PLAN IN PLACE
- HUMAN PERFORMANCE AND MANAGEMENT IMPROVING
- HISTORICAL PROBLEMS ADDRESSED
- TVA/CONTRACTOR INTERFACES DEFINED

OVERALL CONCLUSION

- TVA IS PREPARED TO BEGIN AND SUSTAIN THE CONSTRUCTION OF WBN
- CONSTRUCTION WILL NOT PROCEED PERFECTLY, BUT PROCEDURES AND PROGRAMS ARE IN PLACE WHICH WHEN PROPERLY SUPPORTED WILL IDENTIFY AND RESOLVE EMERGING PROBLEMS

VII. COMPLETION ASSURANCE ASSESSMENT

OVERALL COMPLETION ASSURANCE ASSESSMENT

POSITIVE ATTITUDE

- "CAN DO" ATTITUDE PREVAILS
- LINE OWNERSHIP OF QUALITY
- SENSE OF URGENCY IN PROBLEM RESOLUTION
- REDUCE "STACK AND TRACK" MENTALITY
- HONESTY IN ASSESSMENT

TEAMWORK

- GOOD COMMUNICATIONS

REINFORCEMENT IN USING PROGRAM

- NO EXCUSES
- PROCEDURAL COMPLIANCE
- ENCOURAGE "STOP THE JOB"
  - GET QUESTIONS ANSWERED

CONCLUSION

- PROJECT IS READY FOR CAREFULLY MONITORED RESTART

SUMMARY

MANAGEMENT CONCLUSION AND REQUEST FOR NRC CONCURRENCE TO RESTART CONSTRUCTION

ENCLOSURE 3

POST MEETING MATERIAL

November 22, 1991

WATTS BAR NUCLEAR PLANT (WBN)
CLOSURE OF OPEN ITEMS

STARTUP ORGANIZATION

The Startup organization is in place and has assumed jurisdiction over all plant systems. The work control system has been conformed to startup strategy and requirements through procedure changes. Key affected personnel have been oriented in the procedure revisions. Sufficient startup personnel have been certified to carry out near term scheduled work.

Attachments: Site Bulletin, "Plant Control Changes"
List of Procedures Revised
System Transfer Memorandum

UNVERIFIED ASSUMPTIONS (UVAs)

Very few UVAs have been created in the last six months (only 6). Nevertheless, UVAs will be tightly controlled by Engineering and cleared by the Site Vice President prior to Design Change Notice (DCN) issuance. Past DCNs not yet implemented will be reviewed promptly (by December 5, 1991) and controlled in the same way as new DCNs.

Attachments: "TVA Watts Bar Nuclear Plant Unverified Assumptions"

CONTINUATION OF QUALITY MEASURES

Quality practices currently in use will be monitored at their current level of effectiveness until concurrence with NRC is reached that changes are justified. These measures include QC holdpoints, SCAR/PER/FIR thresholds, NRC involvement in the corrective action program, QA review of corrective action items, release of material for construction, and document control. WBN will meet with NRC approximately once a month to discuss work completed and in progress, quality results, problems that have emerged if any, plans for the future, and any changes to quality practices.

WORKPLAN TRIALS

Trial workplans have demonstrated with satisfactory results.

Attachments: Workplan Status Summary
Line Organization Summary
QA Organization Summary

1113e

November 22, 1991

TRANSFER OF SYSTEM TO STARTUP ORGANIZATION

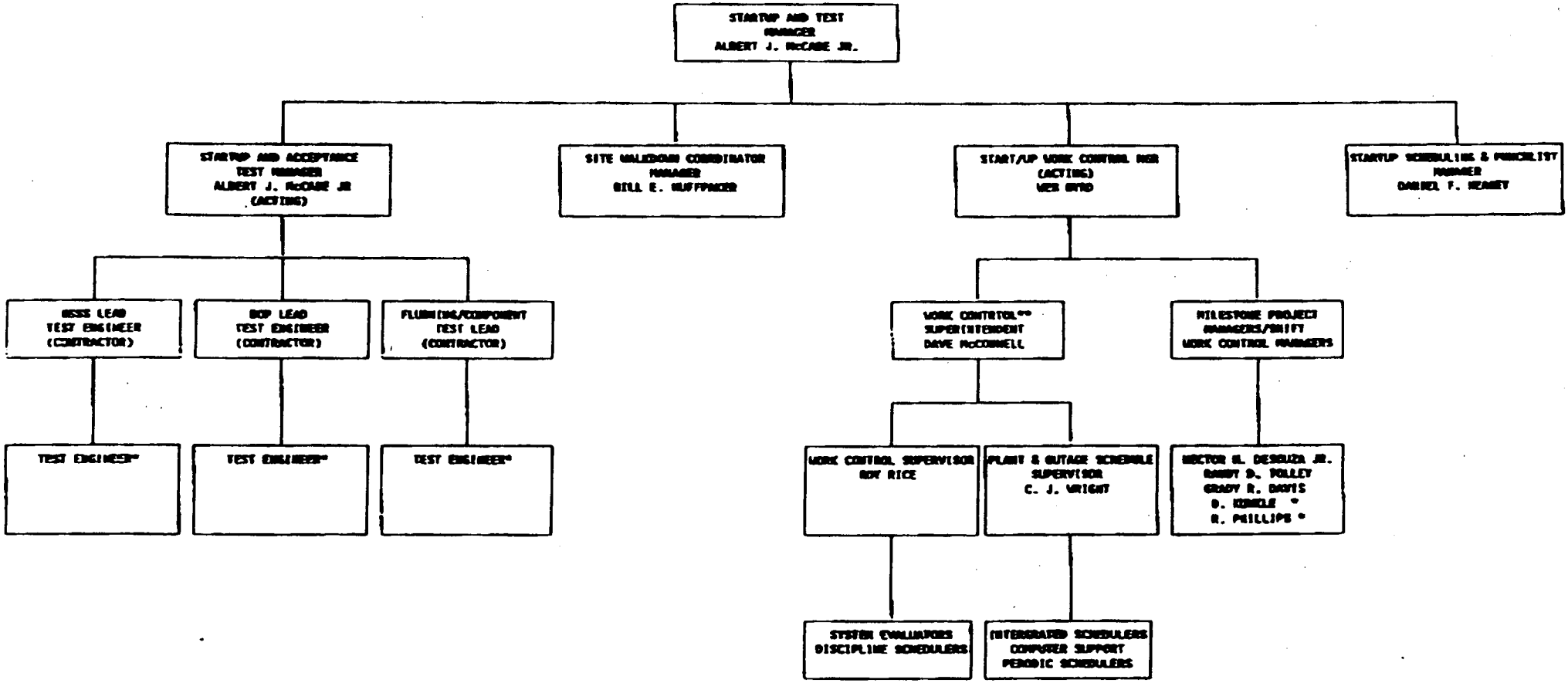
- Site Bulletin, "Plant Control Changes" With Startup Organization Chart

- List of Procedures Revised to Accomplish Transfer

- Transfer Memorandum

3

WATTS BAR SITE
ENGINEERING AND MODIFICATIONS
STARTUP AND TEST



* Non TVA
** Group on loan from operations

STARTUP

HUMAN RESOURCE STAFF
EVC
NOVEMBER 21, 1991

November 22, 1991

SYSTEMS REVISED TO EFFECT SYSTEMS TRANSFER TO STARTUP JURISDICTION

The procedures listed below have been revised to effect systems transfer to startup jurisdiction:

SSP-6.01	Conduct of Maintenance
SSP-6.03	Preventive Maintenance Program
SSP-7.01	Work Control
SSP-6.08	Instrumentation Setpoint, Scaling, and Calibration Program
SSP-8.03	Post Modifications Testing
SSP-12.01	Conduct of Operations
SSP-8.01	Conduct of Testing
PAI-10.05	Post Maintenance Test Program

The following procedures were developed, approved, and issued to direct startup and test activities:

SMP-1.0	Startup Manual Introduction
SMP-2.0	Startup Organization
SMP-4.0	Jurisdictional Control
SMP-5.0	Certification of Test Personnel
SMP-9.0	Conduct of Testing

TRANSFER BACK OF SYSTEMS AND AREAS
FROM PLANT ORGANIZATION TO STARTUP OWNERSHIP

The following information pertains to the transfer back of the plant to Startup:

1. All systems are to be transferred back in accordance with SMP-04. All systems will be turned over to the Plant Organization in accordance with SMP-04 following completion of design, construction, and testing requirements.
The system definitions will be in accordance with approved startup boundary drawings.

2. The startup manual will define the activities associated with the verification of completion of design, construction, and test activities. A site master punchlist will be employed to track item closure on a system basis.

3. The plant operations organization will maintain responsibility for safe operation of plant equipment. Operating tasks and priorities will be established by the integrated site work control center. This center becomes the responsibility of the Startup and Test Manager at transfer back of the systems, and reverts back to plant responsibility after Hot Functional Testing.

4. The Plant Maintenance organization will be utilized to support performance of component tests, and preoperational testing. Modifications will provide craft and craft supervision for modifications related activities and craftsupport needs. All of the above activities will be performed under the general cognizance of the test supervisor.

5. The preventative maintenance program, instrument calibration frequencies, and surveillance test performances currently in process will be continued with the cognizance of the startup test engineer pending an analysis. A system by system evaluation of the interface between these programs and the testing requirements will redefine the performance requirements. System layup activities will continue pending an analysis. A system by system evaluation will be performed to determine changes to the layup program made necessary by test and flush activities.

6. The responsibility for completion of outstanding work on systems will be transferred to the startup engineer. The plant will provide the status of all open work documents and corrective action plans.

7. Fire protection administrative controls for fire breaches will be discontinued until work is substantially complete.

8. Radiological protection activities will be the responsibility of the Plant Organization as will maintenance of Special Nuclear

Materials controls.

9. The Joint Test Group will be established in accordance with the startup manual and will have plant representation.

10. System engineers and startup engineers will be co-assigned to systems. They will support each other in system activities, with the system engineer authorized to direct test activities as determined by startup management.
Activities associated with system engineering will be performed by the plant staff with close coordination with the startup test engineer.

11. Post Modification Tests and TACF's will be evaluated system by system for test program applicability. The documents will be entered on the system punchlist.

Based on the above considerations, all plant systems and areas are transferred to the jurisdictional ownership of the Startup and Test Manager.

Plant Manager

Accepted:

Startup & Test Manager

Manager of Engineering & Modifications

Effective Date - November 21, 1991

November 22, 1991

UNVERIFIED ASSUMPTIONS (UVA) CONTROL

- "TVA - WATTS BAR NUCLEAR PLANT UNVERIFIED ASSUMPTIONS"
  - DISCUSSION/STATUS
  - CONTROL STRATEGY
  - CRITERIA FOR APPROVAL OF UVAs

TVA - Watts Bar Nuclear Plant (WBN)
Unverified Assumptions (UVAs)

I. An unverified assumption is defined as a statement accepted or supposed true without documentation of proof and upon which the validity of a computation or analysis depends. The types of things that may be UVAs are vendor data, field verification data, thermal movement data, and other technical information not available when the calculation is conducted. This definition is conservative in the respect that items may be controlled as UVAs at WBN rather than as "later" blanks in work plans and documents.

WBN has in place an UVA Control Program as follows:

1. Existing controls ensure that the UVAs are dispositioned and closed prior to DCN closure and return to service of the affected item. This control is established in EAI-3.05 and SSP-9.03.

2. WBN has established an effective control process for identification, tracking, and workoff for UVAs through the CCRIS Tracking Program for essential calculations.

3. WBN has senior management control of UVA workoff including visibility through an UVA workoff curves and efforts to accelerate the work off rate.

4. WBN has established existing controls that require Engineering Manager or designee approval for all new UVAs.

Additionally the following program is now being put in place to enhance these controls:

- WBN has and will continue to limit the use of UVAs to the maximum extent possible. Vice President's approval is required as noted in Attachment A.

II. In the last six month period closure of UVAs exceeded creation of new UVAs 99 to 6. Of these six, two are sense line (discussed later), one involves a Westinghouse small break analysis (11 week completion time), one involves fuse testing where vendor data is not available, one involves HVAC duct pressure calculation (to be completed under mechanical/nuclear calculation program), and one involves a requirement for a Design Change Notice (DCN) to be worked.

III. There are approximately 755 UVAs on essential calculations. Of this population approximately 250 exist in the Electrical discipline, 145 in the Mechanical, and 360 in the Civil/Structural area.

0173F

A. ELECTRICAL UVAs

WBN has committed to 100% regeneration of the required electrical essential calculations to support the design basis. As a result of this effort the majority of the essential calculations have been issued. The UVAs in the electrical area are characterized as follows:

1. The electrical and Appendix R calculation UVAs are primarily tied to predecessor activities associated with additional analysis (approximately 23), testing activities associated with diesel generator test and cable EQ test (approximately 4) and field verifications to feedback as installed information into the base calculation (approximately 10).

2. The I&C calculation UVAs are primarily tied to field verification activities associated with the instrument sense line (approximately 200) per WBN N3E-934 requirements.

3. Other I&C calculation UVAs are tied to predecessor activities, e.g., MMM system analytical values, to support the demonstrated accuracy calculations (approximately 15).

B. MECHANICAL/NUCLEAR UVAs

Table 1 provides a summary of the categories of UVAs found in Mechanical/Nuclear calculations. The majority of the UVAs track predecessor information from other calculations that were not finalized at the time of calculation issue. This assures that a check of the input data will be made as part of the Mechanical/Nuclear calculation program.

The Mechanical Nuclear Calculation Program is a systematic review and reconstruction of key safety systems and essential calculations. As part of that program all UVAs are to be cleared on essential calculations in addition to the closure of other open items. The top down review of systems by the SERT (Senior Engineering Review Team) provide an integrated perspective on closure of open issues and a refined screen of the UVAs associated with the calculations.

TABLE 1 - MECHANICAL/NUCLEAR CALCULATIONS

13	Field verification (OPS procedure)
7	Vendor data
8	Predecessor activity required
4	Testing required
4	Computer code QA
29	Conservative judgement UVA
145	TOTAL

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Of the analysis identified with UVAs, 29 were conservatively judged to contain UVAs. Detailed examination of these analyses indicate that the assumptions can be eliminated with limited further engineering justification.

Several analyses noted that field verification of installation or later operating procedure change confirmation was needed.

Vendor data based on telecons or informal transmittals were captured as UVAs to ensure that formal data transmittals were obtained.

A minor number noted that computer code qualification was pending.

C. CIVIL STRUCTURAL

The majority of the of civil UVA's (approximately 360) is captured in Seismic/Civil Program. The review performed has established that approximately 185 were conservatively classified and are easily resolvable.

The remainder breaks down as follows:

Load Interface - 26

Nozzle Load, Valve Acceleration Data which generally require confirmatory vendor documentation.

CAP Program - 8

CAP Program which are captured by and will be resolved by the Small Bore and HVAC Corrective Action Programs

Variance to Standard Support Components - 58

Unistrut in non-standard application and unavailable Load Capacity Data sheets which generally require confirmatory vendor data.

Commodity Interface - 52

Instrument Line Supports tied to Commodities, i.e., Cable Tray, HVAC, which require confirmation commodity capacity and deflection.

Predecessor Activity - 31

Conservatively derived pipe support loads prior to piping analysis computer runs and component testing

This review concludes a minimal risk to construction rework. The work-off of the UVAs has been accelerated with priority given to those in the predecessor activity category.

IV. To assess the potential impact of UVAs on presently available field work, a preliminary review of 678 DCNs has been initiated (see Attachment B). A database search for these DCNs has identified 904 supporting calculations. These calculations were then reviewed for UVAs. The results of this review are shown on the attached Table. In summary, the data shows 108 calculations with UVAs which support 70 DCNs available for work, i.e., 10.3% of construction backlog DCNs have supporting calculations with UVAs.

A further review is underway to assess the rework risk associated with each DCN. Preliminary results show the possibility of rework to be minimal in light of the following considerations:

1. UVAs in calculations supporting DCNs may not have any impact on the DCN and therefore pose no risk for rework.

2. A large population of the UVAs are tied to in-process predecessor activities, which confirm assumptions and allow removal of the UVA upon completion. Assumptions in this category are conservative and rework risk is minimal.

3. Another category of UVAs involve field verification of installed conditions as a matter of design process closure. The design assumptions are conservative and rework risk is minimal.

In consideration of the nature of open UVAs there is minimal risk of rework, however each DCN that is currently available for work with supporting calculations containing UVAs will be reviewed for rework risk assessment by December 5, 1991.

ATTACHMENT A

WATTS BAR NUCLEAR PLANT (WBN)
UNVERIFIED ASSUMPTIONS (UVAs)

WBN Engineering has recognized the requirements for tight control of the use of unverified assumptions in design calculations. Rigorous measures have been instituted over the past year to ensure that other options have been explored and that the UVA is appropriately used with minimal impact to the design implementation in the field. In addition to the measures currently in effect at WBN, the following measures will be instituted:

1. NEW DESIGN

   All situtations involving new design changes with supporting calculations that contain UVAs relating to the modification will receive my personal review prior to issuance. This includes any new calculations with UVAs as well as revisions to calculations containing UVAs which impact the specific design.

2. DESIGN IN THE SAFETY NET PROCESS

   The ongoing safety net review of previously issued Design Change Notices (DCNs) will identify those DCNs with supporting calculations containing UVAs relating to the modification. I will also review these items.

3. DESIGN BACKLOG

   By December 5, 1991, Engineering will review the existing design backlog that is available for modifications and identify those with calculation UVAs related to the design. I will review those identified items with Engineering.

The reviews described above will further enhance the process which the Engineering Manager has been implementing and provide additional assurance that our measured use of UVAs will not compromise the implementation of design.

JHGarrity 11/21/91

J. H. Garrity
Site Vice President
FSB-1A
Watts Bar Nuclear Plant

CRITERIA FOR APPROVAL OF UVAs

ACCEPTABLE IF:

THE UVA IS CONFIRMATORY TO PRELIMINARY INFORMATION FOR WHICH WE HAVE HIGH CONFIDENCE; E.G., VENDOR PROVIDES TRANSMITTER ACCURACY AND WILL FOLLOW-UP WITH FORMAL ISSUE TEST REPORT,

OR

FIELD VERIFICATION/AS-BUILT IS A PREREQUISITE TO CLEARING THE UVA AND LEGITIMATE BOUNDING ANALYSIS CANNOT BE USED,

OR

A LEGITIMATE PREDECESSOR EXISTS WHICH CANNOT BE FINALIZED IN TIME; E.G., REQUIRES LONG LEAD TIME WESTINGHOUSE ANALYSIS,

AND

THE WORK IS CRITICAL AND THE RISK IS MINIMAL AND DISCUSSION PROVIDED,

AND

UVA CANNOT BE CLEARED IN TIMEFRAME TO SUPPORT DCN ISSUE,

AND

THE UVA DOES NOT UNDERMINE A MODIFICATION PROCESS; E.G., TYPICAL SUPPORT SPACING.

11/21/91

ATTACHMENT 8

EVALUATION OF CALCULATION UVAs FOR DCNs AVAILABLE FOR WORK

DISCIPLINE	# DCNs AVAIL FOR WORK	CALCULATIONS REVIEWED	CALCULATIONS W/UVAs	# AFFECTED DCNs
I&C	121	91	19	9
MECH	82	275	16	13
CIVIL	55	35	1	1
APPLIED MECH	280	364	38	20
ELEC	140	139	34	27
TOTAL	678	904	108	70
PERCENT	--	--	11.9%	10.3%

November 22, 1991

WORKPLAN TESTS

- Line Organization Summary
- QA Organization Summary

MODIFICATIONs – SLOW MONITORED RESTART

WORK AREA STATUS TRACKING: 11/22/91

WORK PACKAGES	DESCRIPTION	WORK DOC	PRE-JOB CON	WORK AREA ASSY	WORK RMTE	POST-JOB	CLOSURE
BOP WPs							
*MECH D13925–1	WIRE CLOTH	COMPLETE	COMPLETE	COMPLETE	COMPLETE	COMPLETE	COMPLETE
*MECH D15813–1	VACUUM RELIEF LINE PIPE	COMPLETE	COMPLETE	COMPLETE	COMPLETE	COMPLETE	COMPLETE
*ELEC D10835–1	GROUT BASE	COMPLETE	COMPLETE	COMPLETE	IW	–	–
*ELEC D02308–1	LIMIT SWITCH	COMPLETE	COMPLETE	COMPLETE	COMPLETE	COMPLETE	COMPLETE
MECH D15509–1	REPLACE HANDWHEELs	COMPLETE	COMPLETE	COMPLETE	COMPLETE	COMPLETE	COMPLETE
MECH D15825–1	INSTALL GUIDE PIPE	COMPLETE	COMPLETE	COMPLETE	COMPLETE	11/23 est	11/23 est

* Work Plans to be performed for the NRC.

16a

MODIFICATIONS

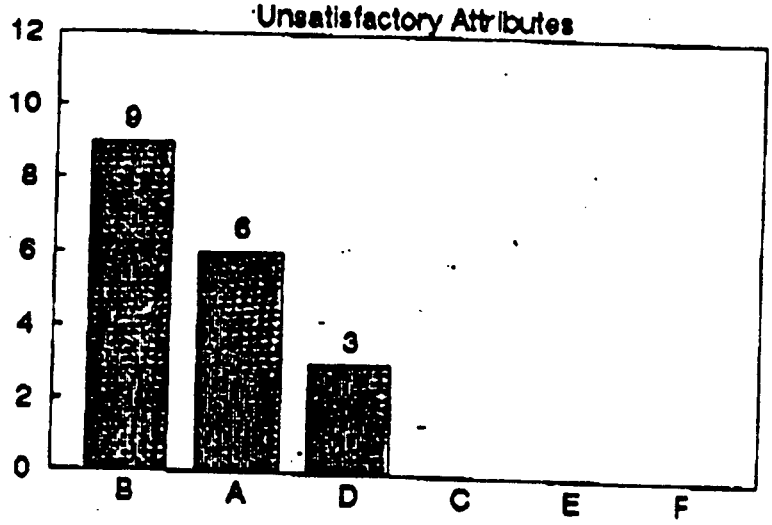
SLOW MONITORED RESTART – ALL ATTRIBUTES

Summary Report for Second Party Work Attribute Checklists

[redacted]

SUMMARY OF ALL AREAS

Total Checklists Received	100
Total Attributes Reviewed	2,210
Total Unsat. Attributes	18
Acceptable Attributes	99.2%



Legend : A – Work Document Reviews
B – Pre–Job Conference
C – Work Area Assessment
D – Work Implementation
E – Post Job Walkdown
F – Closure

ANALYSIS/CRITIQUE :

- MODS WORK THIS WEEK (WK 2) CONTINUED METICULOUSLY, INCLUDING ACTUAL FIELD INSTALLATIONS (BOP) ALONG WITH ADDITIONAL DUMMY WORKPLANS AND MRs.

  BOP WORK INCLUDED :

  D15509–1 HANDWHEEL CHANGEOUT
  D13926–1 WIRECLOTH INSTALLATION ON ANION TANK LATERALS
  D15613–1 INSTALL VACUUM RELIEF LINES ON SYSTEM 14 TANKS
  D15625–1 WASTE SUMP FLOAT ROD GUIDE
  D10635–1 INSTALL LIMIT SWITCH ON 1–FCV–36–32

- PROBLEMS WERE SELF–IDENTIFIED AND RESOLVED EXPEDITIOUSLY, ILLUSTRATING THE SUCCESS OF THE PROGRAM, THUSFAR.

- TYPICAL EXAMPLES ARE :

  – PROPER VALIDATION OF IMPLEMENTING DRAWING LIST (WORK DOCUMENT REVIEW)
  – VALIDATION OF CORRECT DATA SHEET REVISIONS (PRE–JOB CONFERENCE)
  – QC CALLED FOR INSPECTION PRIOR TO SIGN–OFF OF ATTRIBUTE BY FIELD ENGINEER AND FOREMAN (WORK IMPLEMENTATION)

RECOMMENDATIONS :

- CONTINUE WORK WITH EMPHASIS ON IDENTIFIED QUALITY INDICATORS, "LESSONS LEARNED" FROM COMPLETED ACTIVITIES, RESULTS OF SECOND PARTY CRITIQUES PRESENTED TO THE MANAGEMENT OVERSIGHT TEAM ON 11/21/01.

LOWALL.wk3

Workplan Test Results by Workplan 11/22/91

1. (D3) Mech Dummy W02A (Hangers)
Section: Work Implementation
Attribute: Data sheets completed during work
Response: QC was called by someone other than the foreman or responsible engineer and work was still in progress to resolve a potential problem. QC was called prematurely. Personnel instructed to call QC at the appropriate time.

2. (A5) Elec Dummy W09A (Conduit Supports)
Section: Work Documents
Attribute: Verify drawing revision levels
Response: Drawings were removed and correct level drawings added. Appropriate personnel has been counseled.

3. (A5) Elec Dummy W16A (Cable Pull, Splice & Terms)
Section: Work Documents
Attribute: Verify drawing revision levels
Response: Same as 2 above.

4. (A8) Elec Dummy W16A (Cable Pull, Splice & Terms)
Section: Work Documents
Attribute: FDCNs included on drawing list
Response: FDCNs were included on individual drawings but not on individual list. Lists will be included in future and affected personnel have been instructed.

5. (A9) Elec Dummy W16A (Cable Pull, Splice & Terms)
Section: Work Documents
Attribute: Test control requirements included
Response: Test control form omitted from work documents. Affected personnel have been reinstructed to prevent recurrence.

6. (B1) Elec Dummy W16A (Cable Pull, Splice & Terms)
Section: Pre-job Conference
Attribute: Work scope understood
Response: WP required revision to clarify certain segments and questions. Revision addressed concerns.

7. Elec Dummy W16A (Cable Pull, Splice & Terms)
(B3) Section: Pre-job Conference
Attribute: Verify revision level of data sheets
Response: Verification of data sheets revision levels were overlooked during pre-job. Verification will be performed in all future pre-job conferences. Counseling to appropriate individuals has been provided.

8. Elec Dummy W16A (Cable Pull, Splice & Terms)
(B3) Section Pre-job Conference
Attribute: Verify revision level of data sheets
Response: Same as 7.

9. Elec Dummy W16A (Cable Pull, Splice & Terms)
(B3) Section: Pre-job Conference
Attribute: Verify revision level of data sheets
Response: Same as 7.

10. MR A627297 (Scaffold Removal)
(D11) Section: Work Implementation
Attribute: Support interface
Response: Crane to be used was in maintenance. Advise personnel to ensure equipment is available during pre-job conference.

11. MR A679542 Temp Freeze Protection
(B11) Section: Pre-job Conference
Attribute: Schedule (manhours, quantities, unit rates)
Response: Schedule information was included on MR form but was not discussed in pre-job. Schedule discussions will be included in future pre-job conferences.

12. MR A679544 Temp Freeze Protection
(B11) Section: Pre-job Conference
Attribute: Schedule (manhours, quantities, unit rates)
Response: Same as 11.

13. MR A679546 Asbestos Removal
(D5) Section: Work Implementation
Attribute: Safety compliance
Response: Employee was instructed to put on hardhat. Hardhat was put on.

14. WP D-02308-01 Electrical Limit Switch
(A5) Section: Work Documents
Attribute: Verify correct drawing revision levels
Response: Drawings were verified and corrected on the spot (C075)

15. WP D-02308-01 Electrical Limit Switch
(A8) Section: Work Documents
Attribute: FDCNs listed on drawing list
Response: FDCNs were put on drawing list. Corrected on the spot (COTS)

16. WP D-10835-01 Grouting of Fan Bases
(B9) Section: Pre-job Conference
Attribute: Verify proper personnel in attendance
Response: Personnel were late to the meeting and will be instructed to be on time or reschedule the meeting.

17. WP D-10835-01 Grouting of Fan Bases
(B17) Section: Pre-job Conference
Attribute: Verify walkdown prior to pre-job
Response: Personnel will be instructed to ensure craft are not change out during pre-job conference

18. WP D-15825-01 Install Pipe Guide
(B16) Section: Pre-job Conference
Attribute: Obtain SOS concurrence of work
Response: No work had been done. Foreman obtained SOS concurrence.

SLOW MONITORED RESTART QUALITY INDICES

QUALITY ASSURANCE

WORK PHASES

PERIOD: 11/14/91 - 11/21/91

ATTRIBUTES	I Job Preplanning	II Work Documents	III Pre Job Conference	IV Work Area Assessment	V Work Implementation	VI Post Work Activities	VII Closure	TOTAL
A - Organization/Responsibilities	3 / 3							3 / 3
B - Management Oversight	5 / 5		11 / 11		8 / 8	2 / 1		26 / 25
C - Design/Design Change		11 / 11		1 / 1	5 / 4			17 / 16
D - Materials/Procurement	45 / 37		11 / 11		7 / 7	1 / 0		64 / 55
E - Storage/Identification	1 / 1				1 / 1			2 / 2
F - Training	1 / 1		3 / 3		5 / 5			9 / 9
G - Work Documents		17 / 17	19 / 19		15 / 12		2 / 2	53 / 50
H - Document Control		1 / 1	2 / 2		8 / 8			11 / 11
I - Work & Special Process Implementation					20 / 19			20 / 19
J - Permits/Clearances/Hold Orders/Tagging		14 / 14	16 / 16	14 / 13				44 / 43
K - Interface	3 / 3		3 / 3		2 / 2			8 / 8
L - Inspection								
M - Contractor Oversight		6 / 6	3 / 3		20 / 19			29 / 28
N - M&TE					5 / 5			5 / 5
O - Nonconformance and Corrective Action					2 / 2			2 / 2
P - Status					4 / 4			4 / 4
Q - Records		1 / 1			3 / 3	2 / 2	1 / 1	7 / 7
R - Overall Program	2 / 2	1 / 1	2 / 2	1 / 1	4 / 4			10 / 10
TOTALS	60 / 52	51 / 51	70 / 70	16 / 15	109 / 103	5 / 3	3 / 3	314 / 297

REMARKS: See attached summary.

SUMMARY

PERIOD 11/14/91 - 11/21/91

GENERAL

- Storage Building for staged items did not meet storage level requirements (small hole in the wall).
- Confined Space Entry Permit not completed (lighting entry); not a safety issue.
- Incorrect form utilized to document housekeeping deficiencies (not documented on Appendix C to SSP-12.07 on housekeeping).

* • Materials Staging

  - TIIC number/contract number incorrect on staging report
  - Insufficient material staged
  - Errors on TVA 575
  - Material tagged incorrectly

DESIGN RELATED

- DCN Number not recorded on two pages of the DCN.

WORKPLAN RELATED

- Unauthorized sketches (xerox copies of actual approved, stamped sketches) in craft possession and used to record physical measurements
- Two workplans did not require QC inspection of coatings (communication problem)

* • Uncertified inspector performed work (SWEC)

* • Management oversight of post work housekeeping insufficient

* • Post work housekeeping by craft insufficient

* • Heat Number (Mechanical Dummy WP-01) transferred incorrectly

*Not discussed with NRC on 11/19/91

ASSESSMENT

A total of 314 attributes have been evaluated with 17 discrepancies identified. Sixteen discrepancies were identified and corrected-on-the-spot (COTS). None of the 16 items were of major significance. These were related to communications, clarity, etc.

One significant item was identified involving an uncertified inspector performing work. This was caused by SWEC not having established a statusing mechanism that clearly showed the certification process status for each inspector. Corrective action and recurrence control has been established by SWEC.

Based on evaluation of the discrepancies, both individually and collectively, there is no indication of basic work control process problems. The site is experiencing difficulty in staging material to support work. However, this is more of a production issue rather than a quality issue.

In summary, the basic work control process appears sound and no issues have been identified that could adversely impact Watts Bar Nuclear Plant's readiness to restart construction.

REVISION 1

SUMMARY

PERIOD 11/14/91 - 11/21/91

GENERAL

- Storage Building for staged items did not meet storage level requirements (small hole in the wall).
- Confined Space Entry Permit not completed (lighting entry); not a safety issue.
- Incorrect form utilized to document housekeeping deficiencies (not documented on Appendix C to SSP-12.07 on housekeeping).
- * Materials Staging
  - TIIC number/contract number incorrect on staging report
  - Insufficient material staged
  - Errors on TVA 575
  - Material tagged incorrectly

DESIGN RELATED

- DCN Number not recorded on two pages of the DCN.

WORKPLAN RELATED

- Unauthorized sketches (xerox copies of actual approved, stamped sketches) in craft possession and used to record physical measurements
- Two workplans did not require QC inspection of coatings (communication problem)
- * Uncertified inspector performed work (SWEC)
- * Management oversight of post work housekeeping insufficient
- * Post work housekeeping by craft insufficient
- * Heat Number (Mechanical Dummy WP-01) transferred incorrectly

*Not discussed with NRC on 11/19/91

ASSESSMENT

A total of 314 activity checklists have been completed with 17 discrepant attributes identified. Sixteen were identified and corrected-on-the-spot (COTS). None of the 16 were of major significance. These were related to communications, clarity, classification of work, etc.

One significant item was identified involving an uncertified inspector performing work. This was caused by SWEC not having established a statusing mechanism that clearly showed the certification process status for each inspector. Corrective action and recurrence control has been established by SWEC and agreed to by TVA QA.

An additional item was identified by NRC in relation to lifting a hold order prior to changing control room drawings to indicate proper configuration. Interim corrective measures were established on 11/21/91 to provide appropriate controls prior to DCN closure and drawing update. TVA QA agrees with these measures.

Based on evaluation of: the discrepant attributes, both individually and collectively; the hold order item discussed previously; and the action taken to resolve discrepancies; an adequate work control process is in place.

In summary, the work control process is basically sound and no outstanding issues exist that could adversely impact Watts Bar Nuclear Plant's readiness to restart construction.

INSPECTION RESULTS (SWEC)
11/14/91 - 11/21/91

	No. Inspected	No. SAT
A. Dummy Workplans		
- Mechanical	24	21
- Electrical	11	10
B. BOP Workplans		
- Mechanical	20	18
- Electrical	2	2
C. BOP MRs		
- Mechanical	7	7
- Electrical	1	1
TOTALS	65	59

DEFICIENCY DESCRIPTION

- Mechanical
  - Material used did not meet drawing. Drawing required SA106 and A106 was used. FDCN issued to change drawing to allow A106.
  - Weld data sheet not in workplan. Data sheet added.
  - Welder ID incorrect on data sheet. Corrected by welder.
  - Undersize socket weld. Weld metal added and accepted.
  - Keyway slot for handwheel did not meet design tolerances. Handwheel replaced.
- Electrical
  - NEMA 4 Junction Box did not meet specifications. Specific junction box corrected by adding weephole. Materials evaluating for generic issue. Interim action established to inspect Junction Box prior to use.