



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

Docket Nos. 50-390/391

July 13, 1987

MEMORANDUM FOR: ^{SEE REPTS} John A. Zwolinski, Assistant Director
for Projects
TVA Projects Division
Office of Special Projects

FROM: Raj Auluck, Project Manager
Division of TVA Projects
Office of Special Projects

SUBJECT: TRIP REPORT FOR JUNE 22-23, 1987

Re: Watts Bar Nuclear Plant, Units 1 and 2

The report covers the period of June 22-23, 1987 while I was at the Watts Bar Nuclear Plant site. Activities undertaken during this visit included:

- o Plant familiarization tour with the applicant.
- o Discussion of the status of the outstanding licensing issues with the site licensing staff. It was agreed to have periodic meetings between the staff and TVA to discuss progress in resolving outstanding issues.
- o Formalities for site access were completed. Received TVA badge for unescorted site access.
- o Attended TVA's presentation on engineering support contracts at Watts Bar site. The handout provided by TVA is enclosed.

In summary TVA stated that due to its inability to meet engineering support requirements for all the nuclear sites with the current staff, it has selected four major contractors to complete the engineering support work at Watts Bar, Units 1 & 2.

The four contractors are:

- o Ebasco for General Design and Field Support (GDFS).
- o Bechtel for Hanger and Analysis Update Program (HAAUP).
- o Stone and Webster for Special Projects (SP).
- o Sargent and Lundy for Design Baseline and Verification Program (DBVP).

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TVA will retain overall responsibility for work and will be the principal interface between the contractors for all tasks. TVA will also review the work to ensure adequacy of the final contractor's product. Currently, TVA is in the process of reviewing each contractor's QA/QC procedures.

Original Signed By
Raj Auluck, Project Manager
Division of TVA Products
Office of Special Projects

Enclosure:
TVA Handout

cc w/enclosure:
S. Ebnetter
S. Richardson

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RAuluck

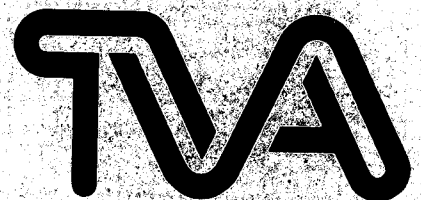
TVA:AD/P
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TVA:AD/P
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7/13/87

MEETING WITH NRC
WATTS BAR NUCLEAR PLANT
SPRING CITY, TENNESSEE
JUNE 23, 1987

Docket # 50-390
Control # 9707230410
Date 7/13/87 of Document
REGULATORY DOCKET FILE

ENGINEERING SUPPORT CONTRACTS
WATTS BAR NUCLEAR PLANT



MEETING WITH NRC
WATTS BAR NUCLEAR PLANT
SPRING CITY, TENNESSEE
JUNE 23, 1987

ENGINEERING SUPPORT CONTRACTS
WATTS BAR NUCLEAR PLANT



PURPOSE:

TO PRESENT THE ORGANIZATION
AND CONTROLS FOR THE MANAGEMENT
OF THE MAJOR ENGINEERING CONTRACTS
AT WATTS BAR NUCLEAR PLANT



AGENDA:

- o INTRODUCTION
- o ORGANIZATION AND APPROACH
- o CONTRACTS
- o CONTRACTOR TASK PACKAGES
- o CONTROLS
- o TRAINING
- o SUMMARY

INTRODUCTION:

- o TVA UNABLE TO REALISTICALLY MEET ENGINEERING SUPPORT REQUIREMENTS FOR SQN, BFN, WBN, AND BLN WITH CURRENT STAFF

- o AT WATTS BAR NUCLEAR PLANT FOUR MAJOR RECOGNIZED CONTRACTORS WITH RELEVANT EXPERIENCE WERE SELECTED



INTRODUCTION (CONTINUED):

- o PUTTING IN PLACE PROGRAMS, PROCEDURES,
AND KEY PERSONNEL

- o START SMART GAINING EXPERIENCE AND
CONFIDENCE
 - = CONTRACTORS COMING ON BOARD NOW
 - = PROCEDURES ARE BEING PUT IN PLACE
 - = SOME TASKS ARE STARTING

ENGINEERING SUPPORT CONTRACTS:

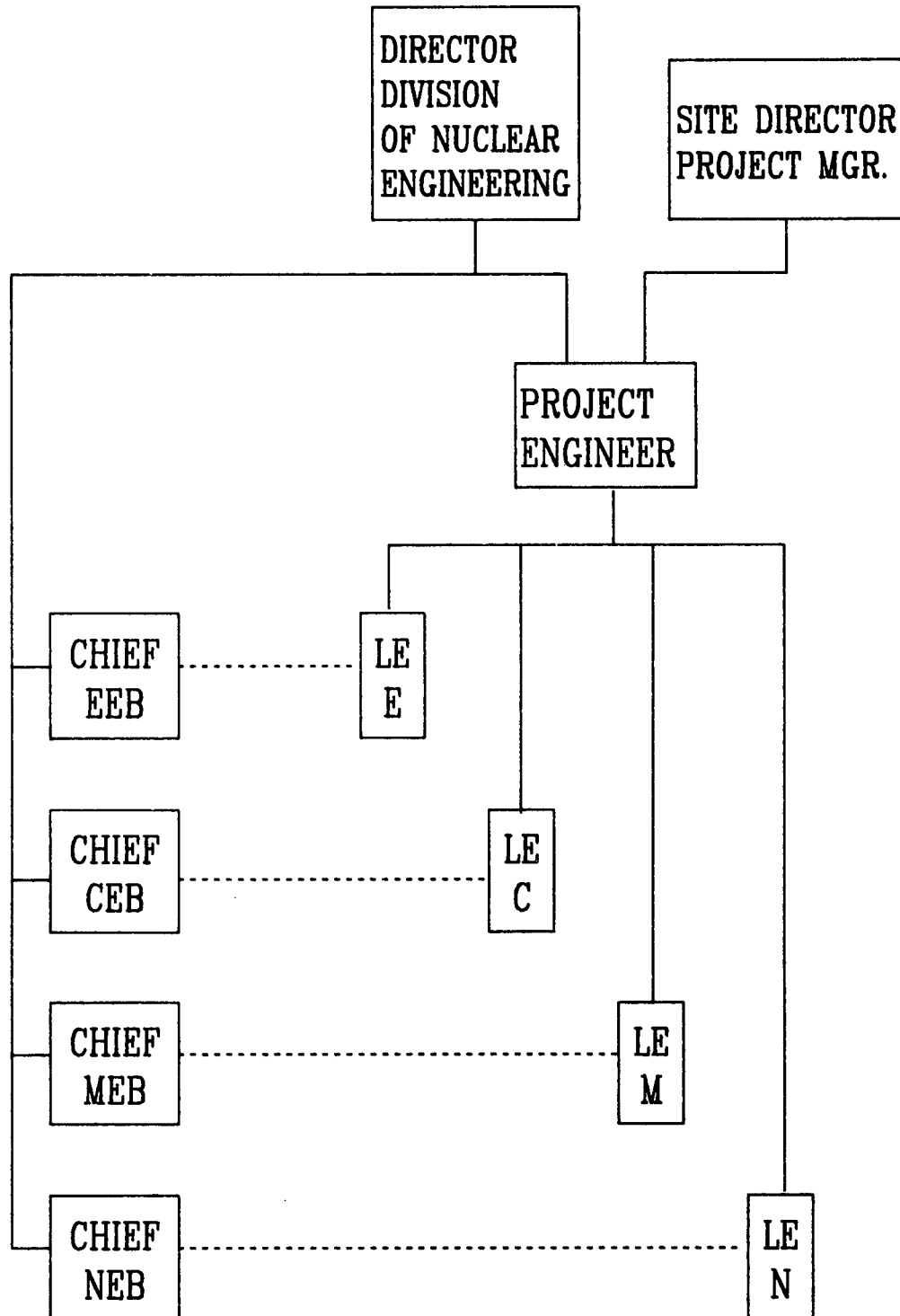
- o ORGANIZATION AND APPROACH
- o CONTRACTS
- o CONTRACTOR TASK PACKAGES
- o CONTROLS
- o TRAINING

ORGANIZATION AND APPROACH--

WATTS BAR ENGINEERING PROJECT:

- o DIVISION OF NUCLEAR ENGINEERING (DNE)
- o MATRIXED PROJECT ORGANIZATION
- o EXECUTE WBN ENGINEERING AND DESIGN
FUNCTIONS
- o RESPONSIBLE FOR WBN ENGINEERING SUPPORT
CONTRACTS

ORGANIZATION AND APPROACH



ORGANIZATION AND APPROACH--

CONTRACT APPROACH:

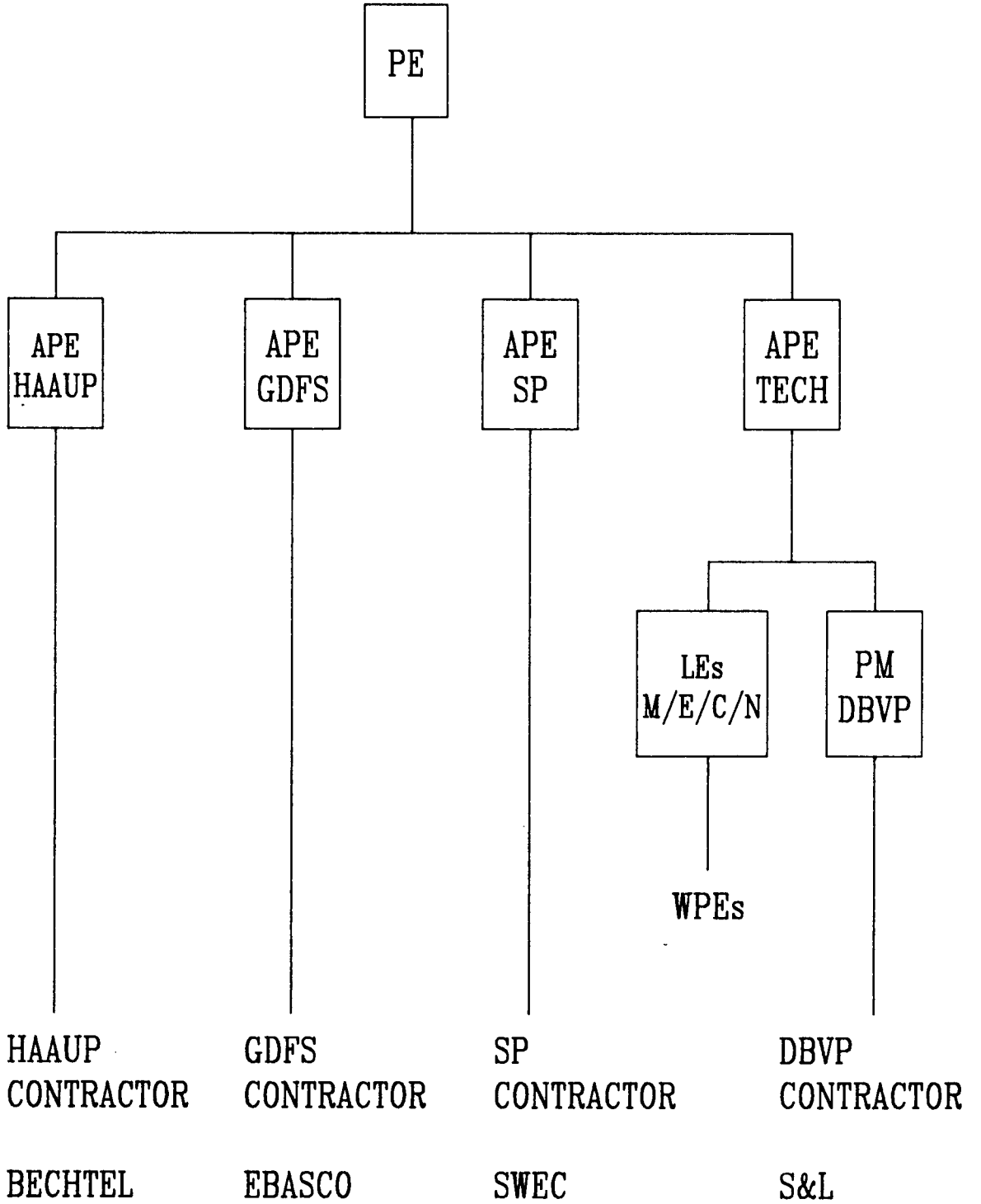
- o CONTRACTOR MANAGED TASKS
 - = TVA QA PROGRAM
 - = TVA RETAINS OVERALL RESPONSIBILITY AND CONTROL
 - = CONTRACTOR ACCOUNTABLE FOR WORK
 - = EFFECTIVE USE OF CONTRACTOR MANAGEMENT AND TECHNICAL APPROACHES
 - = OPPORTUNITY FOR TECHNOLOGY TRANSFER TO TVA



ORGANIZATION AND APPROACH--
CONTRACT WORK SCOPES:

- o GENERAL DESIGN AND FIELD SUPPORT (GDFS)
= EBASCO
- o HANGER AND ANALYSIS UPDATE PROGRAM (HAAUP)
= BECHTEL
- o SPECIAL PROJECTS (SP)
= SWEC
- o DESIGN BASELINE AND VERIFICATION PROGRAM (DBVP)
= S&L

ORGANIZATION AND APPROACH--



ORGANIZATION AND APPROACH--

PROJECT ENGINEER (PE):

- o RESPONSIBLE FOR WBN ENGINEERING AND DESIGN
 - = TVA
 - = CONTRACTORS

- o REPORTS FUNCTIONALLY TO SITE DIRECTOR FOR UNIT 1 AND TO PROJECT MANAGER FOR UNIT 2

- o REPORTS TECHNICALLY TO DIRECTOR, DIVISION OF NUCLEAR ENGINEERING

- o ENSURES ADEQUACY OF WBN ENGINEERING ACTIVITIES AND PRODUCTS



ORGANIZATION AND APPROACH--

ASSISTANT PROJECT ENGINEER - TECHNICAL:

- o SUPERVISES DISCIPLINE LEAD ENGINEERS
 - = CIVIL
 - = ELECTRICAL
 - = MECHANICAL
 - = NUCLEAR

- o MANAGES DEVELOPMENT OF CONTRACTOR TASK PACKAGES

- o RESPONSIBLE FOR DESIGN BASELINE AND VERIFICATION PROGRAM

ORGANIZATION AND APPROACH--

DISCIPLINE LEAD ENGINEERS:

- o ENSURE TECHNICAL ADEQUACY OF DISCIPLINE WORK FOR WATTS BAR
- o REPORT TECHNICALLY TO DNE CHIEF ENGINEERS
- o REVIEW AND APPROVE CONTRACTOR TASK PACKAGES AFFECTING THEIR DISCIPLINE
- o MANAGE WORK PACKAGE ENGINEERS AND DISCIPLINE PERSONNEL IN MONITORING CONTRACTOR WORK
- o REVIEW AND APPROVE SELECTED DISCIPLINE OUTPUT PREPARED BY CONTRACTORS

ORGANIZATION AND APPROACH--
WORK PACKAGE ENGINEER (WPE):

- o WORK PACKAGE RESPONSIBILITY
 - = TECHNICAL
 - = MANAGEMENT

- o USUALLY IN THE DISCIPLINE PRIMARILY INVOLVED

- o PLANS THE PACKAGE
 - = SCOPE
 - = SCHEDULE
 - = BUDGET

- o PACKAGE PERFORMANCE

- o INTERFACE WITH THE FIELD

ORGANIZATION AND APPROACH--

CONTRACT ASSISTANT PROJECT ENGINEERS (APEs):

- o PRINCIPAL CONTRACTOR INTERFACE FOR ALL TASKS

- o MANAGES TVA REVIEWS OF CONTRACTOR WORK TO ENSURE ADEQUACY OF CONTRACTOR PRODUCTS
 - = REGULATORY
 - = TECHNICAL
 - = SAFETY
 - = QUALITY

- o MANAGES CONTRACTOR PERFORMANCE
 - = COST
 - = SCHEDULE

- o PROCESSES CONTRACTOR PRODUCTS



ENGINEERING SUPPORT CONTRACTS:

- o ORGANIZATION AND APPROACH
- o CONTRACTS
- o CONTRACTOR TASK PACKAGES
- o CONTROLS
- o TRAINING

CONTRACTS--KEY CONTRACT REQUIREMENTS

- o TASK ORDER
- o TVA APPROVAL OF KEY MANAGEMENT PERSONNEL
- o CONTRACTOR ACCOUNTABILITY FOR TECHNICAL ADEQUACY AND QUALITY OF WORK PERFORMED
- o TVA RETAINS OVERALL RESPONSIBILITY AND CONTROL



ENGINEERING SUPPORT CONTRACTS:

- o ORGANIZATION AND APPROACH
- o CONTRACTS
- o CONTRACTOR TASK PACKAGES
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- o TRAINING

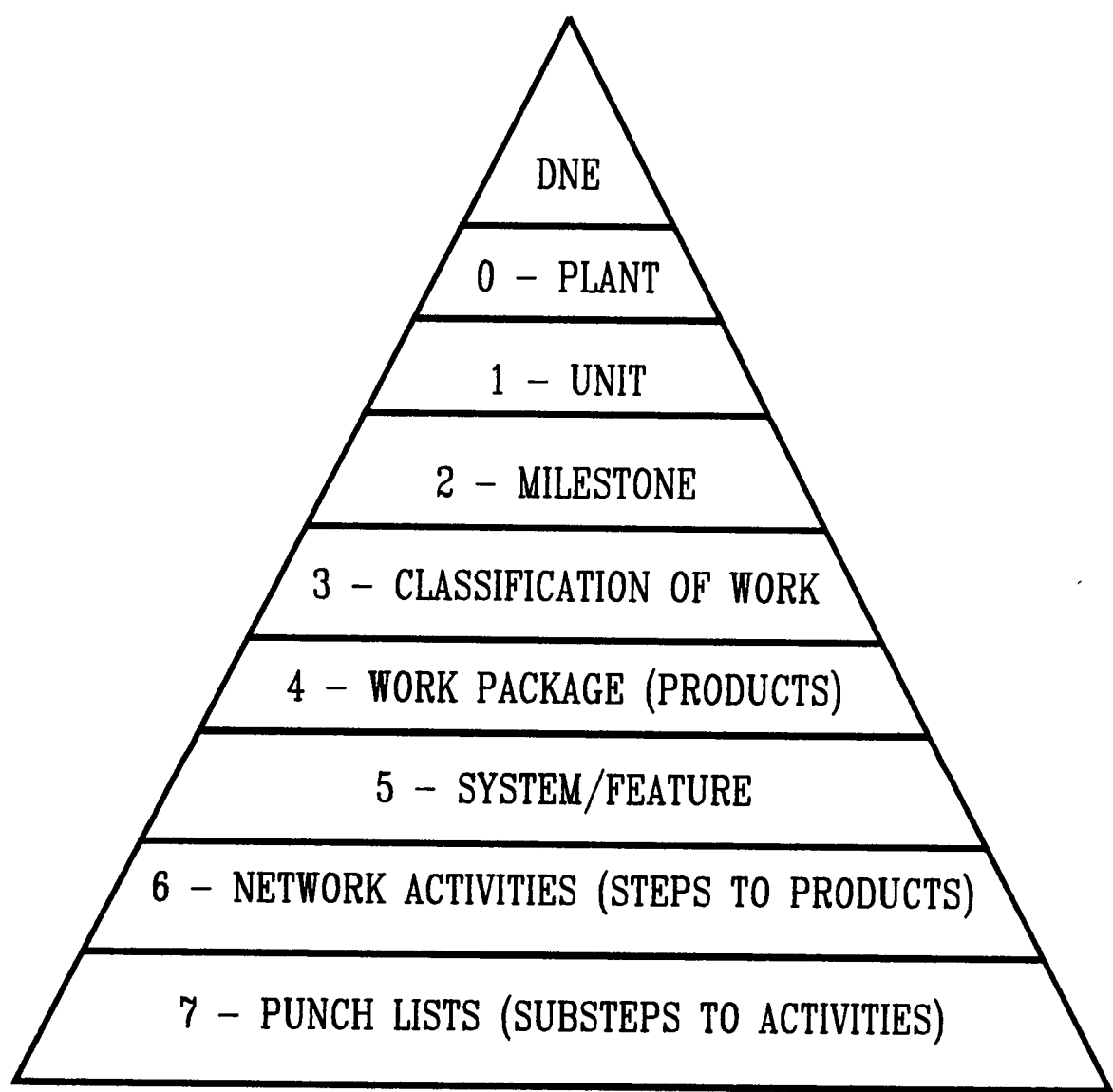
CONTRACTOR TASK PACKAGES--

ENGINEERING WORK MANAGEMENT SYSTEM (EWMS):

- o STRENGTHENED TVA ENGINEERING WORK CONTROLS
- o STANDARD MANAGEMENT APPROACH
- o DIRECTLY AFFECTS CONTROL OF CONTRACTORS
- o KEY ELEMENTS
 - = CONTROLLED AUTHORIZATION OF WORK
 - = WORK BREAKDOWN STRUCTURE
 - = ORGANIZATION BREAKDOWN STRUCTURE
 - = STANDARDIZED USER FRIENDLY OUTPUT



CONTRACTOR TASK PACKAGES--
DNE WORK BREAKDOWN STRUCTURE:



CONTRACTOR TASK PACKAGES--

WORK PACKAGE ATTRIBUTES:

- o DEFINABLE AND MANAGEABLE AND EXECUTABLE
- o INTER-DISCIPLINARY
- o REPRESENTS ENGINEERING DELIVERABLES
- o CAN BE ASSIGNED RESPONSIBILITY
- o BASIS FOR PLANNING, BUDGETING, SCOPE DEFINITION

CONTRACTOR TASK PACKAGES---

WORK PACKAGE ENGINEER (WPE):

- o WORK PACKAGE RESPONSIBILITY
 - = TECHNICAL
 - = MANAGEMENT

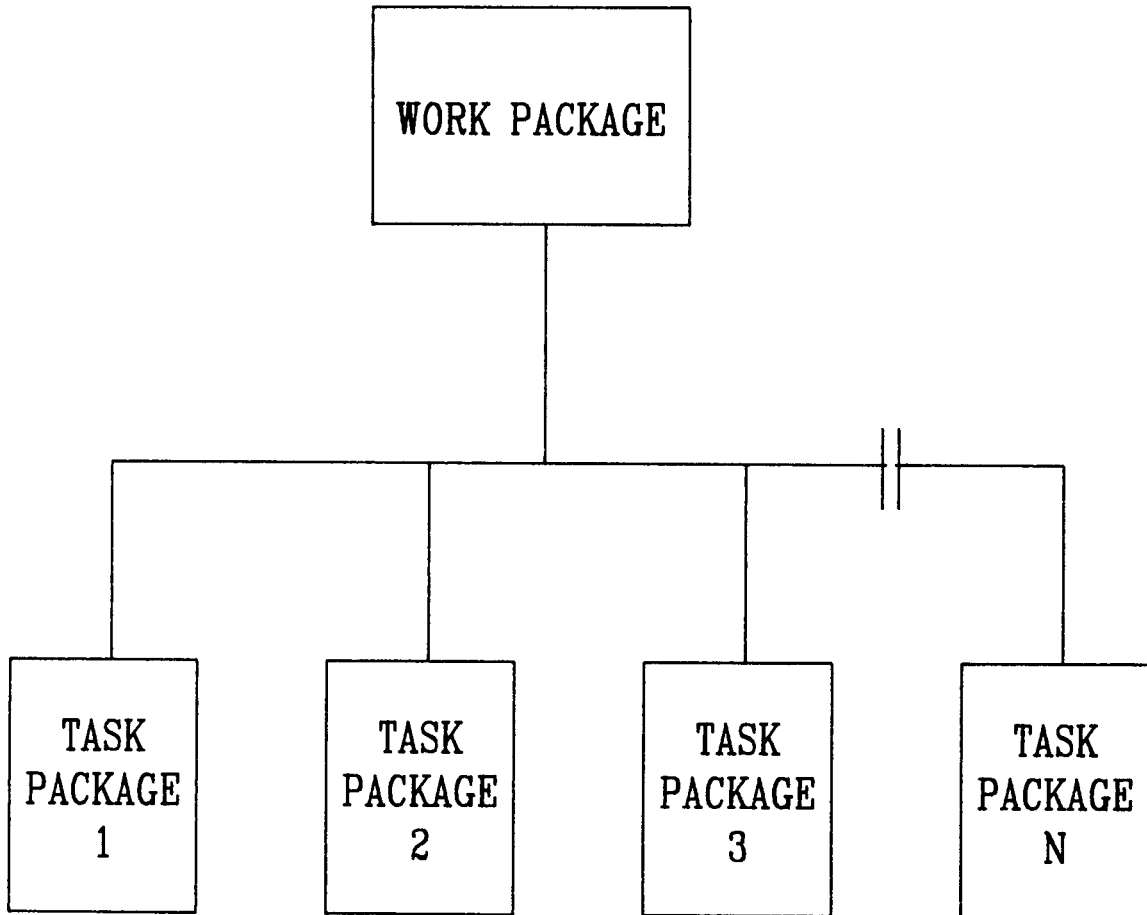
- o USUALLY IN THE DISCIPLINE PRIMARILY INVOLVED

- o PLANS THE PACKAGE
 - = SCOPE
 - = SCHEDULE
 - = BUDGET

- o PACKAGE PERFORMANCE

- o INTERFACE WITH THE FIELD

CONTRACTOR TASK PACKAGES--



CONTRACTOR TASK PACKAGES--

CONTRACTOR TASK PACKAGE CONTENT:

- o TASK OBJECTIVE

- o TASK SPECIFICATION
 - = DISCUSSION/BACKGROUND
 - = DETAILED TASK DESCRIPTION AND FLOWCHART
 - = TECHNICAL REQUIREMENTS
 - = DELIVERABLES
 - = INTERFACE REQUIREMENTS
 - = TVA INPUTS TO CONTRACTOR
 - = TVA REVIEWS AND APPROVAL REQUIREMENTS

- o SCHEDULE REQUIREMENTS

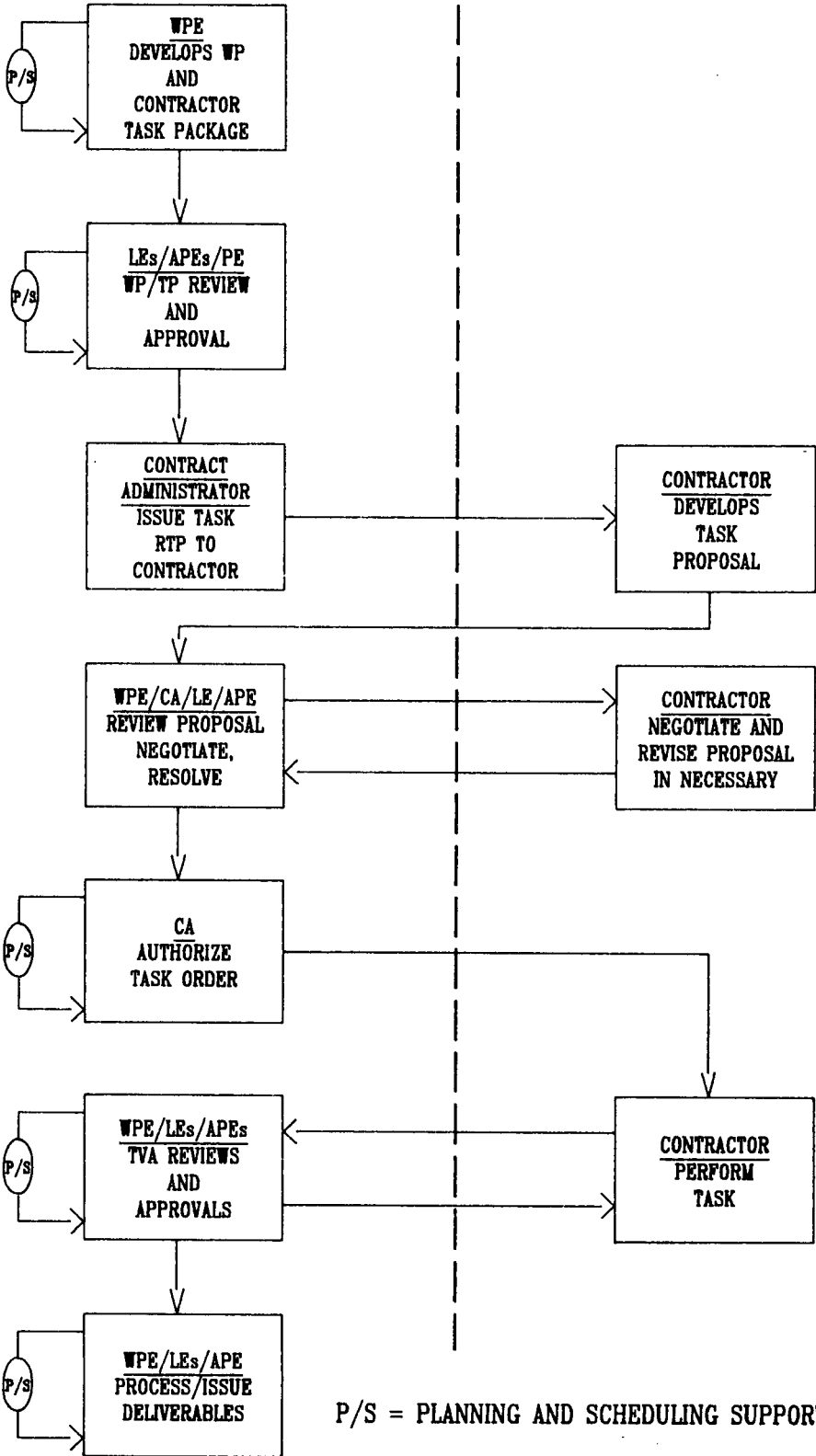
- o SPECIAL AND NORMAL REPORTING REQUIREMENTS

- o PROPOSAL AND COST ESTIMATE REQUIREMENTS

CONTRACTOR TASK PACKAGES--

WORK FLOW TVA

CONTRACTOR



ENGINEERING SUPPORT CONTRACTS:

- o ORGANIZATION AND APPROACH
- o CONTRACTS
- o CONTRACTOR TASK PACKAGES
- o CONTROLS
- o TRAINING

CONTROLS--PROGRAMMATIC:

- o TVA QUALITY ASSURANCE PROGRAM
- o WBEP CONTRACTOR INTERFACE PROCEDURES (CIPs)
- o CIP MATRIX
- o CONTRACTOR QUALITY ASSURANCE PLAN
- o CONTRACTOR PROJECT MANUAL/PROCEDURES
- o WBEP AND ENGINEERING ASSURANCE (EA) ACCEPTANCE
PRIOR TO WORK PERFORMANCE



CONTROLS--

TVA

CONTRACTOR

TVA TOPICAL REPORT

NEP'S

WBEP PROJECT
MANUAL

CONTRACTOR
INTERFACE
PROCEDURES

CONTRACTORS

PROJECT SPECIFIC

QA PLAN/

PROJECT MANUAL

VENDOR'S TOPICAL
REPORT

QA MANUAL

ENGINEERING
PROCEDURES

QUALITY ASSURANCE
PROCEDURES

WBEP AND EA
ACCEPTANCE PRIOR
TO PERFORMANCE OF
WORK



CONTROLS--PRODUCTION:

- o BI-WEEKLY SCHEDULE REVIEW

- o MONTHLY CONTRACTOR PERFORMANCE REPORTS
 - = ENGINEERING WORK MANAGEMENT SYSTEM (EWMS)
 - = CONTRACT APPENDIX H

- o MONTHLY PROJECT MANAGEMENT REVIEW MEETINGS

- o SEMI ANNUAL CORPORATE REVIEW MEETINGS

CONTROLS--

TECHNICAL REVIEW AND APPROVALS:

- o DOCUMENT REVIEW AND APPROVAL MATRIX

- o AS REQUIRED BY WBEP PROCEDURES AND CONTRACTOR INTERFACE PROCEDURES (STANDARD)

- o AS REQUIRED BY TASK PACKAGE (TASK SPECIFIC)

CONTROLS--ENGINEERING ASSURANCE (EA) AUDITS:

- o PLANNED AND SCHEDULED BY EA

- o AUDITS ADDRESS PROGRAMMATIC AND TECHNICAL ADEQUACY/EFFECTIVENESS OF CONTRACTOR PROGRAMS AND PROCEDURES

- o EA LEAD AUDITOR

- o TECHNICAL PARTICIPATION BY WBEP DISCIPLINE PERSONNEL

- o CONTRACTOR QUALITY ASSURANCE PLANS AND PROCEDURES ADDRESS INTERNAL CONTROLS

CONTROLS--

FIELD ACTIVITY SURVEILLANCE BY DNQA:

- o CONTRACTOR RELATED ACTIVITIES TO RECEIVE SAME LEVEL OF SURVEILLANCE AS CURRENTLY APPLIED TO WBEP RELATED ACTIVITIES

- o DIRECT INVOLVEMENT IN FIELD WALKDOWN ACTIVITIES

- o PROBLEM RESOLUTION THRU RESPONSIBLE TVA ORGANIZATION

- o DNE RESPONSIBLE FOR INTERACTION WITH CONTRACTORS ON PROBLEM RESOLUTION



ENGINEERING SUPPORT CONTRACTS:

- o ORGANIZATION AND APPROACH
- o CONTRACTS
- o CONTRACTOR TASK PACKAGES
- o CONTROLS
- o TRAINING

TRAINING--TVA PERSONNEL:

- o ENGINEERING WORK MANAGEMENT SYSTEM
- o MANAGEMENT OF TASK ORDER CONTRACTS
- o TASK PACKAGE DEVELOPMENT
- o WBEP PROCEDURES

TRAINING--CONTRACTOR PERSONNEL:

- o GENERAL EMPLOYEE TRAINING (GET) FOR SITE PERSONNEL

- o SITE ORIENTATION

- o OVERVIEW TRAINING
 - = ONP TVA QA PROGRAM
 - = DNE NUCLEAR ENGINEERING PROCEDURES
 - = WBEP PROJECT MANUAL

TRAINING--**CONTRACTOR PERSONNEL:**

- o SELECTED ONP/WBN PROCEDURES (e.g. CAQR)
- o AS REQUESTED/NEEDED BY CONTRACTOR
- o INCLUDE CONTRACTOR TRAINERS IN WBEP PROCEDURES TRAINING
- o CONTRACTORS RESPONSIBLE FOR TRAINING THEIR PEOPLE IN THEIR TVA APPROVED PROCEDURES

SUMMARY--

- o TVA NEEDED ENGINEERING SUPPORT
- o WBN CONTRACT APPROACH SELECTED
- o TVA RETAINS OVERALL RESPONSIBILITY
- o CONTROL PLAN ESTABLISHED AND BEING IMPLEMENTED
- o PLAN INCLUDES EFFECTIVE USE OF CONTRACTOR MANAGEMENT AND TECHNICAL APPROACHES
- o TASK PACKAGING IN-PROCESS

