Docket Nos. 50-390/391

June 23, 1988

APPLICANT: Tennessee Valley Authority (TVA)

FACILITY: Watts Bar Nuclear Plant, Units 1 and 2

SUBJECT: MEETING SUMMARY FOR THE JUNE 3, 1988 MEETING BETWEEN NRC AND TVA REGARDING WATTS BAR PROGRAM PLAN (WBPP) AND THE SCHEDULE COMPLETING THE PROGRAM PLAN

On June 3, 1988, a meeting was held in Rockville, Maryland, at the request of TVA between the NRC staff and representatives of TVA regarding the WBPP and the schedule of various submittals for NRC review. Attachment 1 is the list of attendees and Attachment 2 is a copy of the handout provided by TVA at the meeting.

TVA opened the meeting by stating that numerous issues and programs exist at Watts Bar and there are numerous corrective actions that have been underway or completed to address these issues. The WBPP will perform a systematic and comprehensive evaluation of the plant as built. The objective of the WBPP is to provide reasonable assurance that all the design and construction deficiencies have been detected and the appropriate corrective actions have been defined. The final product of the team will be the Watts Bar Nuclear Performance Plan, Volume 4.

Sargent and Lundy (S&L), the contractor selected by TVA to perform a Vertical Slice Review (VSR) of two systems, described the overall program for the VSR including the selection of the key review staff. S&L will also include horizontal interface for the two selected systems. The review will be exploratory as well as confirmatory. S&L further stated that the VSR program is a subset of the overall Watts Bar systematic evaluation program. TVA is scheduled to start the VSR program by mid June 1988 and complete by September 1988. TVA intends to submit the details of the corrective action programs during the next three months. The NRC staff has several questions regarding the adequacy of the programs and will review in depth the VSR program whenever it is submitted for the NRC staff review. TVA concluded by saying that they will respond to NRC concerns in the meeting scheduled for June 7, 1988.

Original Signed by

Rajender Auluck, Project Manager
TVA Projects Division
Office of Special Projects

Attachments:
1. List of Attendees
2. TVA Handout

cc w/attachments:
See next page

Distribution

Docket File	NRC PDR
Local PDR	Those On Attached List

OSP:TVA/LA	OSP:TVA/PM	TVA:AD/P
MSimms	RAuluck:as	SBlack
6/23/88	6/23/88	6/27/88

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Dr. Henry Myers, Science Advisor
Committee on Interior
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Washington, D.C. 20515

Mr. S. A. White
Manager of Nuclear Power
Tennessee Valley Authority
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ENCLOSURE 1

LIST OF ATTENDEES

R. Auluck	NRC
R. Hermann	NRC
T. A. Ippolito	TVA
R. C. Heider	S&L
H. C. Garg	NRC
S. Black	NRC
Ed Fuller	TVA
P. R. Maudaira	TVA
Bob Pierson	NRC

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DISTRIBUTION FOR MEETING SUMMARY DATED:

Facility: Watts Bar Nuclear Plant, Units 1 and 2*

Docket File
NRC PDR
Local PDR
Projects Reading
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J. Axelrad
S. Richardson
S. Black
B. D. Liaw
R. Auluck
M. Simms
F. McCoy
J. Rutberg
R. Hermann
H. Garg
B. Pierson
ACRS (10)
GPA/PA
GPA/CA (M. Callahan) (5)
F. Miraglia
E. Jordan
P. Gwynn
J. Scarborough
G. Marcus
C. Miller
T. Elsasser
C. Ader
TVA-Rockville
WB Rdg. File

*cc: Licensee/Applicant and Service List

WATTS BAR PROGRAM PLAN

- PURPOSE -

- o Numerous Issues and Programs Exist at Watts Bar
- o Numerous Corrective Actions Completed and Underway
- o A Systematic, Comprehensive Evaluation

WATTS BAR PROGRAM PLAN

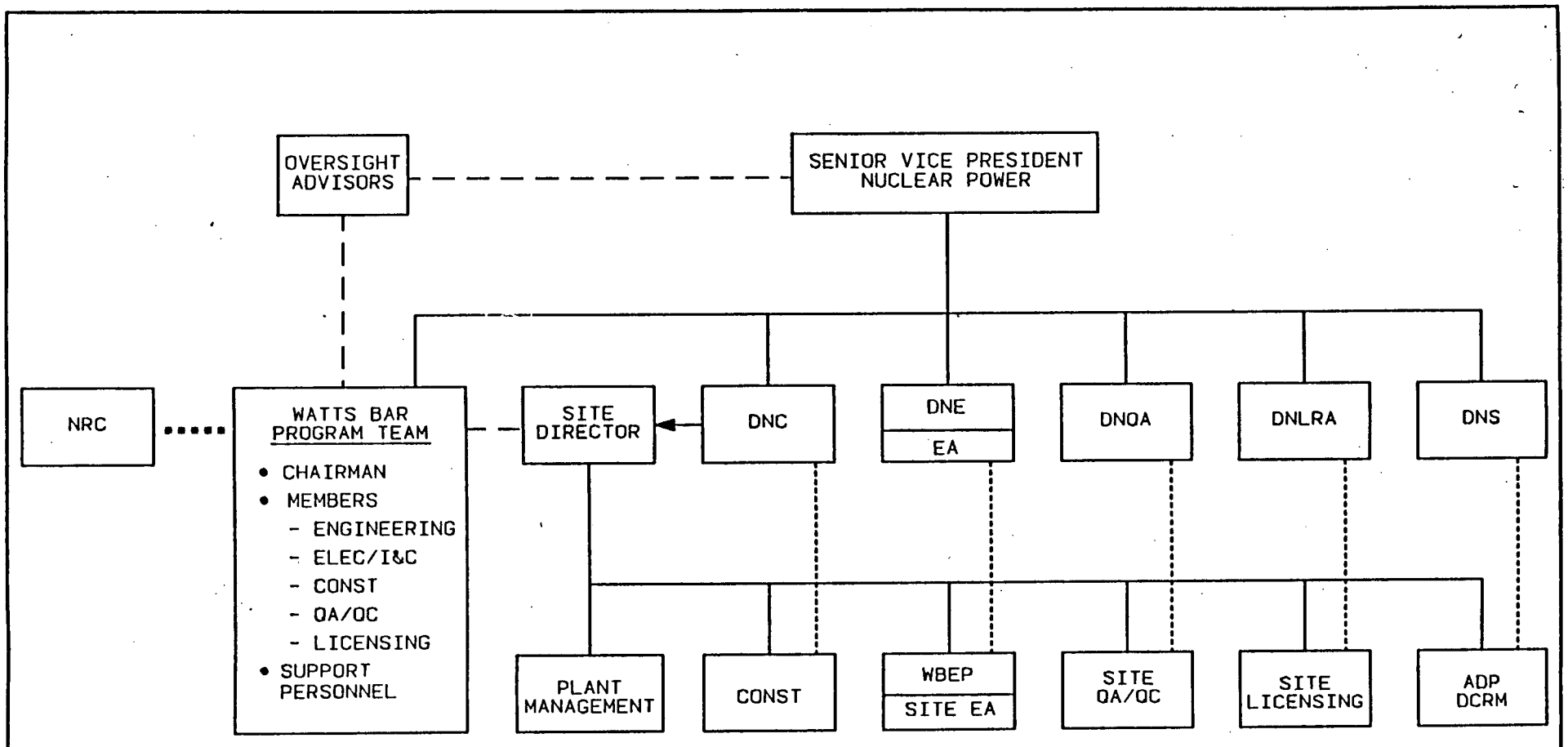
- PROGRAM OBJECTIVE -

- o Provide Reasonable Assurance That:
  - Design and Construction Deficiencies Have Been Detected
  - Appropriate Corrective Actions Have Been Defined
- o Develop WBN NPP
- o Successful Implementation of WBN NPP Will Confirm that WBN is Ready for Licensing

WATTS BAR PROGRAM PLAN

- APPROACH -

- o Establish Program Team with Oversight Advisors
- o Develop Program Plan
- o Conduct Systematic Evaluation of WBN
- o Develop WBN NPP, Volume 4
- o Implementation of NPP Will Confirm that WBN is Ready for Licensing



WBPT INTERFACE CHART

WATTS BAR PROGRAM TEAM

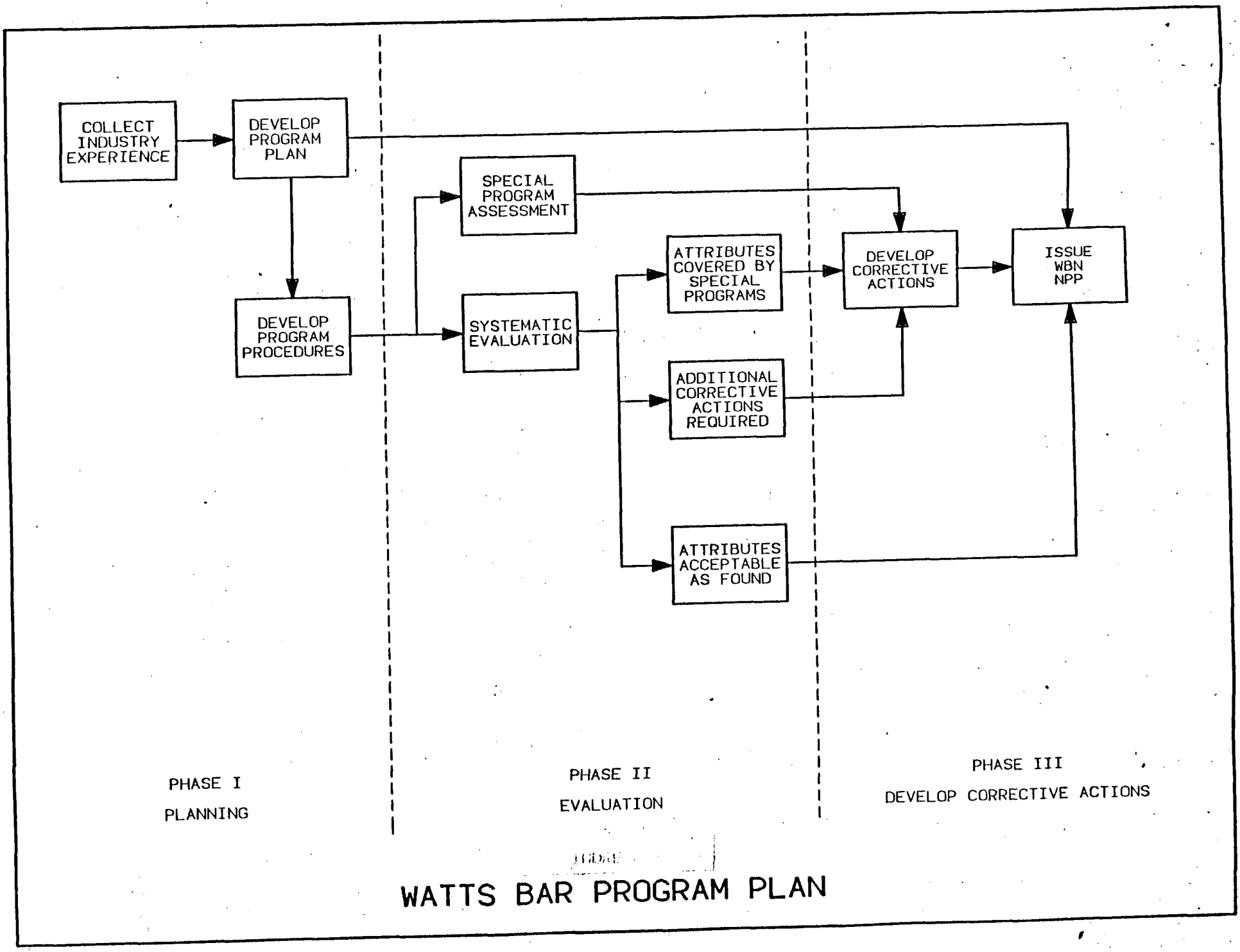
- NRC INTERFACE -

- o Openness and Close Coordination
- o All Actions Open to NRC
- o Periodic General Review Meetings
- o Normal WBN/DNLRA Interaction
- o Concurrence Sought for:
  - Watts Bar Program Plan
  - VSR Plan
  - Corrective Action Plans
  - Nuclear Performance Plan
- o Notification of Changes to WBPT Membership

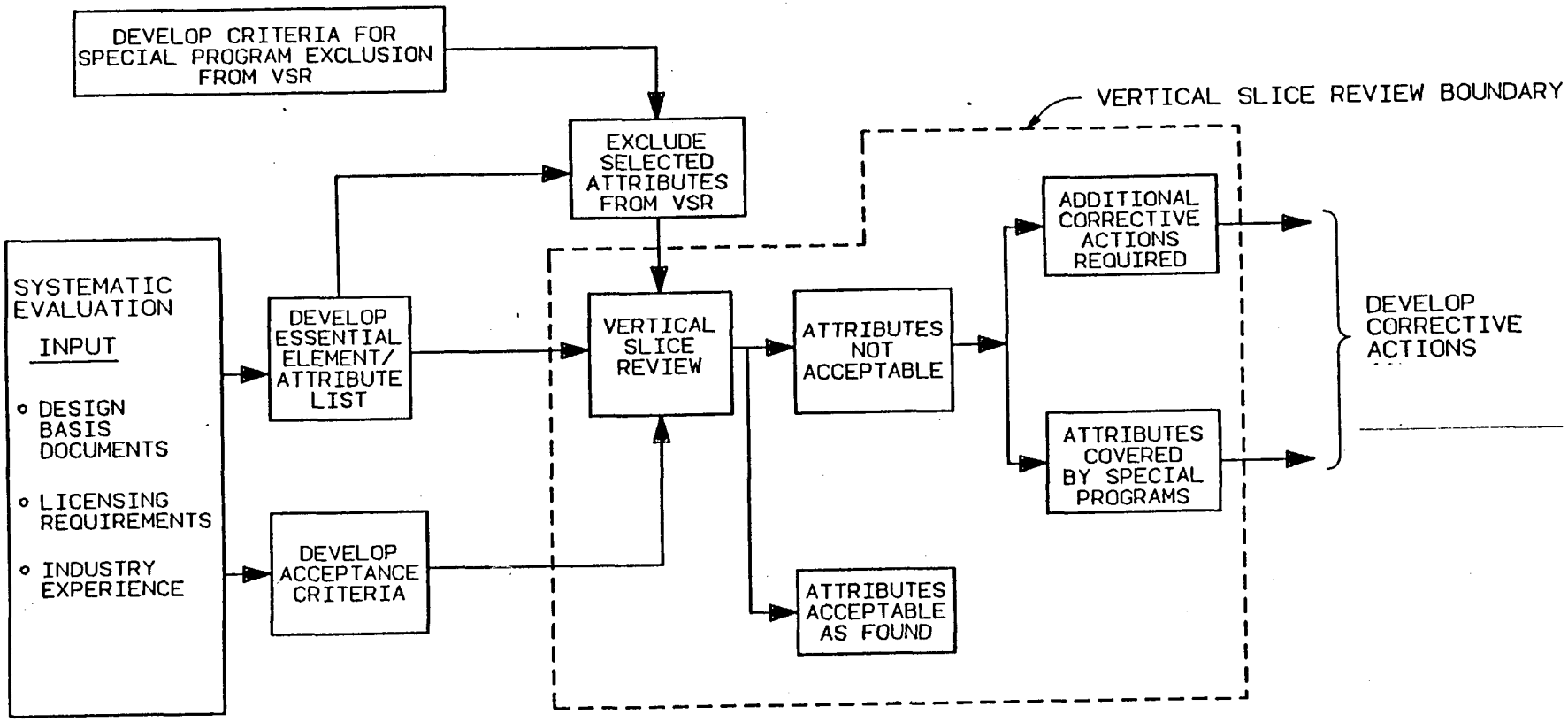
WATTS BAR PROGRAM PLAN

- PRINCIPLES -

- o Objectivity and Credibility
- o Industry Experience
- o Systematic Evaluation
- o Corrective Actions
- o Procedures
- o Documentation and Records
- o Program Oversight
- o Close Coordination with NRC



WATTS BAR PROGRAM PLAN



SYSTEMATIC EVALUATION PROCESS

SYSTEMATIC EVALUATION

- ACCEPTANCE CRITERIA -

- o Design:
  - Codes and Standards
  - Design Criteria
  - System Descriptions
  - FSAR and Licensing Commitments
- o Construction:
  - Drawings
  - Specifications
- o QA/QC Records
  - Codes and Standards
  - Specifications
  - Procedures

SYSTEMATIC EVALUATION

- VERTICAL SLICE REVIEW (VSR) -

- o Objective:
  - Exploratory
  - Confirmatory
- o Contractor Selection Criteria
- o System Selection Criteria
- o Methodology, Procedures, and Protocol
- o Exclusions from VSR
- o Findings and Resolutions

SYSTEMATIC EVALUATION

- VSR CONTRACTOR SELECTION CRITERIA -

- o Full Scope A/E Firm
- o Independent from Original WBN Design and Construction
- o Independent from Ongoing Production Work
- o Previous IDR/IDVP Experience
- o Strong Management Team

SYSTEMATIC EVALUATION

- PROTOCOL -

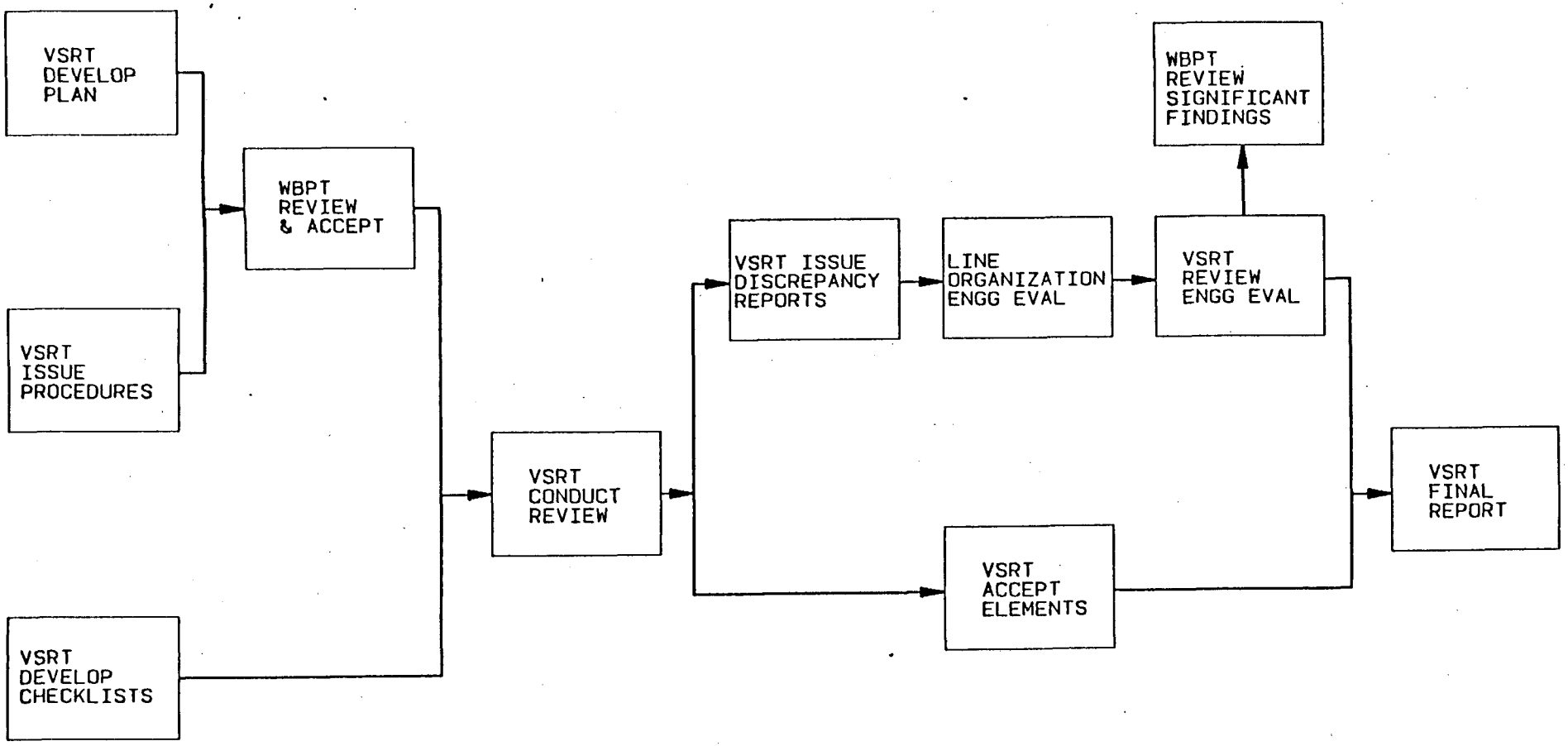
- o Principles:
  - Independence Not Compromised
  - Document That Independence
- o Formal Communications:
  - Discussion of Findings or Recommendations
  - Discussion of Resolutions
  - Prior Notification of Meetings and Telecons Required
  - Documentation Required
- o Informal Communications
  - Requests for Data or Additional Information
  - Requests for Clarifications
  - No Prior Notification of Meetings and Telecons Required
- o Commercial Matters Outside Protocol

SYSTEMATIC EVALUATION

- EXCLUSIONS FROM VSR SCOPE -

- o Welding Evaluation
- o Concrete Quality Evaluation
- o Environmental Qualification of Equipment
- o Hanger and Analysis Update Program
  - All Safety-Related Large Bore Piping
  - Class 1 Small Bore Piping
- o Detailed Control Room Design Review
- o Seismic Analysis (Generation of In-Structure Response Spectra and Seismic Shear, etc., on Structures)

VERTICAL SLICE REVIEW PROCESS



WATTS BAR PROGRAM PLAN

- NUCLEAR PERFORMANCE PLAN, VOLUME 4 -

- o Watts Bar NPP to Include:
  - Description of Results
  - Corrective Actions to Resolve Issues
  - Operational Readiness Review
- o Submit to NRC after NPG Approval

WATTS BAR PROGRAM PLAN

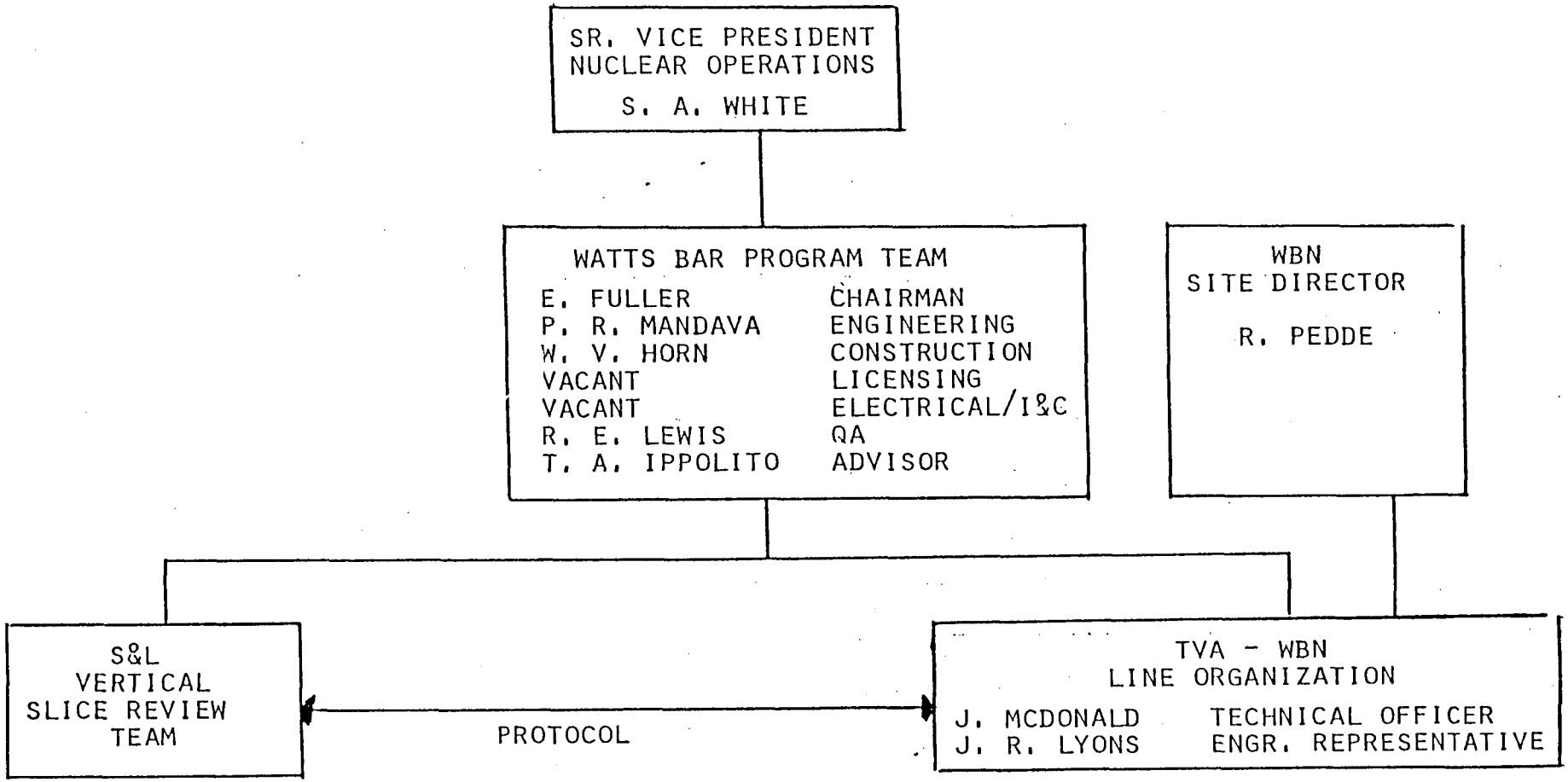
- CONCLUSIONS -

- o Comprehensive, In-depth Review
- o Assure Design and Construction Meet Licensing Requirements
- o WBN Obtains Operating License After Implementation of NPP

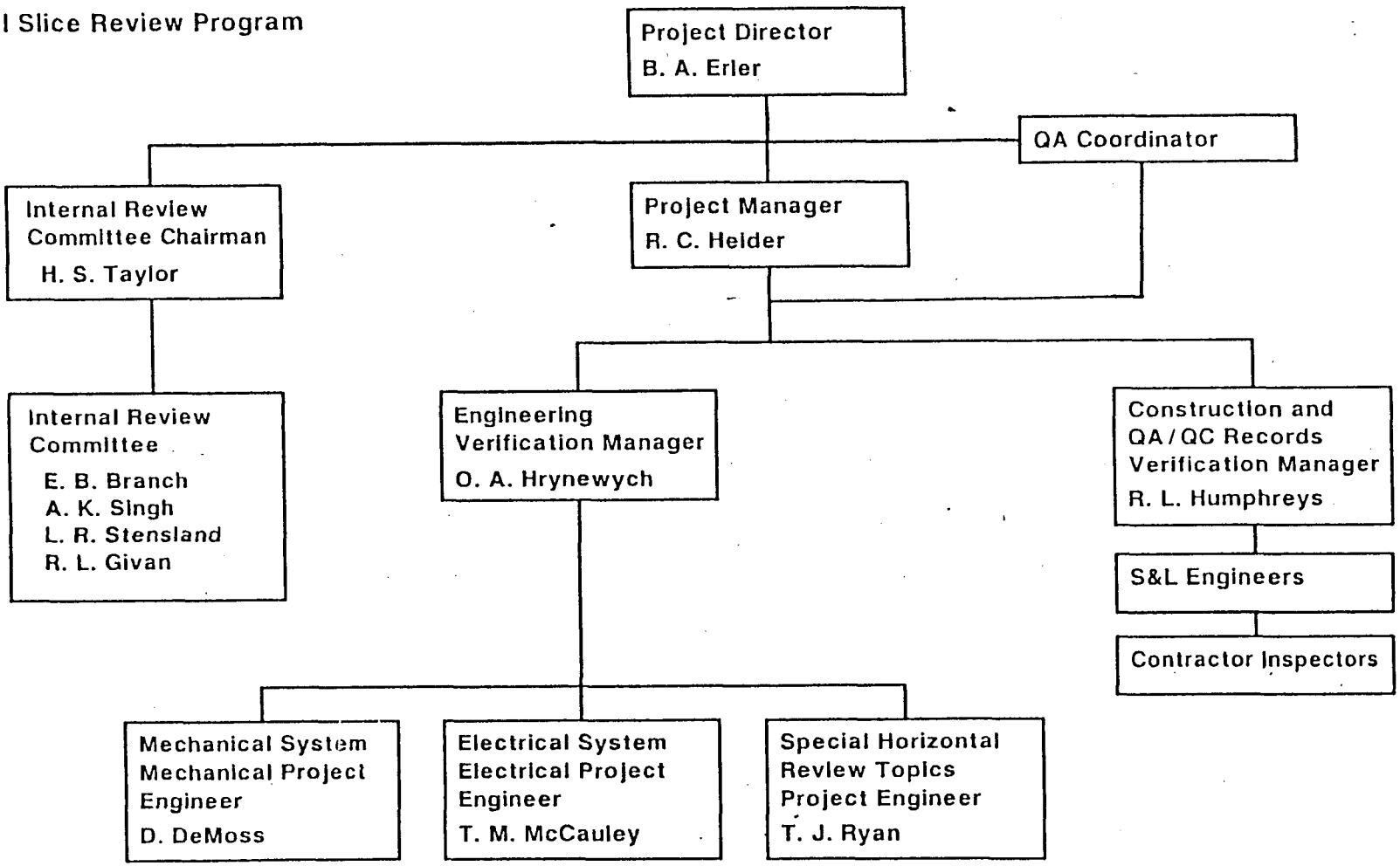
WATTS BAR PROGRAM PLAN

- SCHEDULE -

Submittal of WBPP	May 27, 1988
Submittal of VSR Plan	June 6, 1988
Begin Vertical Slice Review	June 15, 1988
VSR Final Report	September 15, 1988
Presentation of CAPS	June-August, 1988
WBN NPP	December 1988


SR. VICE PRESIDENT
NUCLEAR OPERATIONS
S. A. WHITE
WATTS BAR PROGRAM TEAM
E. FULLER CHAIRMAN
P. R. MANDAVA ENGINEERING
W. V. HORN CONSTRUCTION
VACANT LICENSING
VACANT ELECTRICAL/I&C
R. E. LEWIS QA
T. A. IPPOLITO ADVISOR
WBN
SITE DIRECTOR
R. PEDDE
S&L
VERTICAL
SLICE REVIEW
TEAM
PROTOCOL
TVA - WBN
LINE ORGANIZATION
J. MCDONALD TECHNICAL OFFICER
J. R. LYONS ENGR. REPRESENTATIVE

TVA Watts Bar Nuclear Plant
Vertical Slice Review Program



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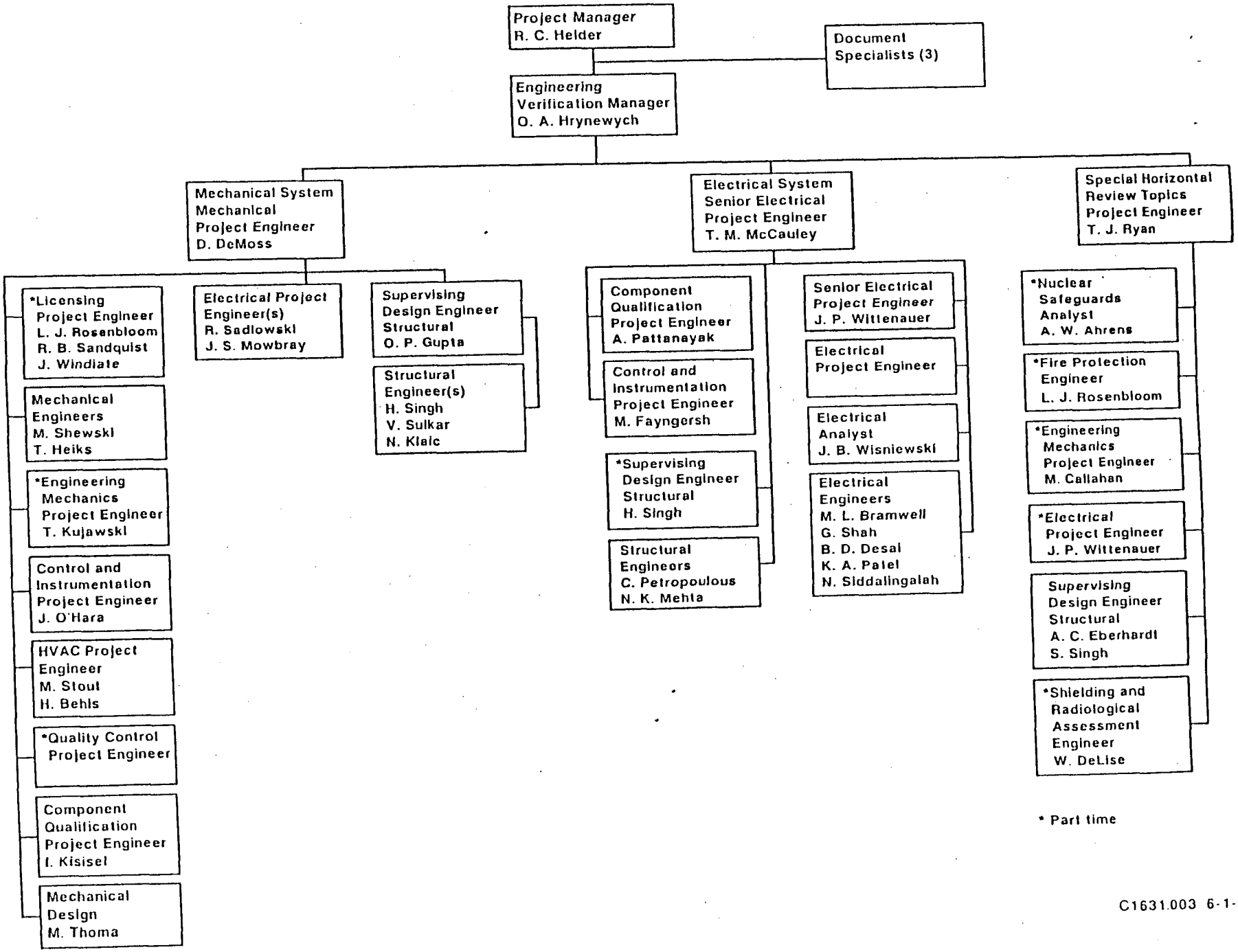
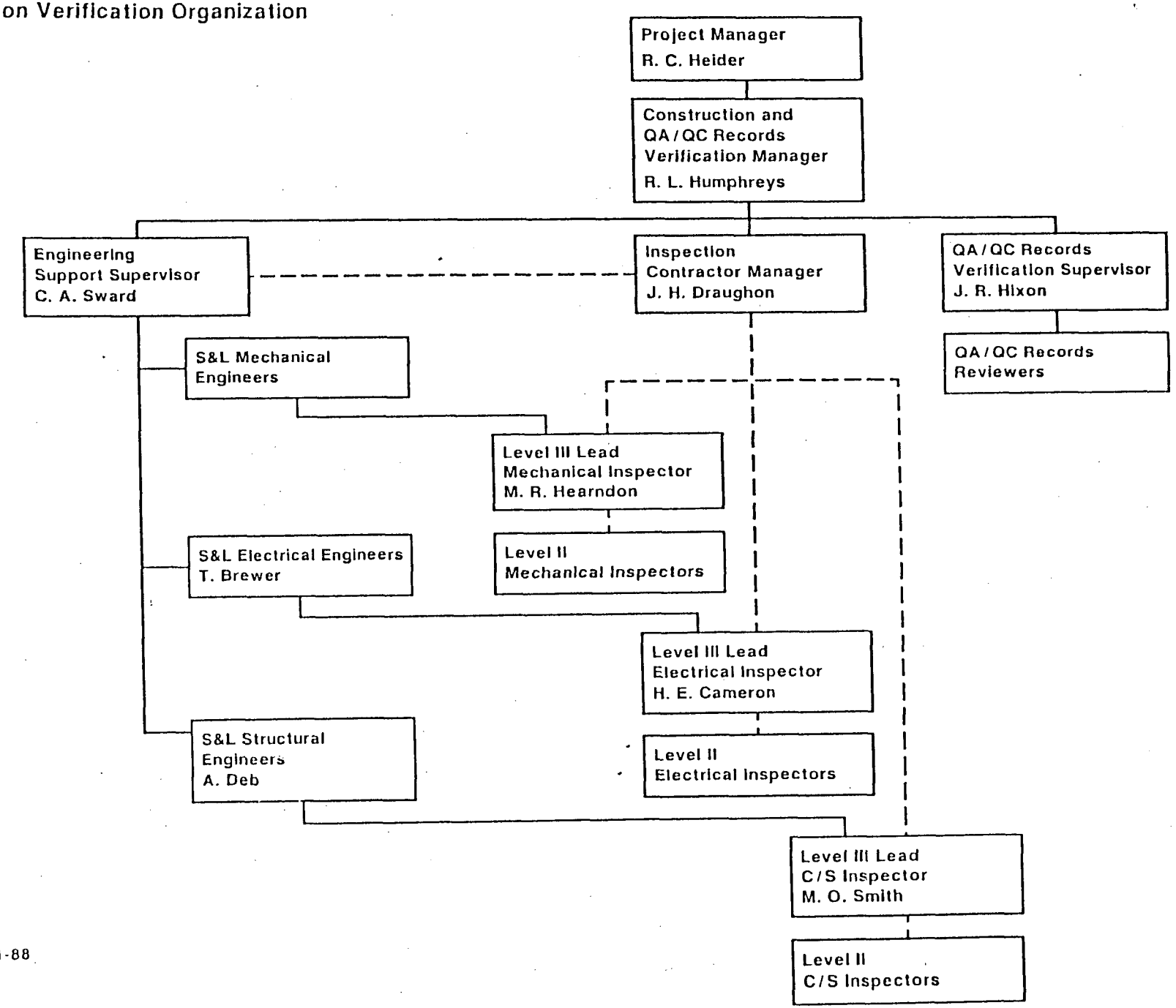
Design – Vertical Slice Review Project Team Organization



* Part time

C1631.003 6-1-88

Construction Verification Organization



C1631.004 6-1-88

THREE SEPARATE AREAS

- DESIGN
- CONSTRUCTION
- QA/QC RECORDS

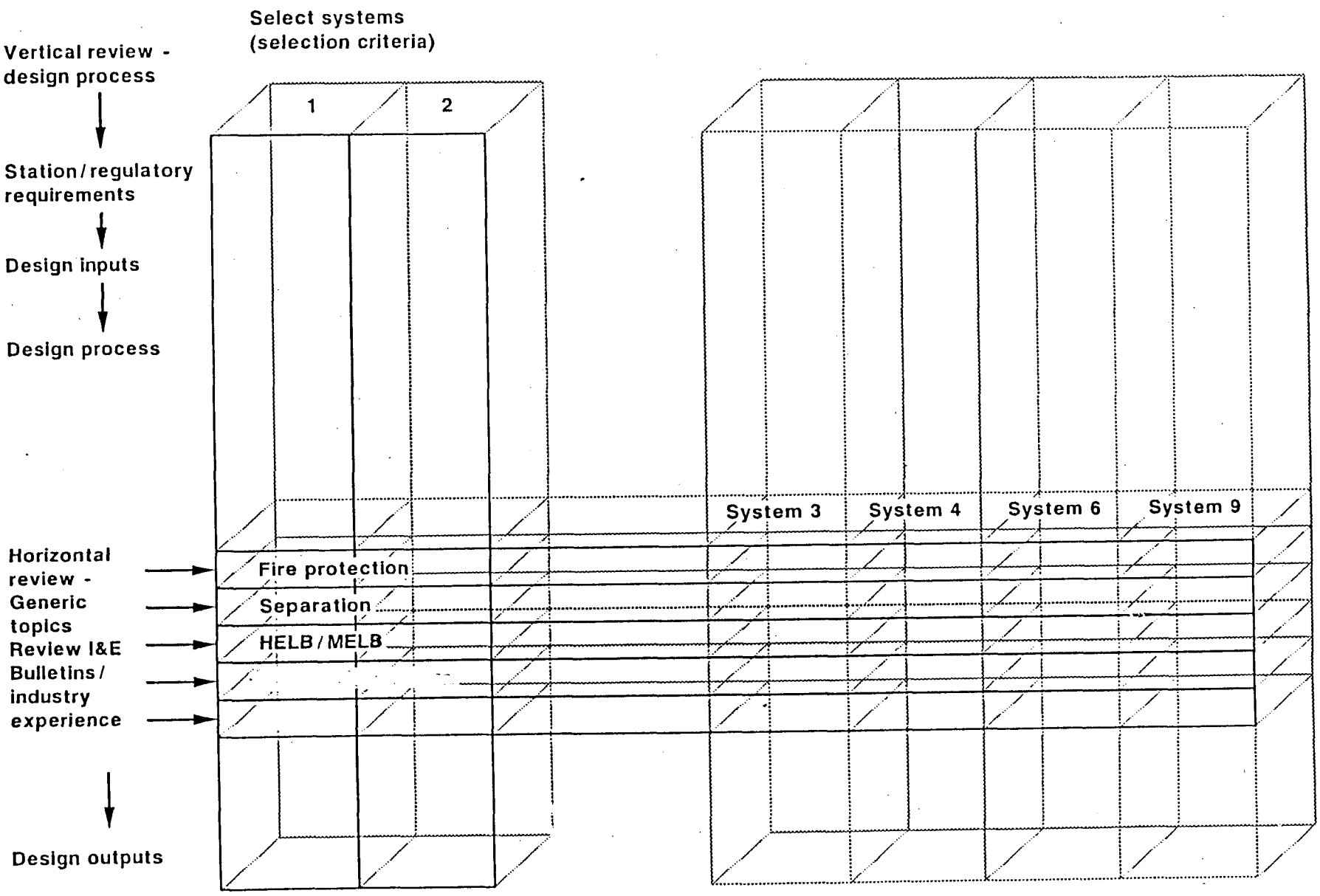
OVERVIEW OF VERTICAL SLICE REVIEW

- TWO SYSTEMS PLUS HORIZONTAL INVESTIGATION

- EXPLORATORY AND CONFIRMATORY

- SUBSET OF WB SYSTEMATIC EVALUATION LEADING TO CLOSURE PLAN

Vertical Review of Design – General Concept



C1627.002 4-20-88

SYSTEMATIC EVALUATION

- SYSTEMS/AREAS SELECTED FOR VSR -

- o Mechanical System:
  - Component Cooling System
- o Electrical System:
  - AC Shutdown Power System
- o Hot Piping Systems
  - Portions of Steam Generator Blowdown System
- o HVAC System:
  - Control Building—Electrical Board Room Air Conditioning System
- o Horizontal Review for Spatial Features, e.g., Fire Protection, Flooding

The systems selected to be reviewed in the Watts Bar Verticle Slice Review Program will be chosen considering the following criteria:

1. The system must be safety-related, essential to plant safety

2. The system should involve a cross-section of engineering and design disciplines within the TVA design organization

3. The concept and implementation of the system design should be by TVA

4. The system should be generally representative of safety-related features of other systems

5. The system should be reasonably complex, requiring several modes of operation involving redundancy and single failure considerations

6. The system design should involve internal interfaces between functional areas such as:

   - Mechanical
   - Civil/structural
   - Electric power
   - Instrumentation and control

   and the external interfaces with Westinghouse, component vendors, and TVA engineering

7. Major portions of the system should already be installed

8. The system should have a clearly defined design basis

9. The system should have required design changes over the plant design period

It is recognized that each of the systems selected may not encompass all of the above criteria. However, by choosing additional sections of other systems for review, it is intended that the above criteria be covered. Other considerations in selecting systems for review are:

1. The system should include new or unique design features.

2. If a PRA has been performed on the WBN, consideration of the results of the PRA will be included in the system selection.

3. Results of other inspections such as; IDVPs, IDRs, IDIs and CAPs will be considered in system selection.

DESIGN VERIFICATION

- DESIGN IS IN CONFORMANCE WITH LICENSING COMMITMENTS
- REVIEW DESIGN PROCESS FOR ADEQUACY

DESIGN APPROACH IN TWO PARTS

- FUNCTIONAL REVIEW
- PARTIAL PHYSICAL REVIEW
  - SYSTEM COMPONENTS
  - SYSTEM INTERFACE WITH PLANT

CONSTRUCTION VERIFICATION

- CONSTRUCTED PLANT IS IN ACCORDANCE WITH DESIGN OUTPUT DOCUMENTS

AREA BASIS FOR EVALUATION

- SELECTED ELEMENTS IN IDENTIFIED AREAS

- SOME ELEMENTS WILL BE COMMON IN EV AND CV & RV PROGRAM

QA/QC RECORDS VERIFICATION

- RECORDS AGREE WITH THE CONSTRUCTED PLANT

- SLICE OF THE CV ELEMENTS

Licensing requirements for Watts Bar as identified by TVA and as contained in the following documents:

- Final Safety Analysis Report (FSAR)
- Watts Bar Safety Evaluation Report (SER)
- Code of Federal Regulations
- Industry codes and standards as committed to in FSAR
- Applicable IE bulletins, information notices, and circulars
- NRC-NRR, I&E Branches, and ACRS design and licensing requirements
- Fire protection report

Documents Required for Design Control and Interface Adequacy Review

- TVA Quality Assurance Manuals
- Watts Bar Project Manual
- TVA Design Guides and Standards
- TVA Generic Engineering Procedures
- TVA current organization charts that represent design flow
- Interface design specifications (TVA and Westinghouse)

Documents or information anticipated to be pertinent to the systems, structures or components being reviewed include:

- System piping and instrumentation diagrams
- General arrangement drawings
- Applicable engineering standards
- System and component design criteria
- Technical specifications
- Design installation and test specifications
- Installation/Construction Drawings
- Non-Conformance Reports (NCR)
- Condition Adverse to Quality Reports (CAQR)
- Field Change Request (FCR)
- Engineering Change Notices (ECN)
- Design drawing hierarchy
- Logic diagrams (with legend sheets)
- Loop diagrams
- Instrument index
- Instrument data sheets
- Instrument location drawings
- Computer I/O list
- Annunciator drawings
- Instrument procurement specifications
- Control board arrangement drawings
- Control board physical drawings
- Control board wiring drawings
- Intermediate instrumentation cabinet physical drawings
- Intermediate instrumentation cabinet wiring drawings
- Instrument impulse line routing drawings
- Electrical calculations
- Electrical single-line drawings
- Electrical schematic diagrams
- Electrical raceway and routing drawings
- Electrical wiring drawings
- Cable tabs
- Termination cards
- Master control diagrams or equivalent
- Design basis criteria calculations and/or analysis for:
  - a-c on-site power systems
  - d-c power systems
  - a-c instrumentation power systems
  - power cable ampacity and derating
  - power and control circuit voltage drop

- Equipment specifications and equipment data packages
- Equipment list
- Valve list
- Specification index
- ASME design specifications
- System piping drawings
- Piping isometric drawings
- Seismic II over I assessment report
- Flooding report
- Pipe whip restraint drawings
- Westinghouse system design specifications and data sheets
- Westinghouse instrument data sheets
- Approved design change documents
- Hanger sketches
- Hanger installation drawings
- The following design basis documentation:
  - Pipe support restraint calculations
  - Pipe support auxiliary steel calculations
  - Data prepared for input to the pipe program used in analysis
  - Special calculations used for flange qualification
  - Stress indices calculations used for non-standard fitting including integral attachments
  - Structural anchor calculations, if any
  - Calculations for fluid transient Loads, if any
  - Pipe sizing for pressure and flow including corrosion allowances used in calculating pipe wall thickness
- Stress reports including the following aspects:
  - Functional capability assurance
  - Pipe break location identifications, based on stress criteria or lack thereof
  - Any ISI requirements
  - Thermal transient stress evaluation
  - Fatigue evaluation of gamma plugs
  - Class I fitting details and contours from field measurements
  - Stress indices for small taps

- Existing input data including:
  - Site seismic g-level and related geological data
  - Building seismic response spectra
  - Instrumentation and controls standard specifications
  - Standard equipment product literature and test reports supplied by vendors to TVA
  - Generic engineering or test data supplied by Westinghouse
  - Structural Calculations
  - *Installation - Construction Records - General
  - *Installation - Construction Records - Each discipline
  - *Installation - Construction Records - Receiving and Storage
  - *Manufacturing records
  - *Procurement records
  - *Construction progress status for selected systems
  - *Discipline construction specifications for all disciplines

*To be provided at site only

C. Definitions and Resolution of Findings

- Observations
  A design, construction, or records related condition which is perceived by a reviewer or inspector to be in nonconformance with the licensing or other documents imposing safety-related requirements.

- Non-Discrepant Observations
  An Observation which is confirmed, after a review, to be in conformance with the licensing or other documents imposing safety-related requirements.

- Discrepancy
  An Observation which is confirmed, after review, to be in nonconformance with the licensing or other documents imposing safety-related requirements. For the design and records review this determination will be made by the IRC.

- Design-Significant Discrepancy
  A design, construction, or records related Discrepancy which, after engineering evaluation, is found to be in nonconformance with the appropriate code, standard, or licensing requirements.

- Safety-Significant Discrepancy
  A design, significant Discrepancy which, if it remained undetected, could result in the loss of capability of the affected system or structure to perform its intended safety function. For this evaluation, credit is not allowed for redundancy at system or train level.