UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

January 28, 1991

see RPD

Docket Nos. 50-390
and 50-391

LICENSEE: Tennessee Valley Authority (TVA)

FACILITY: Watts Bar Nuclear Plant, Units 1 and 2

SUBJECT: MEETING SUMMARY - MANAGEMENT MEETING (TAC 72494 AND 72495)

REFERENCES: Meeting Notice by P. S. Tam (NRC), January 9, 1991

The staff regularly holds management meetings with TVA to discuss the status and needed actions at Watts Bar. This meeting was held at NRC Headquarters offices.

Enclosure 1 is a list of meeting attendees. Enclosure 2 is the handout provided by TVA to all meeting attendees (the meeting agenda is part of this enclosure). Enclosure 3 contains a copy of the slides used by TVA which were not included as part of Enclosure 2.

TVA (J. Garrity) addressed the recently self-imposed stop-work order on all construction activities at Watts Bar. While the order was initiated by one particular work plan (No. 8413), TVA discovered that the problems are pervasive and affected other work plans. TVA had reached a situation where they were trying to "inspect" quality into the plant. QC inspectors were expected to tell workers if a job had been done correctly rather than ensuring that workers and line management knew what to do and did it correctly. TVA's assessment led to the conclusion that the problems were caused by (1) management inattention, (2) failure to follow and properly execute procedures, (3) QA/QC failure to surface problems and bring them to management attention in an effective way, and (4) line management responsibility and accountability for quality not translated into ownership.

The NRC expressed a concern that although the deficiencies found to date have been primarily associated with documentation deficiencies, it is not clear whether the programmatic weaknesses that lead to these deficiencies also resulted in hardware deficiencies. To correct the identified problems, TVA proposed a 12-point corrective action plan, as delineated in detail on Pages 7 through 16 of Enclosure 2. The staff expressed concern that the corrective actions presented by TVA did not cover a review of the adequacy of work which has been completed. TVA stated that they will address this issue. In addition, the staff questioned TVA's schedule for short-term versus long-term improvements as noted on Page 10 of Enclosure 2. The staff believes that at least some of the long-term problems must be resolved before work is resumed.

The staff expressed disappointment that the problems that led to the stop-work order still exist. Various staff members stated that TVA has, in the past, developed programs that sounded good, but TVA has failed to properly implement them. For example, Employee Concern Report 11200 (dated 1987) described problems and proposed fixes similar to what was described by

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Mr. Garrity (see above). However, the problems still exist, resulting in the need for the current stop-work order and "new" fixes. The staff was concerned that the fixes now proposed by TVA would again, not be properly implemented. Mr. Nunn stated that TVA is committed to change this time, and that no construction will resume until a "standard of excellence" is achieved. Mr. Garrity specifically committed to convince NRC that effective corrective actions have been implemented before restart of construction work. (This commitment is interpreted by the staff to mean that a management meeting will be held, during which the status of the 12-point corrective actions will be discussed, before the staff agrees that TVA may restart construction.)

TVA stated that the current expected fuel load date is November 1992, which represents a delay of 14 months from the previous expected date. The current stop-work order, however, may have an impact on this proposed fuel load date.

TVA presented two slides (Enclosure 3) that show TVA's understanding of the licensing review schedule of about a dozen actions. The staff made no comments on the slides; however, these two slides reflect the staff's current schedular information on those actions. The staff did point out that one of the actions, the Watts Bar Technical Specifications (TS), needs to be reassessed due to the revised fuel load date. The final TS issuance date (April 1991) originally committed to by Dr. Murley in the October 3, 1990 management meeting can no longer be supported due to the new fuel load schedule. The staff and the TVA site licensing staff will discuss a new TS development schedule.

Other issues on the agenda involved little discussion and Pages 18 through 51 of Enclosure 2 serve to record TVA's presentation.

Original signed by

Peter S. Tam, Senior Project Manager
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc w/enclosures:
See next page

OFC	:PDII-4/LA	:PDII-4/PM	:PDII-4/DD	:PDII-4/D	:
NAME	:MKrebs MK	:PTam:as PST	:SBlack SB	:FHebdon	:
DATE	:1/28/91	:1/28/91	:1/28/91	:1/28/91	:

OFFICIAL RECORD COPY
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ENCLOSURE 1

NRC-TVA MANAGEMENT MEETING ON WATTS BAR NUCLEAR PLANT

Attendee	Organization
James Taylor	Executive Director, NRC
Thomas Murley	Director, NRR/NRC
Stewart Ebneter	Administrator, NRC Region II
Steven Varga	Director, Div. of Reactor Projects, NRC
Peter Tam	Watts Bar Project Manager, NRR/NRC
Ed Wallace	Corporate Licensing Manager, TVA
John Allen	Chief Engineer, TVA
Ron George	Watts Bar/TVA
Mike Bellamy	TVA
Sam W. Crowe	Site Quality Manager, WBN/TVA
Ed Fuller	Chairman, WBN Program Team/TVA
Lawrence Martin	Manager, NQA/TVA
Ken P Barr	Section Chief, NRC Region II
Bruce A. Wilson	Chief, NRC Region II TVA Projects
Stephen P. Burris	Senior Resident Inspector at WBN, NRC
Glenn Walton	Senior Resident Inspector at WBN, NRC
Suzanne Black	Deputy Director, PDII-4/NRR/NRC
Paul Cortland	Project Engineer, PDII-4/NRR/NRC
Jake Wechselberger	Executive Director's Office/ NRC
Robert Giardina	Tech. Spec. Branch/ NRR/NRC
Sue Gagner	Public Affairs/NRC
Mark W. Peranich	Inspection and Licensing Prog. Branch/NRR
Steven R. Stein	Inspection and Licensing Prog. Branch/NRR
Larry Chandler	Assistant General Counsel, OGC/NRC
Dan Murphy	Office of Investigations/NRC
Mike Callahan	Congressional Affairs/NRC
Tom Price	Washington Office/TVA
Jim Gray	Washington Office/TVA
William E. Craig	CYGNA/TVA consultant
T. A. Ippolito	Washington Office/TVA
Mike Shulman	CYGNA/TVA consultant
Marty Bryan	Reg. Lic. Mgr, WBN/TVA
Rich Emch	Tech. Spec. Branch/NRR/NRC
Donald Norkin	Special Inspections Branch/NRR/NRC
Richard Powelson	Knoxville News-Sentinel
Gus Lainas	Assistant Director, DRPI-II/NRR/NRC
Frederick Hebdon	Director, PDII-4/DRPI-II/NRR/NRC
Dwight Nunn	Vice-President, TVA
John Garrity	Site Vice-President, TVA
Mark Medford	Vice-President, TVA
Ben Hayes	Director, Office of Investigations/NRC
Joseph Fouchard	Public Affairs/NRC

Enclosure 2

TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT
UNIT 1

PRESENTATION TO:

NUCLEAR REGULATORY COMMISSION

JANUARY 15, 1991

TVA/NRC MEETING
JANUARY 15, 1991
ROCKVILLE, MD
WHITE FLINT RM. 2F 21
13:00 - 16:00

I. MANAGEMENT INTRODUCTION	TVA/NRC
II. QUALITY ISSUES	
• RECENT STOP WORK ORDER/WORK CONTROLS	J.H. GARRITY
• CAQR IMPLEMENTATION	J.H. GARRITY
• IMPROVEMENTS/PERFORMANCE INDICATORS	J.H. GARRITY
• QUALITY REPORT CARDS	S.W. CROWE
III. QA/QC -INDEPENDENT ASSESSMENT	M.O. MEDFORD
IV. PROGRAM FOR ASSURANCE OF COMPLETION AND QUALITY (PACAQ)	R.L. GEORGE
V. FOLLOWUP FROM PREVIOUS MEETINGS	
• SPECIFICATION IMPROVEMENT PROGRAM	J.E. ALLEN
• MATERIAL CONDITION	R.M. BELLAMY
• SCHEDULE	J.H. GARRITY
VI. SUMMARY	TVA/NRC

QUALITY ISSUES - QUALITY IMPROVEMENT PLAN (QIP)

- 1990 QC REJECT RATE DATA
- WORK BEGAN OCTOBER 1990
- 14 AREAS OF IMPROVEMENT - OVER 60 TASKS
- PROGRESS
  - 43 COMPLETE
  - REMAINDER PROCEEDING
- MAJOR THRUST: USE QUALITY MEASUREMENT FEEDBACK TO ACHIEVE IMPROVEMENT
- SEVERAL MAJOR AREAS NOT COMPLETED YET
  - QUALITY REPORT CARDS
  - PROCEDURE/PROCESS IMPROVEMENTS
  - CRAFT CERTIFICATION
- OVERALL ASSESSMENT: PROGRESSING BUT MUCH WORK REMAINS TO ACHIEVE MANAGEMENT EXPECTATIONS

WORKPLAN 8413

- SCOPE: REMOVE AND REPLACE SIX CABLES WITH MODERATE POTENTIAL FOR PULLBY DAMAGE
- ISSUED AND AUTHORIZED JULY 1990
- WORKED THROUGH NOVEMBER 1990
- DECEMBER 2 - PHYSICAL WORK COMPLETE
  - CRAFT FOREMAN RELEASED HOLD

  NOTE: HOLD SHOULD HAVE TRANSFERRED TO STARTUP AND TEST TO HOLD FOR POST MODIFICATION TESTING (PMT)
- DECEMBER 3 - MOTOR 32-12-A RELEASED FOR SERVICE WITHOUT PMT
- DECEMBER 10 - PMT CONDUCTED
- DECEMBER 12 - HOLD ORDER PROBLEM IDENTIFIED
- DECEMBER 13 - CAQR WRITTEN
- MID-DECEMBER
  - NRC INVESTIGATES
  - SITE QUALITY ASSURANCE INVESTIGATES
- WEEK OF DECEMBER 17 - NRC AND SITE QUALITY ASSURANCE DISCUSS WITH SITE VICE PRESIDENT
- DECEMBER 21 - STOP WORK ORDER (ELECTRICAL) ISSUED BY SITE QUALITY ASSURANCE
  - NRC EXIT
  - MEETING WITH REGION II OFFICE REPRESENTATIVE
  - RELEASED 550 ELECTRICAL CRAFTSMEN

WORKPLAN 8413 REVIEW RESULTS

- NRC (FROM EXIT DECEMBER 21) (EXAMPLES ONLY)

  - HOLD ORDER RELEASED PRIOR TO POST MODIFICATION TESTING

  - HOLD ORDER NOT LISTED ON WORKPLAN

  - CABLE MINIMUM ACCEPTABLE TRAINING RADIUS NOT ENTERED

  - MINIMUM ACCEPTABLE MEGGER READING NOT ENTERED

  - SECOND PARTY VERIFICATION FOR WIRE LANDINGS NOT COMPLETED (PROCEDURE CHANGE IN PROCESS)

  - DATA SHEET NOT COMPLETED FOR REMOVED CABLE

  - QC DID NOT NOTE LACK OF MINIMUM CABLE TRAINING RADIUS ENTRY BUT SIGNED OFF

  - QC DID NOT SIGN WORKPLAN INDICATING CABLE INSULATION DAMAGE INSPECTION (INSPECTION WAS DONE)

  <u>ALSO</u>, CABLE LENGTH DATA RECORD DID NOT PROVE CABLE LENGTH WAS IN COMPLIANCE WITH ENGINEERING REQUIREMENT

  NRC ASSESSMENT: MULTIPLE EXAMPLES OF FAILURE TO FOLLOW PROCEDURES

- TVA - 83 DEFICIENCIES

  - DATA SHEET DEFICIENCIES - 63 TOTAL

    INCOMPLETE OR MISSING, DATE DISCREPANCIES, INADEQUATE CRITERIA, LIFT LOG NOT IN COMPLIANCE WITH PROCEDURE

  - WORKPLAN DEFICIENCIES - 8 TOTAL

    UNCLEAR INSTRUCTION, BLANKS, DRAWING REFERENCES, CRITERIA, HOLD LOG INCORRECT

  - MATERIAL MANAGEMENT DEFICIENCY (1)

    TRANSCRIPTION OF DATA MATERIAL LIST/ISSUE FORM

  - REVISION CONTROL - 3 TOTAL

    REVISION BARS MISSING, CHANGE WRITTEN WITHOUT REVISION ISSUED, WORK INSTRUCTION DISCREPANCIES

  - MISCELLANEOUS - 8 TOTAL

    WORKPLANS DIFFER BETWEEN COPIES, INSTRUCTIONS MISSING, DCN NOT LISTED ON INDEX, OUT DATED DATA SHEETS

CONCLUSIONS

- MOST PROBLEMS OCCURRED AT IN-WORK STAGE (76 PERCENT)
- DISTRIBUTION OF ERRORS
  - 50 PERCENT - CRAFT (FOREMAN)
  - 40 PERCENT - RESPONSIBLE ENGINEER (RE)
  - 10 PERCENT - QC
- RE, FOREMEN, QC DID NOT WORK EFFECTIVELY BY THEMSELVES OR TOGETHER
- CONTRIBUTING ISSUES, RE, FOREMEN, QC
  - LACK OF ATTENTION TO DETAIL
  - INADEQUATE INFORMATION EXCHANGE (DATA AND STATUS)
  - INADEQUATE DELINEATION OF RESPONSIBILITIES
  - LACK OF FAMILIARITY WITH PROCEDURES
  - LACK OF CONTROL OVER PAPERWORK ESPECIALLY BY FOREMEN
  - COMPLEXITY OF WORKPLANS

BEYOND WORKPLAN 8413

- PROBLEM ASSESSMENT
  - 120 WPs/MRs, ELECTRICAL AND MECHANICAL
  - SPREAD OVER
    - IN PROCESS
    - FINISHED/IN REVIEW
    - IN VAULT

- CONCLUDED DEFICIENCIES NOT LIMITED TO ELECTRICAL IN PROCESS

- 12/30 - FROZE CONSTRUCTION WORK ACROSS SITE

- LET GO ADDITIONAL 500 CRAFTSMEN (250 REMAIN)

- INSTITUTED RECOVERY PROGRAM

ASSESSMENT: WORK CONTROL PROBLEMS ROOT CAUSES

- MANAGEMENT INATTENTION

  - CURSORY REVIEW/APPROVAL
  - KNOWLEDGE OF PROBLEMS WITHOUT SOLUTIONS (LOADING UP OF FOREMEN)
  - FAILURE TO ESTABLISH AND HOLD PERSONNEL ACCOUNTABLE FOR QUALITY RESPONSIBILITIES
  - MANAGEMENT AND ENGINEERING NOT PRESENT AT WORKSITE

- FAILURE TO FOLLOW, PROPERLY EXECUTE, PROCEDURES

  - PROCEDURES/WORKPLANS ARE CUMBERSOME BUT WORKABLE IF MAINTAINED CURRENT
  - MISSING SIGNATURES, DATA SHEETS, ETC.
  - EXAMPLE: FAILURE TO FOLLOW PROCEDURE FOR HOLD ORDER TRANSFER

- QA/QC FAILURE TO SURFACE AND BRING TO MANAGEMENT ATTENTION IN AN EFFECTIVE WAY

  - NOT LOOKING AT RIGHT THINGS
  - NOT REPORTING TO SEPARATE PROBLEMS FROM NOISE
  - TRENDING NOT TIMELY OR CLEAR

- LINE MANAGEMENT RESPONSIBILITY AND ACCOUNTABILITY FOR QUALITY NOT TRANSLATED INTO OWNERSHIP

CORRECTIVE ACTION - 12 POINTS

1) PLANS

2) RIF/LAYOFF

* 3) PROBLEM ASSESSMENT

* 4) ASSESSMENT OF MANAGEMENT PERSONNEL

* 5) PROCEDURE/PROCESS IMPROVEMENTS

* 6) ORGANIZATIONAL CHANGES

* 7) CAQR MANAGEMENT IMPROVEMENTS

8) TRAINING

* 9) SAFETY NET/INTERIM REVIEWS

* 10) QUALITY MONITORING PIPELINE

11) QIP INTEGRATION

* 12) CAUTIOUS RESTART

* = DETAIL SLIDE FOLLOWS

3) PROBLEM ASSESSMENT

- CONSTRUCTION - WORKPLANS AND MRs

  -SCOPE

  -8413
  -SELECTED WPs AND MRs - CONSTRUCTION
  -CAQRs
  -CATDs
  -NRC INSPECTION REPORTS
  -ECs

  -REVIEW METHODS

  -TEAMS
  -CHECKLISTS
  -DATA RECORDS
  -MANAGEMENT OVERVIEWS
  -QC OVERVIEW

- NE

- PLANT

- MATERIALS

- QA/QC

4) MANAGEMENT ASSESSMENT

- SCOPE ALL MANAGEMENT/SUPERVISORY PERSONNEL IN
  - NC
  - NE
  - QA
- WBN MANAGEMENT ASSESSMENT ASSISTED BY RHR
- PARAMETERS

  EFFECTIVENESS
  ATTITUDE
  TEAMWORK
  FLEXIBILITY
- RATINGS

  SATISFACTORY

  NEEDS DEVELOPMENT

  NOT LIKELY TO IMPROVE IN CURRENT ASSIGNMENT

5) PROCEDURES/PROCESS IMPROVEMENTS

- SHORT TERM

PROBLEM:	SOLUTION:
LOSS OF CONTROL OF WP DOCUMENT (DUPLICATE DATASHEETS, COPIES OF WP SECTIONS)	ESTABLISH WP CONTROL CENTER
IR AND DATASHEET DUPLICATION	MERGE DOCUMENTS TOGETHER
WRONG REVISION OF DATASHEETS IN WP (PROCEDURE REVISION DURING WORK)	WP CONTROL CENTER REQUIRE REGENERATION OF NEW DATASHEETS

- LONG TERM

PROBLEM:	SOLUTION:
DAISY CHAIN OF PROCEDURE REFERENCES	SIMPLIFY AND COMBINE
INPUT DOCUMENT (DCN/DWG) ERRORS	ESTABLISH ACCEPTANCE CRITERIA
HOLD POINT AND SIGNATURE QUANTITIES	REVIEW FOR PERFORMANCE BASIS

6) ORGANIZATIONAL CHANGES

- FIELD CONSTRUCTION MANAGER
- CONSTRUCTION QUALITY SPECIALIST
- CONSTRUCTION ENGINEERING MANAGER
- CORRECTIVE ACTIONS GROUP REINTEGRATED INTO LINE MANAGEMENT
- PERSONNEL CHANGES
- CLARIFICATION OF QUALITY RESPONSIBILITIES FOR ALL PERSONNEL

7) CAQR IMPROVEMENTS

- MRC CHARTER
- SENIOR TEAM
- PROJECT MANAGER AND DEDICATED RESOURCES FOR BACKLOG
- IMPLEMENTATION OF NEW STANDARD

8) TRAINING

- CRAFT WILL BE CERTIFIED PRIOR TO RETURN TO WORK
- QC INSPECTORS AND FOREMEN WILL ATTEND CERTIFICATION CLASSES OR RECEIVE EQUIVALENT INFORMATION
- FIELD ENGINEERS WILL RECEIVE TRAINING
- LIST/STATUS OF TRAINING MODULES

9) INTERIM SAFETY NET REVIEWS

- APPLIES TO ALL WPs THAT WERE FROZEN (ABOUT 700)

- CHECKLIST

  -DEVELOPMENT
  -USAGE
  -RECORDS/DATA

- MANAGEMENT INVOLVEMENT

- RELEASE FOR WORK: PIPELINE MONITORING AND MANAGEMENT OVERSIGHT

10) QUALITY MONITORING PIPELINE

- FLOW SHEET AND MONITORING POINTS
- CHECKLISTS/DEFICIENCY REPORTS
- REPORT SYSTEM
- USE OF INFORMATION

  MANAGEMENT MONITORING

  PERFORMANCE FEEDBACKS
- EXAMPLES OF CHECKLISTS

12) RESTART - CAUTIOUS

- SAFETY NET REVIEW OF FROZEN WORKPLANS
  - CHECKLIST
  - REVIEWS BY
    - RE
    - FOREMEN
    - HEAD FOREMEN
    - QA
    - MANAGEMENT
  - DATA ON DEFICIENCIES RETAINED
  - PROMPT FEEDBACK AND CORRECTION OF IDENTIFIED DEFICIENCIES
- PIPELINE MONITORING PROCESS IN PLACE
- QUALITY RESPONSIBILITIES CLARIFIED
- CRAFT TO BE BROUGHT BACK AS SAFETY NET REVIEWED WORKPLANS BECOME AVAILABLE
- CRAFT CERTIFICATION COMPLETE
- SLOW BUILDUP TO MANAGEABLE FORCE LEVEL AS PERFORMANCE MERITS

PRODUCT ASSESSMENT

Supplier: _____
Product: _____
Customer: _____

ASSESSMENT TO BE COMPLETED BY CUSTOMER

Question	(Provide Quantitative Indicators Where Possible
Do you get what you want and need?	
Is it in good order when you get it? i.e., highly usable and as specified?	
Do you get it when you need it? i.e., low lead time, short cycle time, and delivered on schedule? Delivery coordinated?	
When there is a problem, does the supplier work effectively to resolve it for you?	
Does the supplier solicit your views on how to serve you better, then follow-up effectively?	
Is there a high problem recurrence rate?	
What problems are there?	

5.

QUALITY REPORT CARDS
1/14/91 - STATUS

SUPPLIER	CUSTOMER	NUMBER OF AREAS OF IMPROVEMENT IDENTIFIED	NUMBER OF AREAS FOR IMPROVEMENT RESOLVED
CONSTRUCTION	STARTUP/TEST	0	0
PROJECT CONTROLS	NUC. ENG.	7	3
QC	CONSTRUCTION	8	1
NUCLEAR ENGINEER	CONSTRUCTION	4	1
STARTUP/TEST	OPERATIONS	1	1
CONSTRUCTION ENGINEER	CONSTRUCTION CRAFT	12	0
MATERIALS	CONSTRUCTION	8	2
PROJECT CONTROLS	CONSTRUCTION	7	5
MATERIALS	MAINTENANCE	4	3
PROJECT CONTROLS	PROJECT MANAGEMENT	5	4
PROJECT CONTROLS	PLANT	5	2
		61	22

SUPPLIER: Construction Engineering

CUSTOMER: Construction Craft

- Workplans issued to craft with problems
- Workplans contain minimum to get workplan issued
- Field Engineering response time is inadequate
- Delays by Field Engineering to generate DCNs
- Craft input requested only after problems are identified
- Field Engineering does not walkdown workplan before issuance
- 75-95 percent of initial DCN require new design output
- Problems are repeated and not corrected by Field Engineering
- Workplans not issued to support schedule
- Craft have established a workplan review group to make sure workplans issued are correct and workable
- Craft have to gather information and supply sketches to Field Engineering to support preparation of workplans
- ADCN allows work up to a point - have to wait on DCN to continue

FOLLOW-UP

- NEXT SERIES OF MEETINGS MARCH 91
- DISCUSSIONS

  RESOLUTION OF PAST AREAS FOR IMPROVEMENT

  IF NOT WHY

  SATISFACTORY RESOLUTION STILL EXISTS

  SUPPLIER REQUEST CUSTOMER EVALUATION OF PRODUCT

  NEW AREAS FOR IMPROVEMENT IDENTIFIED

INDEPENDENT ASSESSMENT OF TVA NUCLEAR QUALITY ASSURANCE
PERFORMED BY GENERAL TECHNICAL SERVICES (GTS)
NOVEMBER 13, 1990 THROUGH DECEMBER 19, 1990

PURPOSE

- THE PURPOSE OF THE ASSESSMENT WAS TO PROVIDE AN INDEPENDENT REVIEW AND EVALUATION OF THE EFFECTIVENESS AND MANAGEMENT UTILIZATION OF THE TVA QUALITY ASSURANCE ORGANIZATION AND THE INDEPENDENCE OF THE QA ORGANIZATION.

SCOPE

- AUTHORITY, INDEPENDENCE AND AGGRESSIVENESS
- SCHEDULING AND RESOURCE ALLOCATION
- RESULTS REPORTED TO PROPER LEVELS OF MANAGEMENT
- MANAGEMENTS' ATTITUDE AND SUPPORT OF QUALITY
- LINE AND MANAGEMENT UNDERSTANDING OF QA ROLE AND THEIR RESPONSIBILITIES
- ADEQUACY OF CORPORATE QA COMMUNICATIONS WITH SITES
- QA PERSONNEL QUALIFICATIONS AND ADEQUACY
- QA TRAINING PROGRAM EFFECTIVENESS

OVERALL CONCLUSION

- THE PROGRAM WAS FOUND TO BE FUNCTIONALLY ADEQUATE BUT COMPLEX

- THERE IS SUBSTANTIAL ROOM FOR IMPROVEMENT IN PROGRAM IMPLEMENTATION

RESULTS OF THE INDEPENDENT ASSESSMENT OF NUCLEAR QUALITY ASSURANCE

RECOMMENDATIONS	MANAGEMENT ACTIONS
• QUALITY RESPONSIBILITY	• ISSUE POLICY STATEMENT AND HOLD RESPONSIBLE ORGANIZATIONS ACCOUNTABLE FOR QUALITY
• WORK PLANS AND WORK COORDINATION	• PLAN ALL REQUIRED WORK AND BETTER COORDINATE WORK BETWEEN QC AND LINE ORGANIZATION
• ORGANIZATIONAL CHANGES	• UNDER EVALUATION - DECISIONS BY 1/31/91
• CONDITIONS ADVERSE TO QUALITY AND INCIDENT INVESTIGATION SYSTEM	• CONDUCT INDEPENDENT EVALUATION OF CAQRs/IIs/PRDs/COTs TO DETERMINE MISUSE
• RECORD RETRIEVAL	• PERFORM RECORD REVIEW AND FORWARD RECORDS TO FACILITY AT SAME TIME
• PROCEDURES	• PROCEDURES WILL BE STANDARDIZED AND SIMPLIFIED BY 9/30/91
• TRENDING PROGRAM	• CONSOLIDATE TRENDING DATA AND PROVIDE RESOURCES
• WBN QC SUPERVISION	• (LATER)

ITEM IV.

PROGRAM FOR ASSURANCE OF COMPLETION AND ASSURANCE OF QUALITY

PROGRAM OBJECTIVES

- Plant commitments and design are known.
- The plant is constructed as designed.
- Material conditions are satisfactory.
- Potential new issues or problems are identified and resolved.
- Corrective actions defined are implemented.
- Implemented corrective actions address the problem in a complete manner.
- Operational readiness is achieved.

THE PAC/AQ PLAN

PHASE I
Commitments/
Design Elements

WHAT DO I HAVE TO DO?

- FSAR Commitments
- Design/Construction/
- QA/QC Attributes

PHASE II
Commitment
Implementation

HOW DO I GET THERE?

- In-Line Programs (Design, Construction, QA/QC)
- Unique Processes (CAP/CAQ/SP/NPP)
- Systematic Assessments

PHASE III
Adequacy of
Individual
Verification
Programs

AM I GOING TO GET THERE?

- Programmatic Evaluations

PHASE IV
Independent
Confirmation of
Verification Program
Results

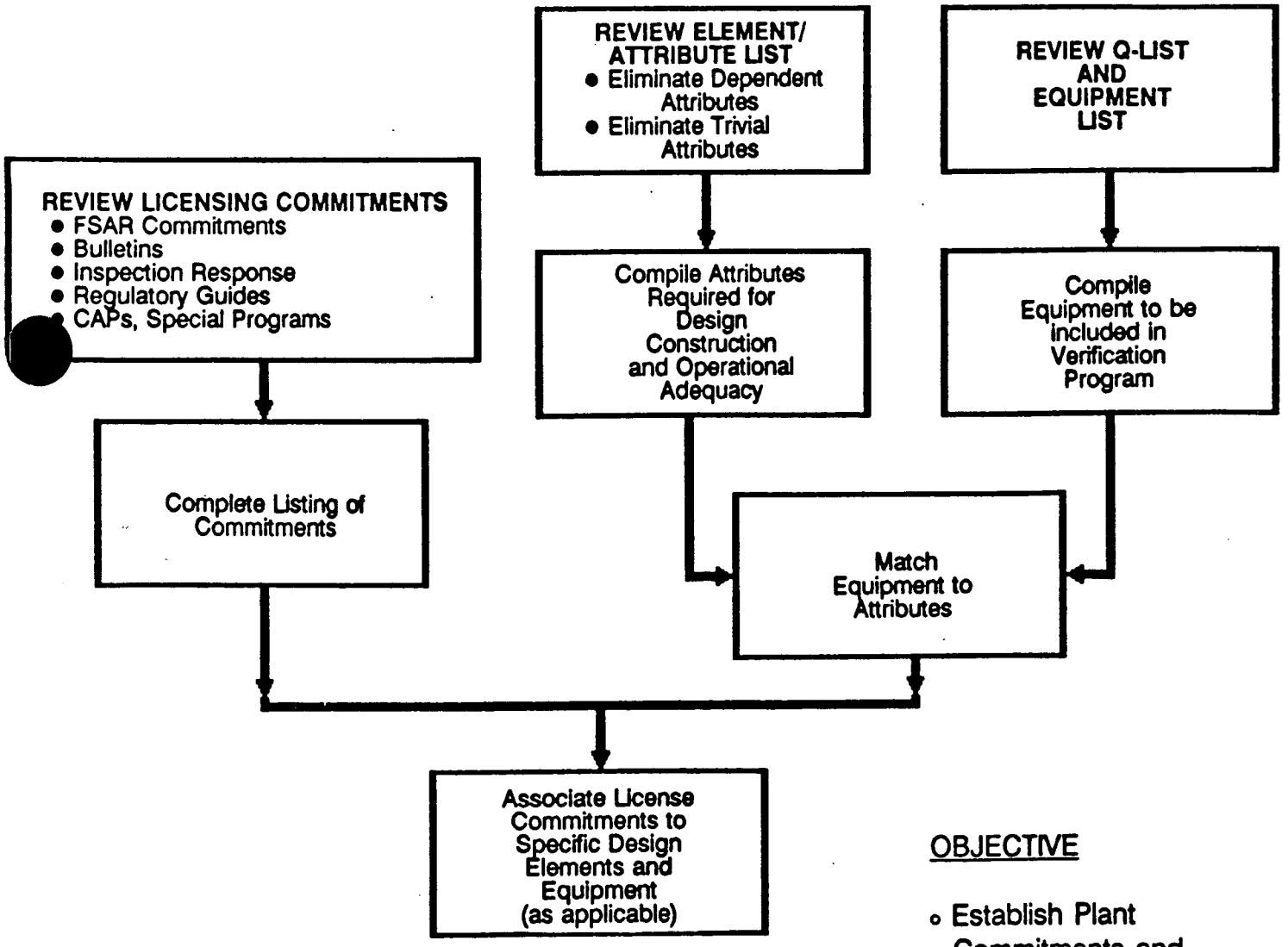
DID I GET THERE?

- Walkdowns
- Design Reviews
- Independent Calculations

PHASE V
Final Design and Readiness
Review

- High Exposure Generic Issues
- System Level Readiness Review

PHASE I DEFINE WBN BASELINE DESIGN ELEMENTS/LICENSE COMMITMENTS



OBJECTIVE

- Establish Plant Commitments and Design Baseline.

EXAMPLE 1 - ELECTRICAL CONDUIT AND SUPPORTS

PHASE I - Define WBN Baseline Design Elements/License Commitments (Cont'd)

PRIMINARY

Conduit Design Elements:

Sample Attribute	Design	Construction	QA/QC Note (1)
Cable Weight Loading/ Cable Fill	✓	✓	✓
Design Tolerances	✓	✓	✓
Separation	✓	✓	✓
Size	✓	✓	✓
Clamp - Bolt Torque	✓	✓	✓
- Size	✓	✓	✓
Sample Deleted Attributes			
Cable Bending	Note (2)	Note (2)	Note (2)
Cable Support	Note (3)	Note (3)	Note (3)
Weep Holes	Note (4)	Note (4)	Note (4)

Note:

(1) QA/QC Attribute is met when acceptable records are verified.
(2) Attribute satisfied under design elements for "cables".
(3) Attribute redundant and is satisfied through conduit support and cable tension attributes.
(4) No application to conduit design.

EXAMPLE 1 - ELECTRICAL CONDUIT AND SUPPORTS

PHASE I - Define WBN Baseline Design Elements/ License Commitments

Licensing Commitments:

1. **Conduit containing only one cable is sized for a maximum of 53 percent cable fill. Conduit containing two cables is sized for a maximum of 31 percent cable fill, and conduit containing three or more is sized for a maximum of 40 percent cable fill of the inside area of the conduit.**

   Reference: FSAR, Section 8.3.1.4.1, Cable Fill Criteria

2. **To ensure that final conduit and conduit support designs envelope design requirements WBN will:**

   - Develop Engineering Requirements Specification (ERS).
   - Review existing drawings versus updated criteria.
   - Issue new typicals to provide additional details.
   - Revise procedures to incorporate changes to design output requirements.

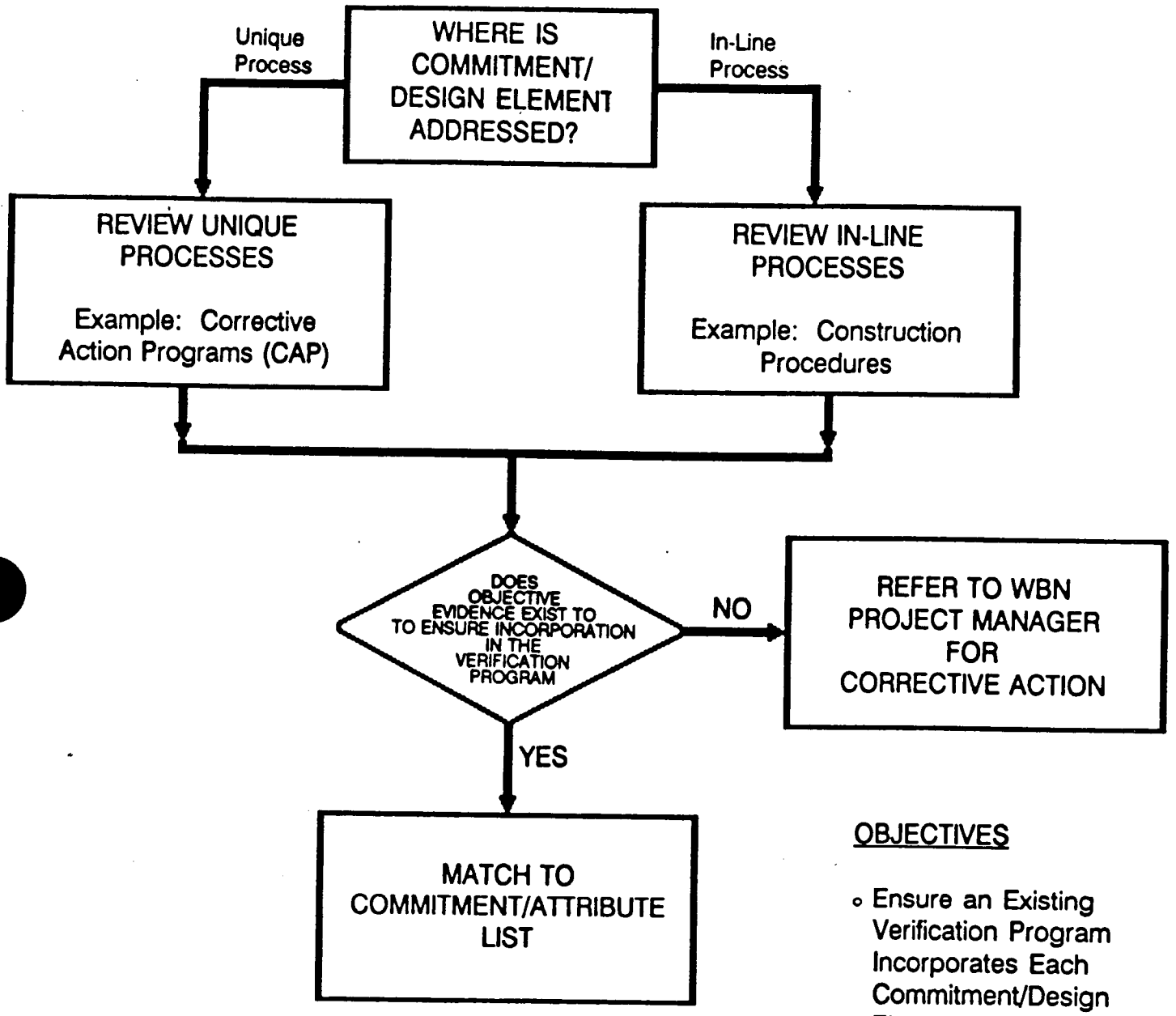
   Reference: Nuclear Performance Plan, Section 2.4

3. **To address design, construction and inspection problems, TVA will perform a critical case evaluation of conduits and supports and modify as necessary.**

   Reference: Nuclear Performance Plan, Section 2.4

PRELIMINARY

PHASE II MATCH BASELINE DESIGN ELEMENTS AND LICENSE COMMITMENTS TO WBN VERIFICATION PROGRAMS



OBJECTIVES

- Ensure an Existing Verification Program Incorporates Each Commitment/Design Element.

EXAMPLE 1 - ELECTRICAL CONDUIT AND SUPPORTS

PHASE II - Match Baseline Design Elements and License Commitments to WBN Verification Programs

Licensing Commitments:

1. **Reference: FSAR, Section 3.10.3.3.2, Supports, specifies that "All conduit supports in Category I structures are designed to resist gravity and SSE forces applied to the conduit and cables. Supports for conduit containing Class 1E cables are designated Category I and stresses are limited to 90 percent of the yield stress of the material involved".**

   This commitment is implemented under the design process by Design Criteria 2B-DC-40-31.10, and under the installation process by ERS-WBN-CEB-008A.

2. **The Corrective Action Program (CAP) Plan for Conduit Support Installation, dated November 18, 1988 was reviewed, and this review confirmed that the program requires:**

   - Engineering Requirement Specifications (ERSs) to be developed to define structural requirements.
   - The review of existing drawings versus updated criteria.
   - The issuance of new typicals to provide additional details.
   - The revision of implementing procedures to incorporate changes to design output requirements.

   Verification Plan: CAP For Conduit Support Installation
   Project Plan PWL CG, Section 2.3

3. **The Corrective Action Program (CAP) Plan for Conduit Support Installation, dated November 18, 1988 was reviewed, and this review confirmed that the program requires the performance of a critical case evaluation and then describes the evaluations.**

   Verification Plan: CAP For Conduit Support Installation
   Project Plan PWL CG, Section 2.3

PRELIMINARY

EXAMPLE 1 - ELECTRICAL CONDUIT AND SUPPORTS

PHASE II - Match Baseline Design Elements and License Commitments to WBN Verification Program (Cont'd)

Design Elements:

Design/construction and QA/QC in-line programs were reviewed to determine that the attributes were incorporated.

Attribute

PRIMINARY

- Separation

Design Reference:	WB-DC-30-4
Construction Reference:	WBEP 5.31, Attachment 9
QA/QC Reference:	WBEP 5.31, Attachment 9

- Design Tolerances

Design Reference:	ERS-WBN-CEB-008A Section 4.2
Construction References:	WP51 Attachment C, TI-2011 Section 5.2
QA/QC References:	WP51 Attachment C, TI-2011 Attachments A and B

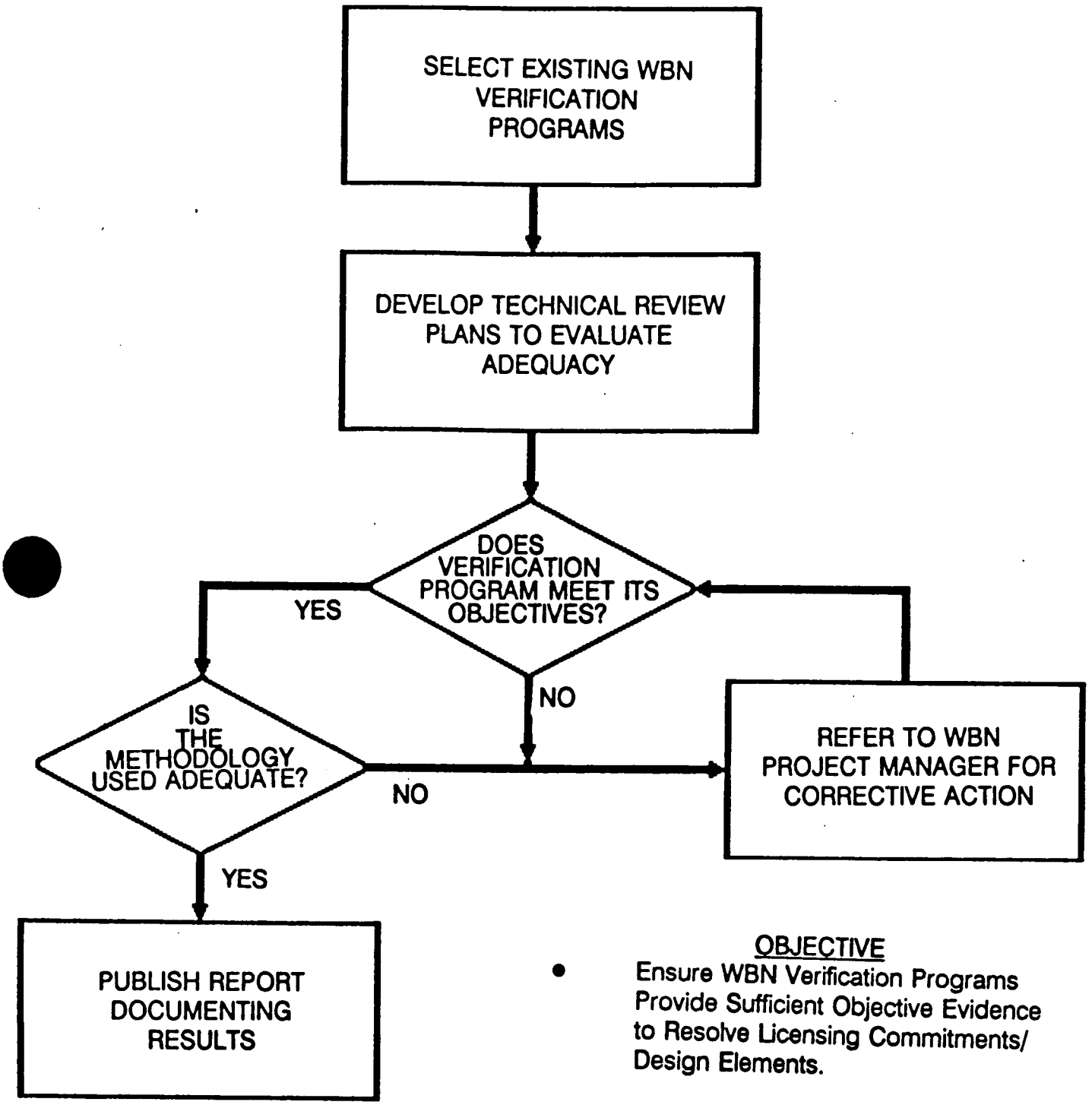
- Size

Design Reference:	WBEP 5.31, Section 7.3.8.9, Appendix A
Construction References:	WP51 Attachment A, TI-2011 Attachment A
QA/QC References:	WP51 Attachment A, TI-2011 Attachment A

- Clamp - Bolt Torque

Design References:	ERS-WBN-CEB-008A Section 4.1.2.18
Construction References:	WP51 Attachment C, TI-2011 Attachment B
QA/QC References:	WP51 Attachment C, TI-2011 Attachment B

PHASE III VERIFY TECHNICAL ADEQUACY OF EXISTING WBN VERIFICATION PROGRAM METHODOLOGY



- <u>OBJECTIVE</u>
  Ensure WBN Verification Programs Provide Sufficient Objective Evidence to Resolve Licensing Commitments/ Design Elements.

EXAMPLE 1 - ELECTRICAL CONDUIT AND SUPPORTS

PHASE III - Confirm Technical Adequacy of Verification Program

Evaluation Results (of Licensing Commitments):

1. **Detailed evaluations of the adequacy of the ECCS CAP and Project Plan for Conduit and Conduit Supports were conducted.**

   - The ERS for conduit was obtained and reviewed to ensure that it provided sufficient guidance.
   - Old typical drawings were obtained and reviewed to verify that they are not in current use. Existing installations to obsolete and inadequate typicals were being evaluated to determine Corrective Actions including modifications.
   - New typical drawings were obtained and reviewed. It was verified that the "new" typicals were implemented for supports currently being installed.
   - Construction Procedure CPI-8.1.8-H-400 was confirmed as incorporating changes to design output requirements. (Based on review and revision of ERS.)

2. **The Program for Critical Case Evaluations was reviewed and determined adequate to:**

   - Identify deficiencies and evaluate them.
   - Make assessments regarding the remaining population.
   - Identify modifications.

PRELIMINARY

PHASE III - Confirm Technical Adequacy of Verification Program (Cont'd)

PRELIMINARY

Evaluation Results (of Design Elements):

3. **In-line program that implements conduit separation:**

   A review of the category of Design Criteria WB-DC-30-4 "Separation/Isolation", Section 4.1.2 was conducted.

   - Guidance is provided for separation of Non IE functions GSPS conduit.
   - Guidance is provided for physical separation of conduits of 1" surface to surface.
   - Guidance is provided for conduits crossing or running parallel with cable trays of 1" surface to (covered) tray surface.
   - Equivalent configurations of 1" separation is allowed by
     - -- Use of marinite 36
     - -- Case-by-case circuit analysis per WB-DC-30-4 Section 4.1.1.7

Results are acceptable.

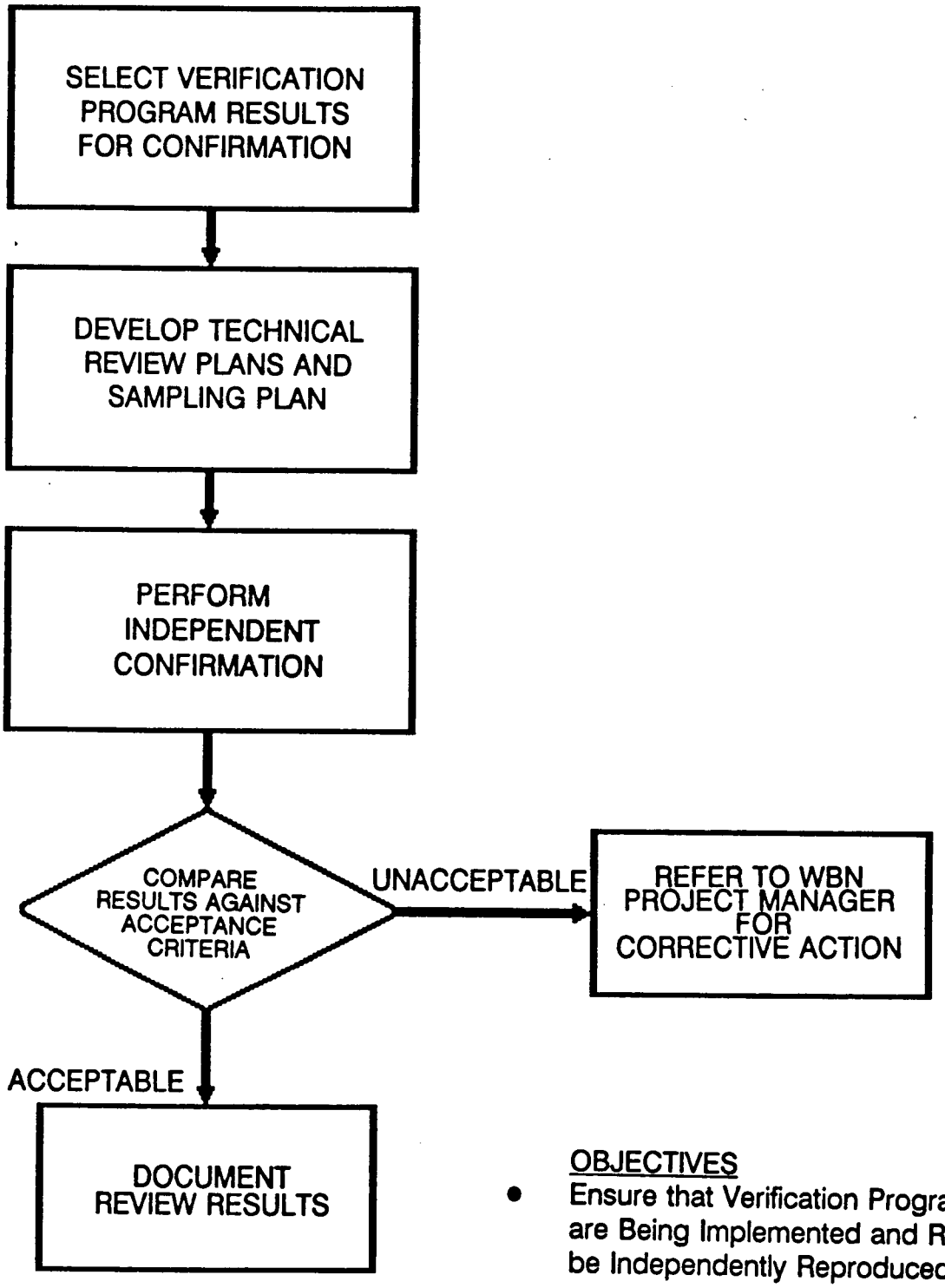
4. **In-line program that implements Clamp - Bolt Torque**

   A review of the adequacy of Engineering Requirements Specification ERS-WBN-CEB-0084, "Conduit and Support Installations", Section 4.1.2.18, was conducted.

   - Torque values are specified for 1/4 and 3/8" bolts of 6 ft-lbs and 19 ft-lbs respectively.

Results are acceptable.

PHASE IV CONFIRM INDEPENDENTLY THE RESULTS OF WBN VERIFICATION PROGRAMS



OBJECTIVES

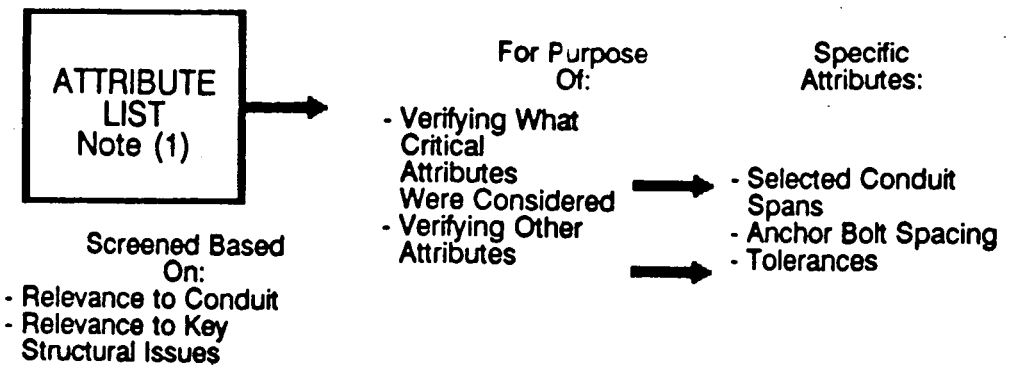
- Ensure that Verification Programs are Being Implemented and Results Can be Independently Reproduced.
- Review of Attributes Not Reviewed in Other Corrective Action Programs.

EXAMPLE 1 - ELECTRICAL CONDUIT AND SUPPORTS

PHASE IV - Confirm Independently the Results of WBN Verification Programs

PART A:

Select Attributes for Confirmation:



PRELIMINARY

Note (1) For this example, of 30 attributes defined in the EAL, conduits spans, anchor bolt spacing and tolerances were selected.

Develop Technical Review Plans to Include for example:

- ERS review to ensure guidance is provided for spans, bolt spacing, and tolerances.
- Sample walkdowns of installations against old "typicals".
- Review of new typicals for inclusion of upgraded criteria and critical case results.
- That construction procedures reflect revised design output requirements.
- That Critical Case Evaluations are acceptable for attributes of span and anchor bolt spacing.

EXAMPLE 1 - ELECTRICAL CONDUIT AND SUPPORTS

PHASE IV - Confirm Independently the Results of WBN Verification Programs (Cont'd)

PRELIMINARY

PART B: Implement Technical Review Plans and Evaluate Results:

The Technical Review Plans were executed and the results evaluated accordingly.

The review of the Critical Case Evaluation noted the following:

Spans

- Grouping was made using a fine screen. Each conduit size in each section constituted one group.
- Each member in the group was reconciled by a specific method (i.e., either span qualified by refined span tables, by regrouping for modification, Critical Case Evaluation, or by comparison to another case).
- Most Critical Case Evaluations considered only one instance of violation, so very limited grouping was required.

Results are acceptable.

References: Review Summary Sector, C19 Spans
Calculation WCB-AB-C19-056A

Anchor Bolts

- Grouping was made using a fine screen. Each support typical in each sector constituted one group.
- Each member in the group was reconciled in terms of qualification method.
- Review of Sector F2, Type 60 Supports identified inadequate justification of grouping of supports covered by a single critical case calculation.

Results indicate further review necessary to determine level of additional justification required to substantiate grouping.

References: Walkdown Packages ICS-F2-001, ICS-F2-003
Review Summary Form Sector F2, Type 60 Supports

EXAMPLE 1 - ELECTRICAL CONDUIT AND SUPPORTS

PHASE IV - Confirm Independently the Results of WBN Verification Programs (Cont'd)

PRELIMINARY

PART B: Walkdown Evaluation Results:

Conduit No.	Conduit Span	Bolt Spacing	Tolerances	Critical Case Evaluation
RM600A	Overspan Identified (Note 1)	Acceptable	Acceptable	Acceptable (Note 3)
2PS619F	Acceptable	Acceptable	Acceptable	Acceptable (Note 2)
IT3491	Overspan Identified (Note 1)	Acceptable	Acceptable	Acceptable

Note:

(1) Overspan identified by PAC/AQ previously identified by the civil group.

(2) Two support deviations identified in walkdown. These deviations were found to be under evaluation already by the civil group.

(3) PAC/AQ walkdown noted nonconforming hardware (slotted screws) Work Plan WP-5695-4 already initiated by the civil group to resolve prior to preliminary PAC/AQ walkdown.

PAC/AQ Walkdown results verified results of previous walkdowns.

EXAMPLE 2 - STEAM GENERATOR SUPPORT ATTACHMENTS

PRELIMINARY

PHASE I - Define WBN Baseline Design Elements/License Commitments

Equipment Identification: Steam Generators 1-5GEN-068-SG 1 through 4

Sample Design Element:	Design	Construction	QA/QC
Support Bolt Torque Setting	✓	✓	✓

Acceptance Criteria: Minimum Final Setting 100 ft-lbs
Maximum Final Setting 212.5 ft-lbs

Reference: Westinghouse Technical Bulletin Number NSD-TB-81-01

PHASE II - Match Baseline Design Elements And License Commitments To WBN Verification Programs

- Torque setting for the subject bolts is specified under WNSD Technical Bulletin NSD-TB-81-01 dated January 19, 1981.
- Design Criteria is specified per Drawing Number 85 S 4BN 412 Rev. 14, and references construction requirements for torque setting.
- Construction torque requirements are contained in Attachment 1 to memorandum Number NEB 82 1222-265 dated 12/22/82.
- QA/QC verification requirements are contained in WBNP-QCP-1,42-5 "Steam Generator Lower Support Bolting".

EXAMPLE 2 - STEAM GENERATOR SUPPORT ATTACHMENTS

PHASE III-Verify Technical Adequacy Of Existing WBN Verification Program Methodology

- The WNSD Technical Bulletin No. NSD TB-81-01 provided guidance on setting torque values to achieve final torque settings of 100 to 212.5 ft-lbs.
- The construction installation procedure, NEB 82-1222-265 was reviewed and found to contain the requirements as stated in the Technical Bulletin.
- The QC verification procedure, reviewed WBNP-QCP-1-42-5, contained torque setting acceptance criteria.

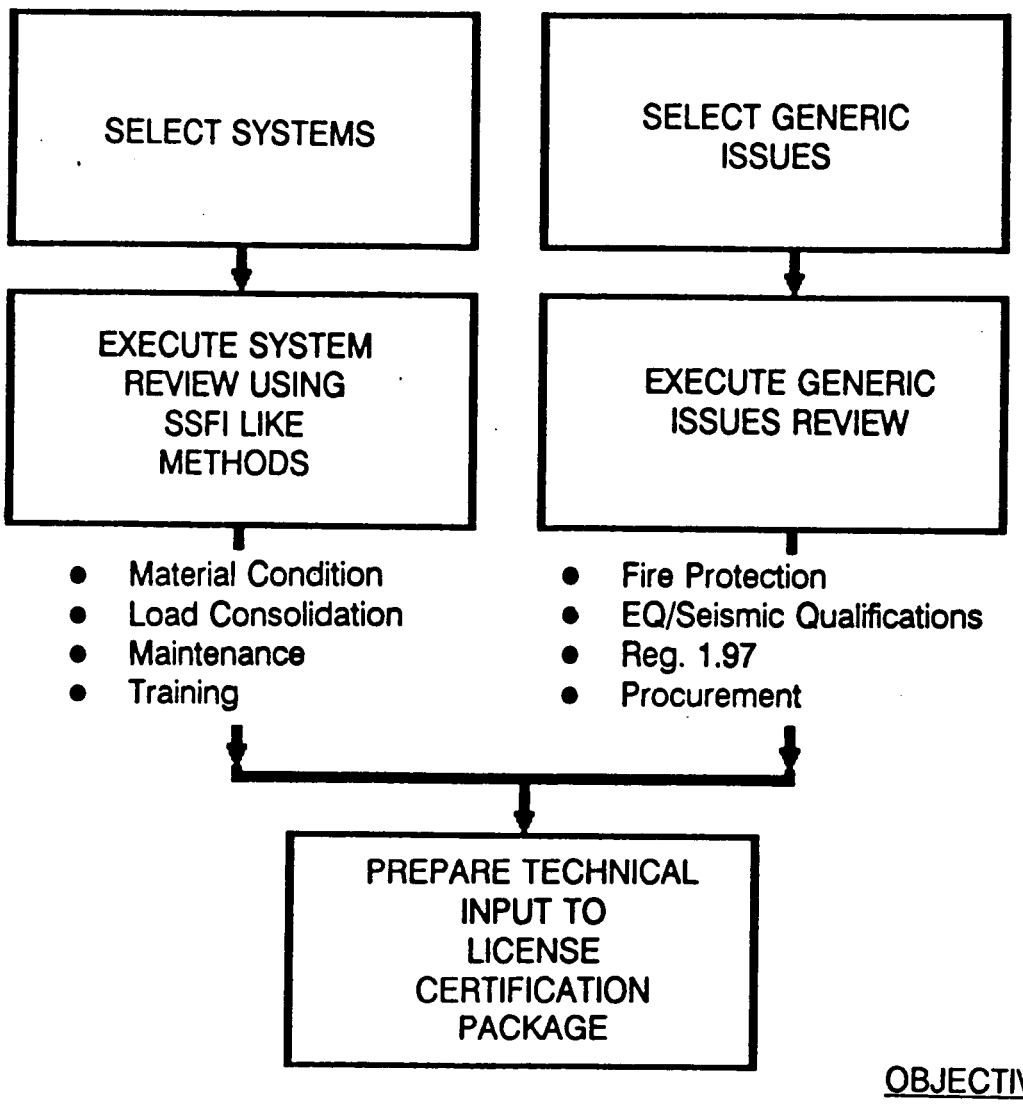
PRELIMINARY

PHASE IV-Confirm Independently The Results of WBN Verification Programs

A Technical Review Plan will be developed that includes verification of the following:

- Verify torque setting requirements (i.e., final torque of up to 100 to 212.5 ft-lbs) and lock washer flattening. Sampling of 256 bolts will be accomplished by random selection of 13 bolts (MIL STD 105E) @ 95/95.
- Perform a technical review of the re-heat treatment of bolts.
- Review the material/strength qualification of 32 attachment bolts replaced during destructive tests conducted in 1982-83.
- Review the material/strength qualifications of original "Custom 455" bolting material.
- Verify acceptability of use of shims/washers.
- Verify construction activities including bolt and helicoil thread cleaning, contamination build up, use of lubricants were adequate.

PHASE V FINAL DESIGN AND READINESS REVIEW



OBJECTIVES

- Confirm Engineering and Construction Completion Activities do not Defeat Design/Licensing Bases.
- Confirm the Material Condition and System Operational Readiness.

EXAMPLE 3 - WBN FIRE PROTECTION PROGRAM

PHASE V - Final Design and Readiness Review

Generic Issue Review - Appendix R Compliance

Develop Technical Review Plans:

1. **Fire Hazards Analysis**
   - Combustible Loading Analysis
   - Barrier Design and Implementation
   - Detection Systems including Signaling
   - Suppression Systems
   - Smoke Removal
   - RCP Oil Collection
   - Hydrogen Piping

2. **Safe Shutdown Review**
   - RCS Reactivity Control, Inventory, Pressure, Heat Removal
   - Plant Status Monitoring
   - Support Systems
   - Safe Shutdown/Separation Criteria
   - Alternate Shutdown Capability
   - High/Low Pressure Interface
   - Spurious Signals

3. **Associated Circuit Review**
4. **Area Heat-Up Review**
5. **Lighting and Communications Review**
6. **Modification Compliance Review Program**
7. **Post-Fire Shutdown Procedures**
8. **Administrative Procedures**

Select Random Sample.

Execute Technical Review and Evaluate Results.

PRELIMINARY

EXAMPLE 4 - PHASE V - SYSTEM READINESS REVIEW

PHASE V - Final Design and Readiness Review

Develop Technical Review Plans Consistent with SSFI Methodology:

Technical Review Plan Outline

1. **Design**

   - System Design Basis
   - Design Process
   - Design Output

2. **Operations**

   - System Operation
   - Instrumentation and Control/Annunciator Response
   - Human Factors
   - Operator Training
   - Normal/Abnormal and Emergency Operating Procedures
   - System Testing

3. **Maintenance**

   - Corrective and Preventive Maintenance Programs and Procedures
   - Planning, Scheduling, and Coordination of Maintenance
   - Maintenance Training and Qualifications
   - IST/Tech Spec Requirements
   - Problem Tracking and Corrective Actions, Root Cause Evaluations
   - Equipment/Instrumentation Calibration and Setpoints
   - Post-Maintenance Testing
   - Procurement and Material Controls
   - Calibration/Setpoint Program
   - Overall Maintenance Program/Performance Based Implementation (including material condition and management).

Execute System Level Reviews and Compile Results.

PRELIMINARY

MAJOR MILESTONES

PHASE I	Complete June 1, 1991
PHASE II	Complete July 1, 1991
PHASE III	Under Development
PHASE IV	Under Development
PHASE V	Under Development

G-SPEC PROGRAM

BACKGROUND:

- G-SPECS DEVELOPED TO SUPPORT ORIGINAL CONSTRUCTION ACTIVITIES
- AUDIT IDENTIFIED THAT G-SPECS WERE NOT APPLICABLE TO MODIFICATIONS AND NONROUTINE MAINTENANCE AT OPERATING PLANTS
- G-SPECS ISSUES:
  - NOT USER FRIENDLY
  - NOT UPDATED
  - REDUNDANT INFORMATION
  - CONFLICTING REQUIREMENTS
  - COMPLICATED
- ORIGINAL SPECIFICATION IMPROVEMENT PROGRAM (SIP) WAS NOT COMPLETED

CURRENT EFFORTS:

- REESTABLISHED SIP EFFORT TO ENHANCE EXISTING G-SPECS
- NEW SIP EFFORT INITIATED TO:
  - UPGRADE EXISTING G-SPECS
  - CONSOLIDATE G-SPECS

CURRENT EFFORTS (CONTINUED)

- PROVIDE ENGINEERING REQUIREMENTS FREE OF UNNECESSARY PROCEDURAL REQUIREMENTS AND "HOW TO" INSTRUCTIONS
- REMOVE INFORMATION/REQUIREMENT REDUNDANCIES AND CONFLICTS
- PROVIDE INSPECTION CONSISTENCY BETWEEN PLANTS
- REVISIONS MORE TIMELY

• PROCEDURE ISSUED TO CONTROL DEVELOPMENT AND ISSUE OF NEW/REVISED G-SPECS

PROCESS:

• CORPORATE ENGINEERING SPECIALISTS DRAFT NEW OR REVISED G-SPECS

• SPEC DEVELOPMENT COORDINATED WITH SITE USERS TO RESOLVE KNOWN OR POTENTIAL PROBLEM AREAS:

- CONSTRUCTION
- MODIFICATIONS
- MAINTENANCE
- OPERATIONS
- ENGINEERING
- QA/QC

• COORDINATION REVIEW MEETINGS HELD AT WBN FOR FINAL RESOLUTION OF UNRESOLVED COMMENTS

• G-SPEC ISSUED BY CORPORATE ENGINEERING DEPARTMENT MANAGER

• G-SPECS REVISION COMPLETED DECEMBER 1990

CABLE INSTALLATION REQUIREMENTS UPGRADE
ENGINEERING SPECIFICATION G-38

CABLE ISSUES:

- SIDEWALL BEARING PRESSURE
- MINIMUM BEND RADIUS
- JAMMING
- PULL-BYS
- VERTICAL CABLE DROP SUPPORT

SPECIFICATION IMPROVEMENTS:

- APPLIED SITE-SPECIFIC REQUIREMENTS TO ALL PLANTS WHERE POSSIBLE (INCORPORATE SRN'S)
- MODIFIED LANGUAGE TO ENSURE CLARITY OF ENGINEERING REQUIREMENTS
- REMOVED "HOW TO" INSTRUCTIONS
- INCLUDED VERIFICATION CRITERIA FOR INSPECTION CONSISTENCY BETWEEN PLANTS
- PROVIDED GUIDANCE FOR CABLE REPAIR

INDUSTRY INPUT:

- REQUIREMENTS ARE BASED ON INDUSTRY RECOGNIZED STANDARDS FROM IEEE, ICEA, AND NEC
- SUPPORTED BY VENDOR RECOMMENDATIONS

CLASS 3 WELDS
LACK OF PENETRATION

- 2 TECHNICAL MEETINGS SINCE NOVEMBER'S NRC MANAGEMENT MEETING
- ANALYSIS IS COMPLETE - BASED UPON STATISTICAL SAMPLING AND ANALYSIS (95% OCCURRENCE LEVEL/95% CONFIDENCE LEVEL) ALL CLASS 3 WELDS MEET ASME SECTION III STRESS ALLOWABLES.
- ASME SECTION III CODE INTERPRETATION (AWAITING TWO SIGNATURES) ALLOWS THIS TYPE OF ENGINEERING EVALUATION
- REVIEW OF NDE RESULTS IDENTIFIED 9 WELDERS FOR FURTHER EVALUATIONS LOOKING FOR "SUBSTANDARD" PERFORMANCE. 1 WELDER (6EL) WAS CONFIRMED AS "SUBSTANDARD". (174 WELDS EVALUATED, INCLUDING 100% OF 6EL's WELDS).
- RADIOGRAPHY REQUIREMENTS (SAMPLE BASIS) FOR NEW CLASS 3 WELDS HAVE BEEN IMPLEMENTED.
- ALL WELDS FROM THE SAMPLE (174 WELDS) EXHIBITING GREATER THAN 10% LOP AROUND THE INTERNAL CIRCUMFERENCE ARE TARGETED FOR "MANAGEMENT DIRECTIVE" REWORK.
- INTERIM SUBMITTAL MADE ON JAN 3, 1991
  FINAL SUBMITTAL WILL BE MADE IN FEBRUARY.

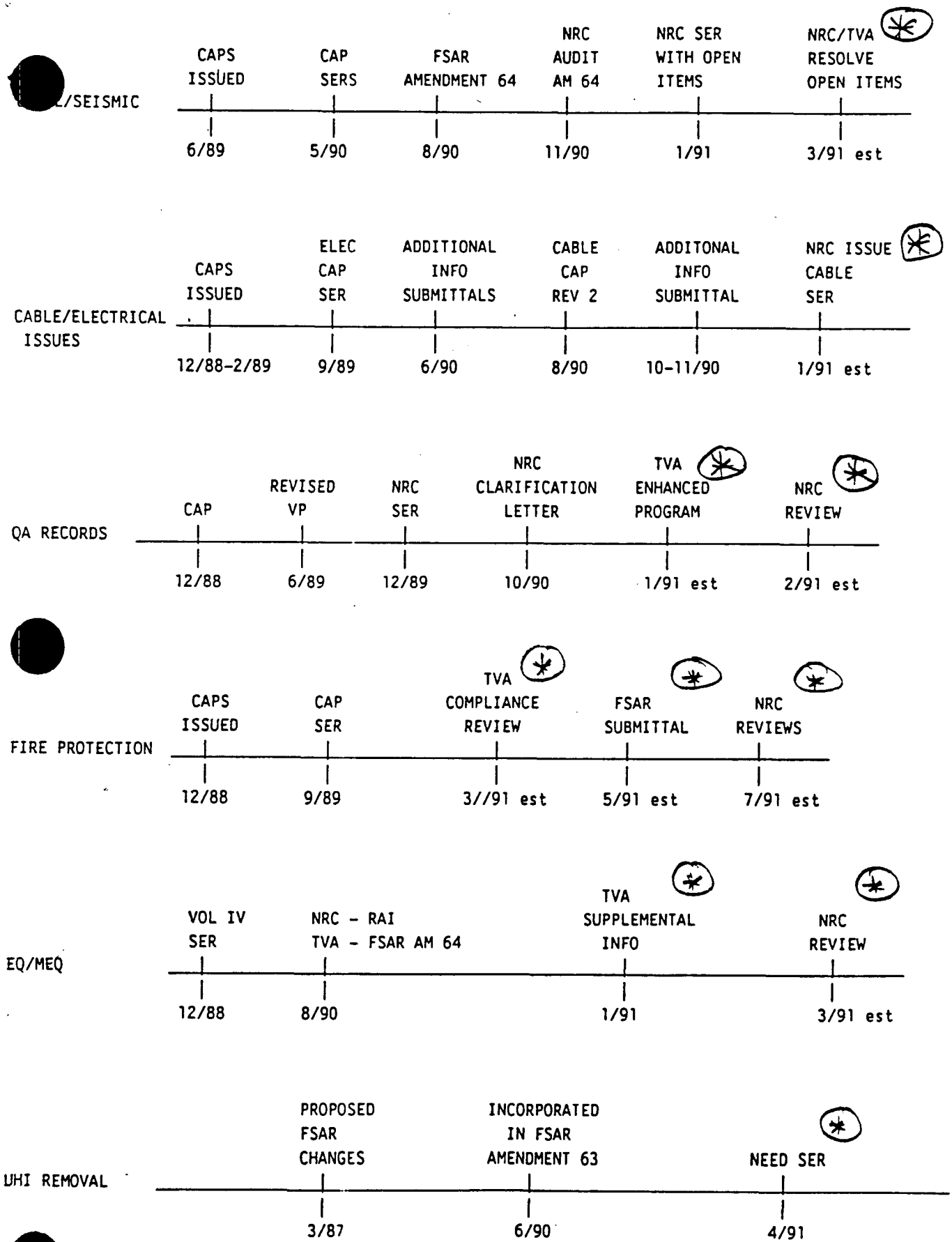
MICROBIOLOGICALLY INDUCED CORROSION

- NRR MEETING HELD ON JANUARY 11, 1991
- BIOCIDE INJECTION PROVEN EFFECTIVE BY UP TO 90% REDUCTION IN BACTERIA.
- BY JUNE 1991 A DISPERSANT/CORROSION INHIBITOR CHEMISTRY SYSTEM WILL BE INSTALLED TO CLEAN OUT EXISTING MIC SITES AND PASSIVE METAL SURFACE OF PIPING.
- WALL THICKNESS DETERMINATION AND SUBSEQUENT ANALYSIS TO DEMONSTRATE SECTION III COMPLIANCE WILL BE COMPLETED BY MAY 31, 1991.
- MIC LOCATIONS CONFIRMED AND FINALIZED WITH ADDITIONAL NDE BY FEBRUARY 28, 1991.
- NRC SUBMITTAL WILL BE MADE THIS WEEK.

PLANT CONDITION ASSESSMENT PROGRAM

- WBN COMMODITY MATRIX COMPLETED.
- INDUSTRY DEGRADATION MECHANISMS AND VARIABLES DETERMINED.
- FOLLOWING TRAINING, WALKDOWN SCHEDULED TO BEGIN BY MID FEBRUARY.
- RESULTS WILL BE EVALUATED FOR PROGRAMMATIC CONCERNS AND CORRECTIVE ACTIONS.
- RESULTS OF THIS PROGRAM, INCLUDING EROSION & CORROSION OF EXTERNAL SURFACES WILL BE FACTORED INTO STRUCTURAL INTEGRITY ANALYSIS TO ASSURE COMPLIANCE WITH SECTION III STRESS ALLOWABLES. THESE ANALYSES WILL ADDRESS LOP/LOF, MIC AND OTHER WALL LOSS PHENOMENA IN COMBINATION.
- OVERVIEW REPORT, INCLUDING PRELIMINARY RESULTS, WILL BE SUBMITTED TO NRC ON OR ABOUT APRIL 30, 1991.

NRC REVIEW TIMELINES



4350G

NRC REVIEW TIMELINES

RTD BYPASS REMOVAL

PROPOSED FSAR CHANGES SENT	INCORPORATED IN FSAR AMENDMENT 63	NEED TO RECEIVE QUESTIONS	NEED QUESTIONS RESOLVED AND SER
12/86	6/90	2/91	9/91

REG GUIDE 1.97

TVA SUBMITTAL ON REG GUIDE 1.97 COMPLIANCE	NEED NRC REVIEW AND QUESTIONS	NEED SER
8/90	5/91	9/91

SECURITY SYSTEM UPGRADE

PHYSICAL SECURITY PLAN SUBMITTAL	TRAINING AND QUALIFICATION AND CONTINGENCY PLAN SUBMITTAL	NEED NRC REVIEW
7/90	11/90	9/91

TECHNICAL SPECIFICATION

PROPOSED WBN TS SUBMITTAL	NRC TO ISSUE STS DRAFT	TVA TO SUBMIT RELOCATED TS	NRC TO ISSUE SECOND STS DRAFT	TS MEETINGS TO BE REESTABLISHED	NRC TO ISSUE PROOF AND REVIEW
4/90	1/28/91	4/91 est	4/91	5/91	8/91 est

BISI

TVA PROVIDED FUNCTIONAL REQUIREMENTS	TVA RESPONDED TO RAI REVIEW	SER NEEDED
1/87	10/90	4/91

4350G

Meeting Summary, Memoranda for Trip Reports or Site Visits**

Docket File	
NRC PDR	
Local PDR	
F. Miraglia	12-G-18
J. Partlow	12-G-18
S. Varga	14-E-4
G. Lainas	14-H-3
F. Hebdon	
S. Black	
M. Krebs	
Project Manager	
J. Wechselberger	17-G-13
M. Branch	RII
G. Walton	RII
K. Barr	RII
H. Livermore	RII
OGC	
E. Jordan	
K. Barr	
B. Wilson	
S. Burris	
G. Walton	
S. Gagner	
M. Peranich	
S. Stein	
L. Chandler	
D. Murphy	
M. Callahan	
R. Emch	
J. Fouchard	
ACRS (10)	
WB Reading File	