

FEB 17 1994

*Official copy*

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

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

Gentlemen:

SUBJECT: MEETING SUMMARY - WATTS BAR UNITS 1 AND 2

This letter refers to the meeting conducted at the Watts Bar site on February 10, 1994. The meeting was at our request to discuss the status of ongoing and planned activities at Watts Bar. Enclosure 1 is a list of the individuals who attended the meeting and Enclosure 2 is the handout material supplied by TVA. It is our opinion that this meeting was beneficial and provided a better understanding of TVA's activities.

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

Sincerely,

(Original signed by E. Merschoff)

Ellis W. Merschoff, Director  
Division of Reactor Projects

Enclosures:

1. List of Attendees
2. Presentation Summary

cc w/encls: (See page 2)

9402280180 940217  
PDR ADOCK 05000390  
P PDR

IA3

TEU

FEB 17 1994

Tennessee Valley Authority

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cc w/encls:

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

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

Mr. Johnny H. Hayes, Director  
Tennessee Valley Authority  
ET 12A  
400 West Summit Hill Drive  
Knoxville, TN 37402-2801

Mr. D. E. Nunn, Vice President  
Tennessee Valley Authority  
3B Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

Mr. W. J. Museler, Vice President  
Watts Bar Nuclear Plant  
Tennessee Valley Authority  
Route 2, P. O. Box 800  
Spring City, TN 37381

Mr. B. S. Schofield, Manager  
Nuclear Licensing and  
Regulatory Affairs  
4G Blue Ridge  
1101 Market Street  
Chattanooga, TN 37402-2801

Mr. G. L. Pannell  
Site Licensing Manager  
Watts Bar Nuclear Plant  
Tennessee Valley Authority  
Route 2, P. O. Box 800  
Spring City, TN 37381

TVA Representative  
Tennessee Valley Authority  
11921 Rockville Pike  
Suite 402  
Rockville, MD 20852

General Counsel  
Tennessee Valley Authority  
ET 11H  
400 West Summit Hill Drive  
Knoxville, TN 37902

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

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

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

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

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

bcc w/encls: (See page 3)

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Tennessee Valley Authority

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bcc w/encls:

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

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

DRP/RII  
*AR*  
ARuff:vyg  
02/16/94

DRP/RII  
*AR JW*  
PFredrickson  
02/16/94

ENCLOSURE 1

LIST OF ATTENDEES

NAME

TITLE

Participants:

NRC

S. Ebnetter	Regional Administrator, Region II (RII)
E. Merschoff	Director, Division of Reactor Projects (DRP, RII)
J. Johnson	Deputy Director, DRP, RII
B. Mallet	Deputy Director, Division of Radiation Safety and Safeguards, RII
C. Julian	Chief, Engineering Branch (EB), Division of Reactor Safety, (DRS), RII
P. Fredrickson	Chief, Section 4B, Division of Reactor Projects (DRP), RII
P. Tam	Senior Project Manager, Office of Nuclear Reactor Regulation
G. Walton	Senior Resident Inspector (Constr.), DRP, RII
K. VanDoorn	Senior Resident Inspector (Opns.), DRP, RII
J. Lara	Resident Inspector, DRP, RII
A. Ruff	Project Engineer, DRP, RII

TVA

O. Kingsley	President, Generating Group
I. Zeringue	Senior Vice President, Nuclear Operations
D. Nunn	Vice President, Nuclear Projects
J. Scalice	Vice President, Nuclear Operations
M. Medford	Vice President, Technical Supports
W. Museler	Site Vice President
N. Kazanas	Vice President, Completion Assurance
D. Moody	Plant Manager
R. Daly	Startup and Test
G. Pannell	Licensing Manager
R. Purcell	Plant Program Manager
W. Elliott	Engineering and Modifications
J. Christensen	WB Const. QA
R. Baron	General Manager, Nuclear Assurance
D. Kehoe	Nuclear Assurance
T. Porter	WBN Licensing
J. Wallace	WBN HR Manager
T. McGrath	TVA

(Continue of next page)

Enclosure 1

2

(Continued)

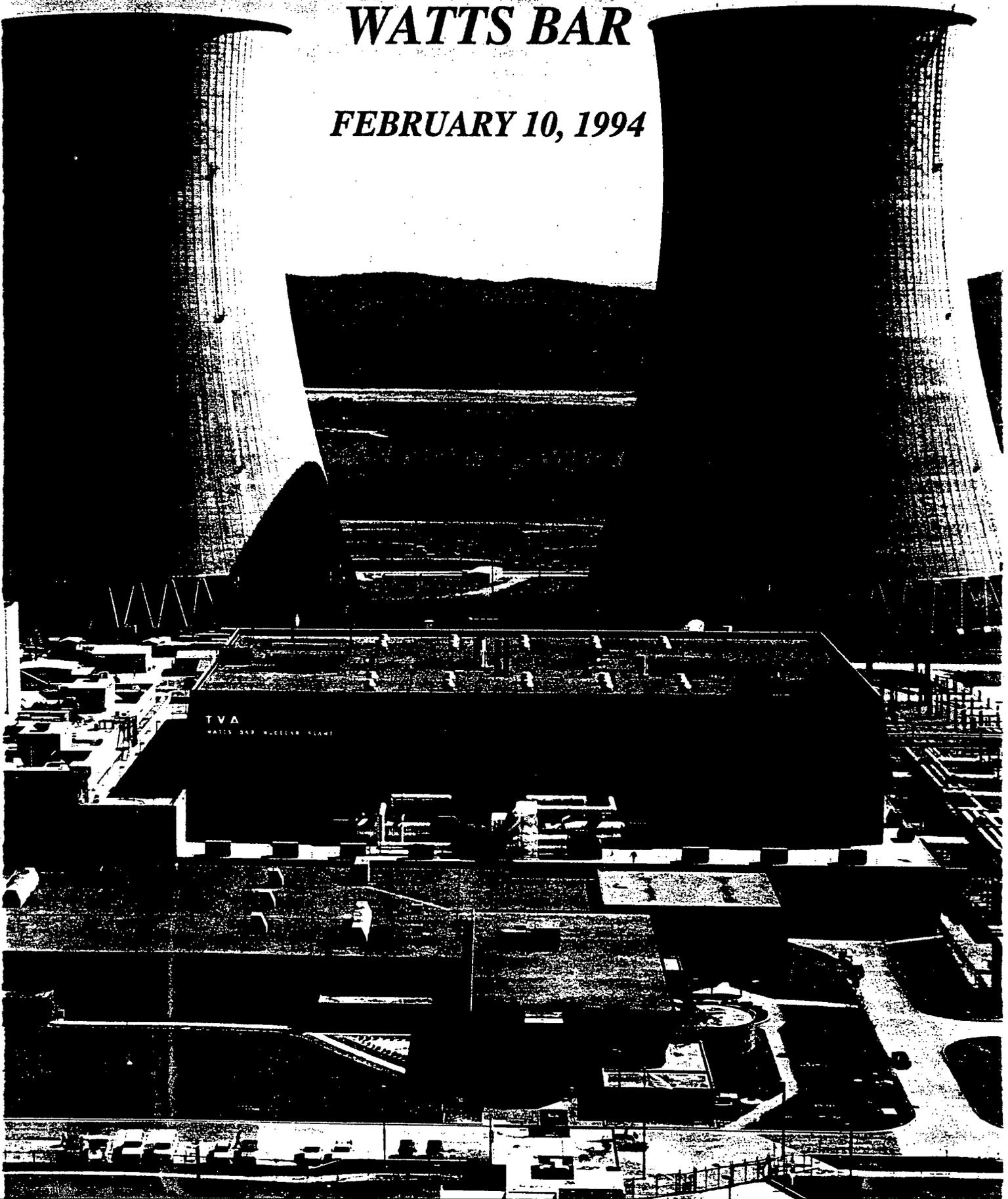
B. Horin  
K. Whittenburg  
W. Skiba  
S. Spencer  
G. Capodanno  
R. Birchell

TVA  
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TVA

# ***NRC/TVA MANAGEMENT MEETING***

## ***WATTS BAR***

***FEBRUARY 10, 1994***



PRESENTATION TO  
THE NUCLEAR REGULATORY COMMISSION  
REGION II

OPERATIONAL READINESS  
AT THE WATTS BAR NUCLEAR PLANT

TENNESSEE VALLEY AUTHORITY

FEBRUARY 10, 1994

## AGENDA

- |      |   |                                      |
|------|---|--------------------------------------|
| I.   | INTRODUCTION  | D. NUNN                              |
| II.  | PROJECT STATUS AND SCHEDULE   | W. MUSELER                           |
|      | <ul style="list-style-type: none"><li>• SYSTEM MILESTONES</li><li>• HOT FUNCTIONAL TESTING</li><li>• NRC SUBMITTALS</li><li>• SUMMARY</li></ul> |                                      |
| III. | OPERATIONAL READINESS   | J. SCALICE<br>R. PURCELL<br>D. MOODY |
|      | <ul style="list-style-type: none"><li>• OVERVIEW</li><li>• PROGRAM DESCRIPTION</li><li>• STATUS</li><li>• SUMMARY</li></ul>                     |                                      |
| IV.  | NA ASSESSMENT OF OPERATIONAL READINESS  | R. BARON                             |
| V.   | CONCLUSION  | W. MUSELER                           |

I. INTRODUCTION

D. NUNN

II. PROJECT STATUS AND SCHEDULE

W. MUSELER

# SYSTEM RELEASES SCHEDULE SUMMARY

- Based on Site Integrated Schedule Revision 4a (01/10/94) -

* Milestone	System Releases Scheduled W/E 02/06/94	Total System Releases Actual W/E 02/06/94	Delta
Engineering (146 Total)	146	146	--
Modifications (215 Total)	125	126	+1
Maintenance (180 Total)	112	111	-1
SPAE I (114 Total)	52	51	-1
Start Preop (114 Total)	39	36	-3
SUT Complete (138 Total)	49	49	--
SPAE II (138 Total)	50	52	+2
Plant Acceptance (137 Total)	47	47	--

\* Milestone totals vary due to subscoping.

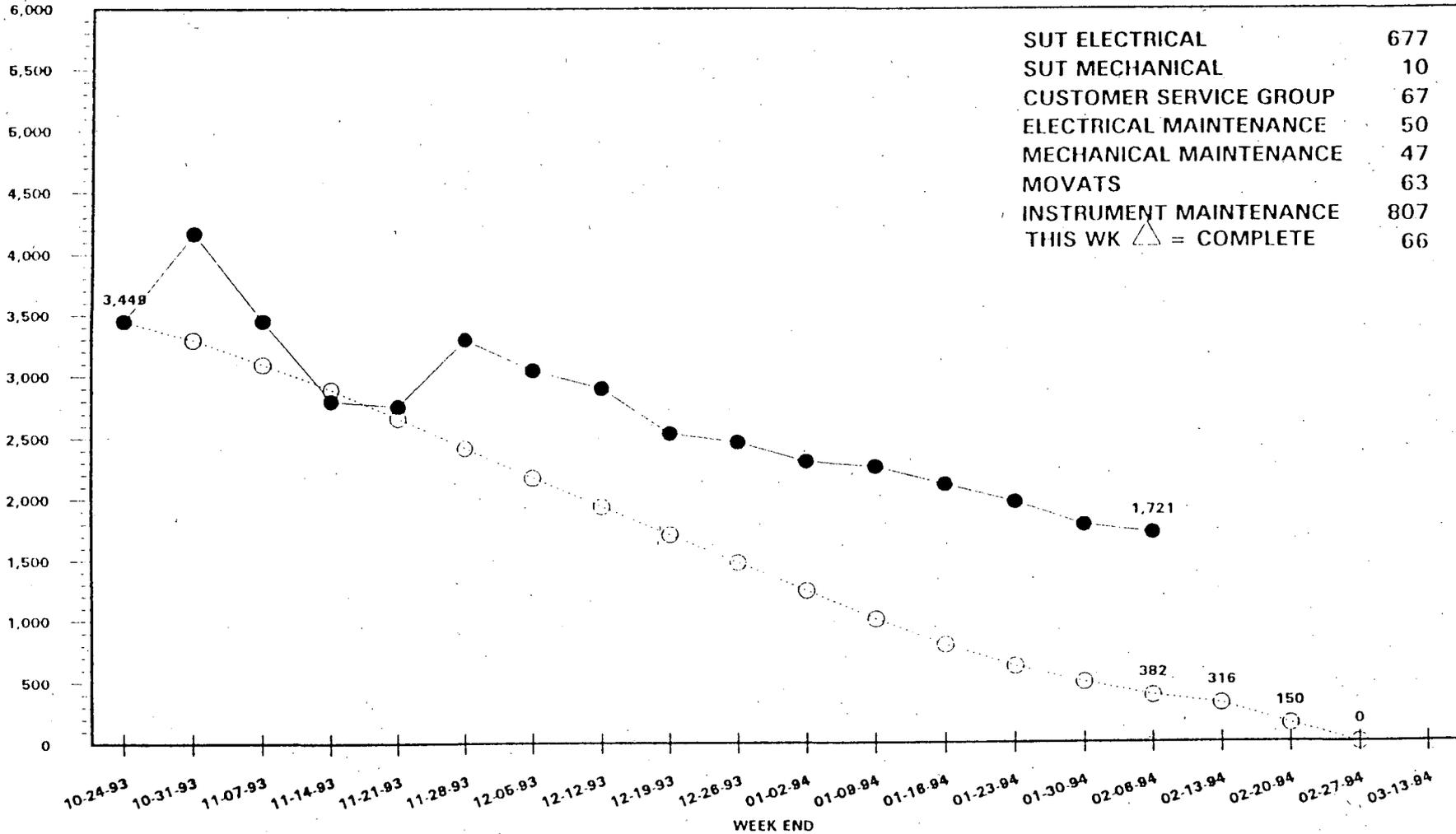
# STARTUP PROCEDURES DEVELOPMENT SUMMARY STATUS

		<u>PTI</u>	<u>ATI</u>
TOTALS		149	34
PERFORMED/VAULTED		12	19
STARTUP MANAGER APPROVED		19	5
DRAFTED/IN RVW		18	5
NOT DRAFT COMPLETE		100	5
PRE-HFT:	REQUIRED	6	0
	APPROVED	4	0
	IN RVW	2	0
HFT:	REQUIRED	25	1
	APPROVED	3	0
	IN RVW	22	1
	TO BE DRAFTED	0	0

# WBN STARTUP & TEST HFT PREREQUISITES COMPONENT TESTING SUMMARY

2/08/94

# OF TESTS

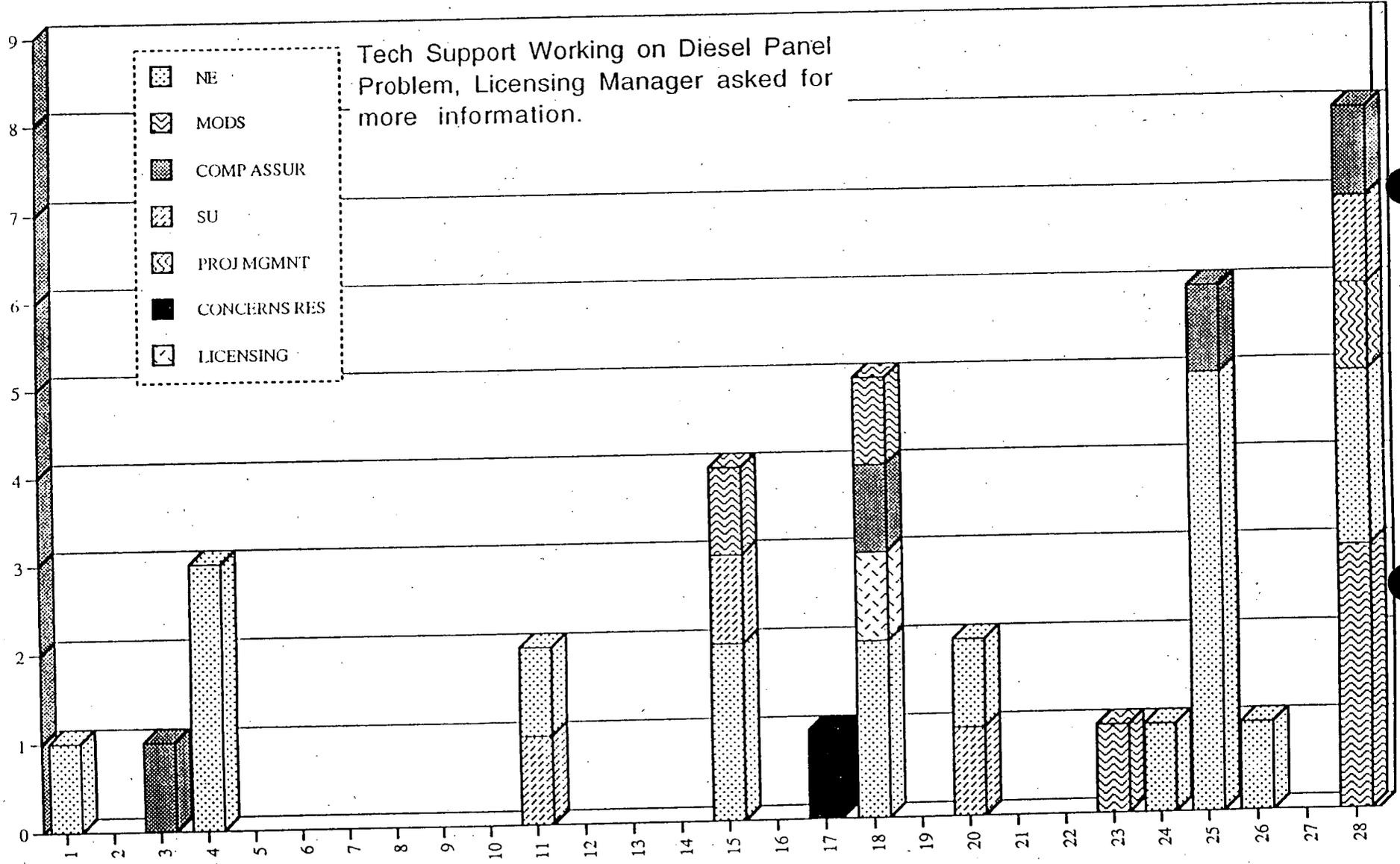


SUT ELECTRICAL	677
SUT MECHANICAL	10
CUSTOMER SERVICE GROUP	67
ELECTRICAL MAINTENANCE	50
MECHANICAL MAINTENANCE	47
MOVATS	63
INSTRUMENT MAINTENANCE	807
THIS WK $\triangle$ = COMPLETE	66

● ACTUAL
  ○ PLANNED

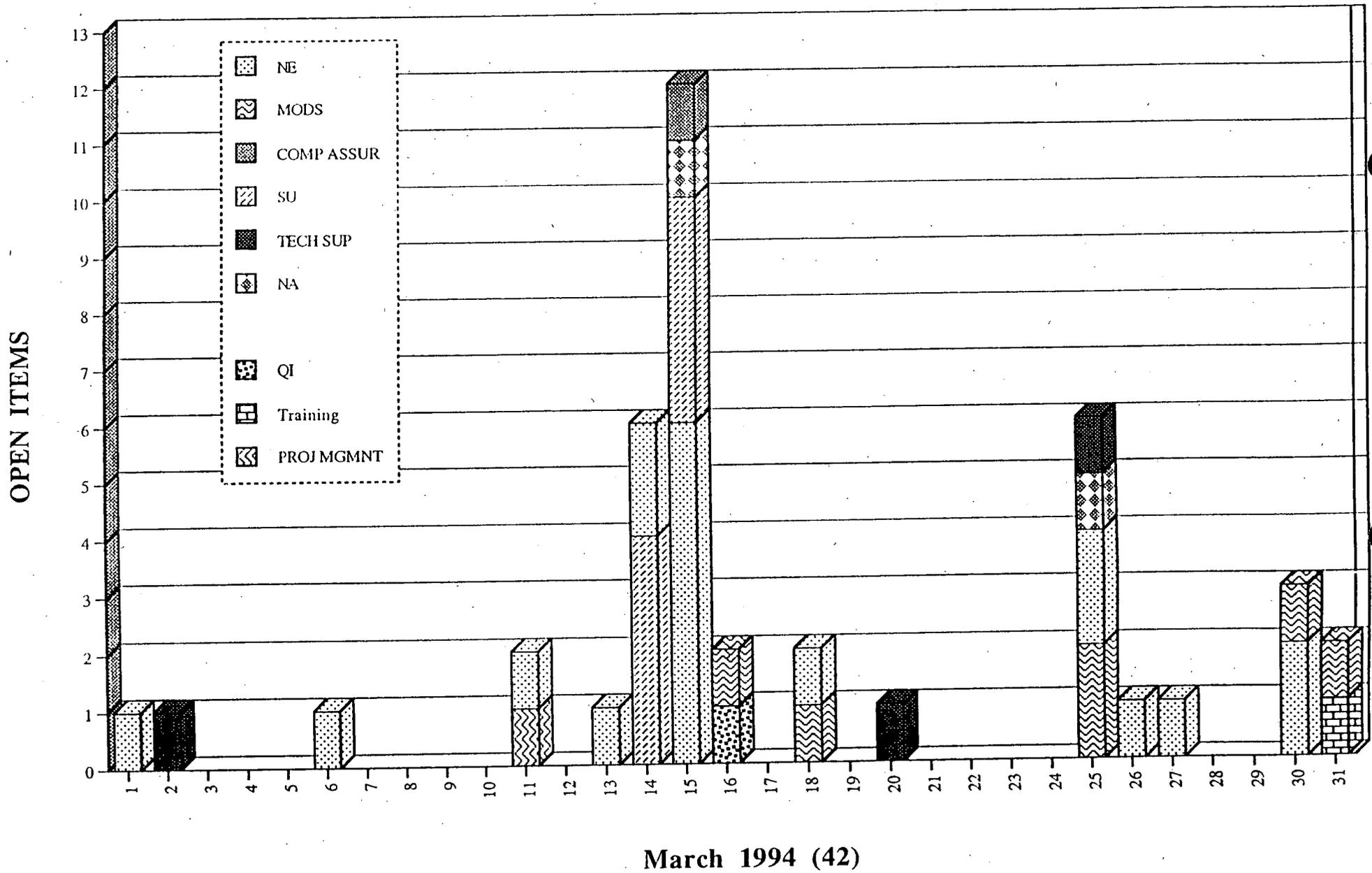
# NRC OPEN ITEMS BY DAY

OPEN ITEMS

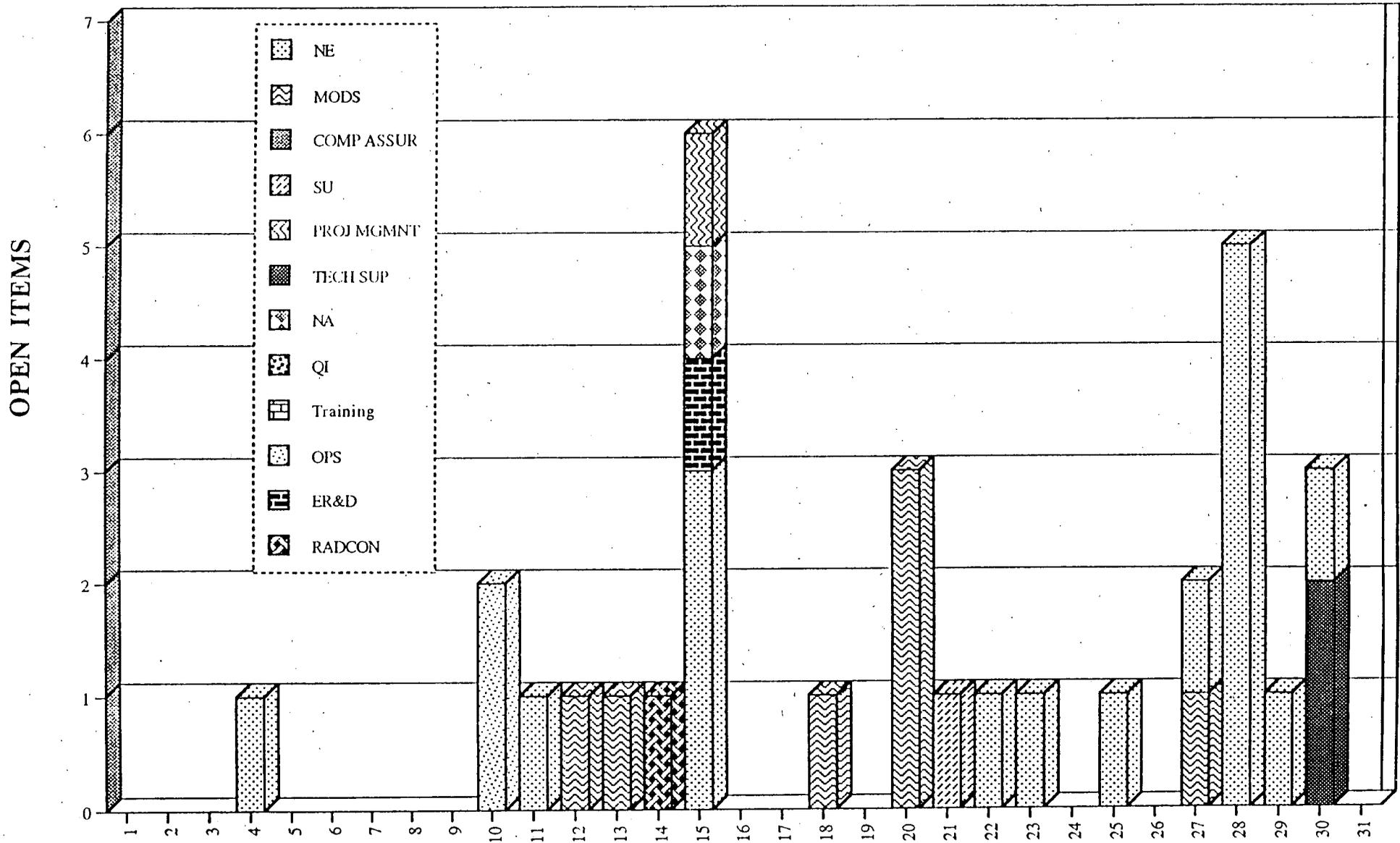


February 1994 (37)

# NRC OPEN ITEMS BY DAY



# NRC OPEN ITEMS BY DAY



April 1994 (32)

# WATTS BAR NUCLEAR PLANT CAP/SP COMPLETION STATUS

CAP/SP	75%	100%
HEAT CODE TRACEABILITY	N/A	X ++
CONCRETE QUALITY PROGRAM	N/A	X ++
SEISMIC ANALYSIS	N/A	X ++
USE-AS-IS CAQS	N/A	X ++
SOIL LIQUEFACTION	N/A	X ++
WELDING ISSUES	N/A	X+
MASTER FUSE LIST	X ++	X ++
MICROBIOLOGICALLY INDUCED CORROSION	X ++	X++
CONTAINMENT COOLING	X ++	X
Q-LIST	X++	X
DESIGN BASELINE AND VERIFICATION PROGRAM	X++	04/94
QA RECORDS	X+	04/94
VENDOR INFORMATION	X ++	07/94
REPLACEMENT ITEMS	X	07/94 *
DETAILED CONTROL ROOM DESIGN REVIEW	N/A	08/94 *
HANGER AND ANALYSIS UPDATE PROGRAM	X++	08/94
FIRE PROTECTION	X	08/94 *
MODERATE ENERGY LINE BREAK FLOODING	X++	08/94
EQUIPMENT SEISMIC	X++	08/94
ELECTRICAL ISSUES	X	08/94
HVAC DUCT AND SUPPORTS	X+	08/94
INSTRUMENT LINES	X	08/94
CABLE ISSUES	X	08/94
ENVIRONMENTAL QUALIFICATION	02/94	08/94 *
MECHANICAL EQUIPMENT QUALIFICATION	02/94	08/94 *
ELECTRICAL CONDUIT AND SUPPORTS	03/94	08/94
CABLE TRAY AND SUPPORTS	04/94	08/94
RADIATION MONITORING	03/94	09/94

X TVA COMPLETE  
 X+ NRC INSPECTION(S) ONGOING  
 X++ NRC INSPECTION COMPLETE  
 INTERIM CLOSURE REVIEW

REVISED - 02/09/94

III. OPERATIONAL READINESS

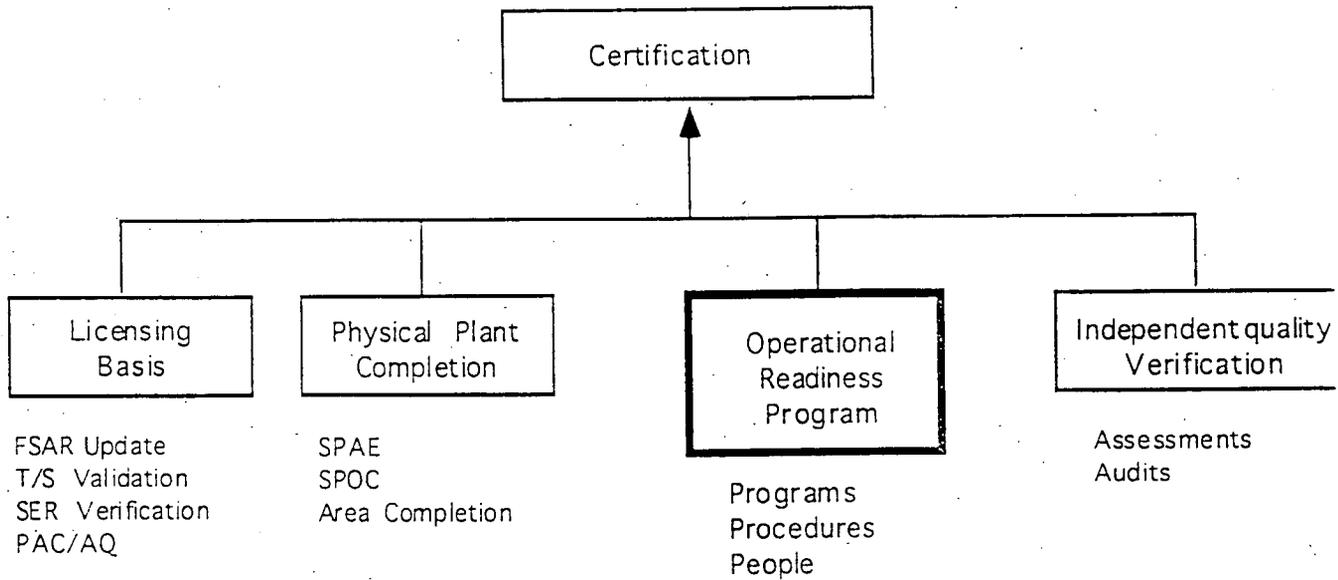
J. SCALICE  
D. MOODY  
R. PURCELL

# WBN OPERATIONAL READINESS OVERVIEW

DEPARTMENT READINESS EFFORTS BEGAN IN 1990

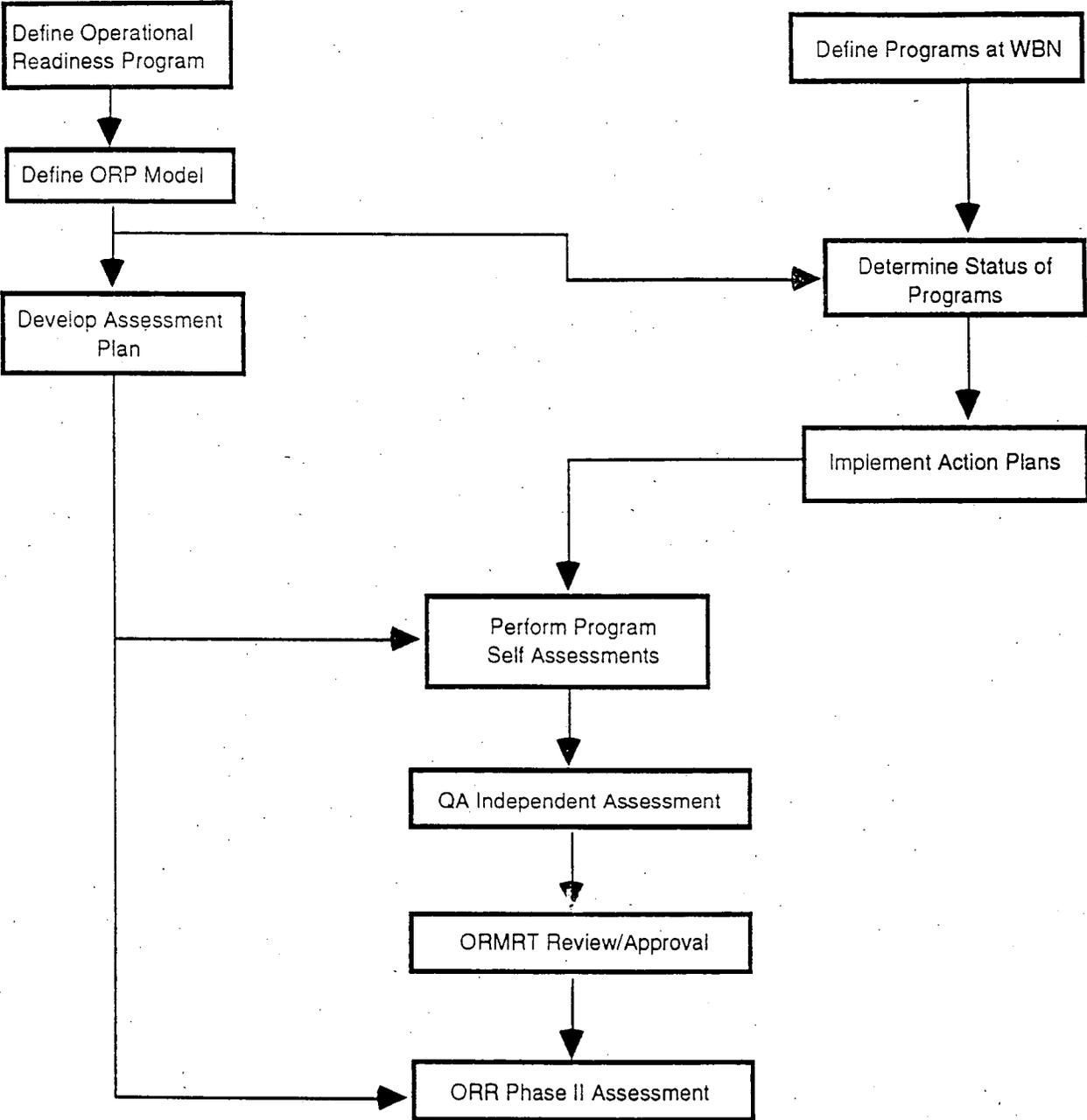
- NUMEROUS ASSESSMENTS:
  - 3 OPERATIONAL READINESS REVIEWS
  - INPO ASSIST VISITS
  - CORP & QA ASSESSMENTS
  
- PROGRAMS AND PROCEDURES NEEDED FOR READINESS IDENTIFIED RESULTS ARE:
  - INITIAL PROGRAMS & PROCEDURES IN PLACE
  - ACTIONS TO ADDRESS WEAKNESSES IDENTIFIED
  
- NEXT STEP
  - INTEGRATE ACTIVITIES COMPLETED AT DEPARTMENT LEVEL INTO SITE-WIDE PROGRAM

# WBN OPERATIONAL READINESS OVERVIEW



NOTE: THE CERTIFICATION PROCESS IMPLEMENTS NUCLEAR PERFORMANCE PLAN COMMITMENTS.

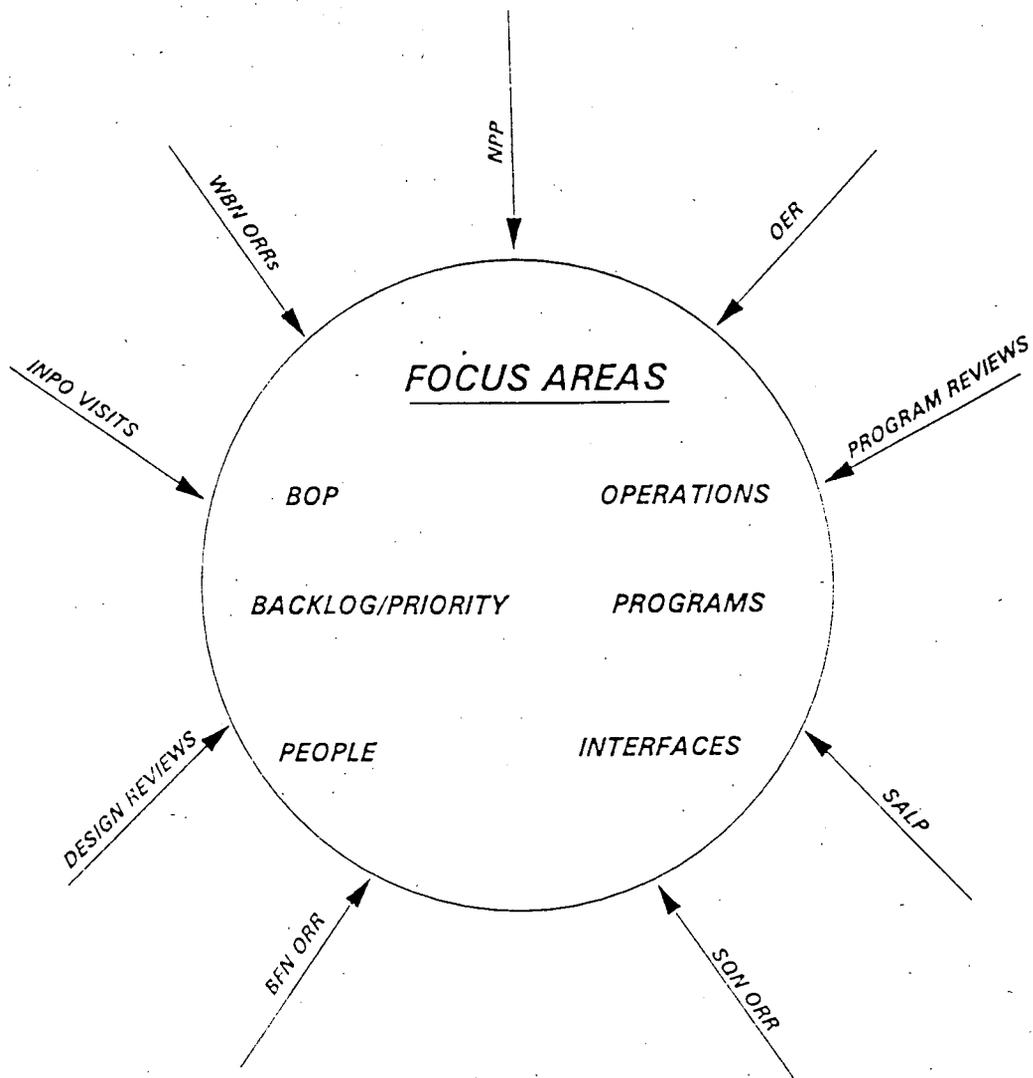
# OPERATIONAL READINESS PROCESS



## WBN OPERATIONAL READINESS KEY PROGRAM ELEMENTS

1. TRANSITION FROM DEPARTMENTAL TO SITE-WIDE INTEGRATED APPROACH TO ACHIEVE READINESS
2. BASED ON SYSTEMATIC REVIEW OF INPO STANDARDS, NRC CRITERIA, WBN COMMITMENTS, LESSONS LEARNED
3. ESTABLISHES READINESS CRITERIA FOR PEOPLE, PROGRAMS, PROCEDURES
4. INCLUDES LINE MANAGEMENT SELF CHECKS & INDEPENDENT REVIEWS
5. PLANNED & SCHEDULED TO ASSURE IMPLEMENTATION WHEN NEEDED TO ACHIEVE SAFE AND RELIABLE PLANT START UP AND OPERATIONS
6. INCLUDES ON-GOING SELF ASSESSMENTS TO ASSURE HIGH LEVEL OF OPERATIONAL PERFORMANCE

## LESSONS LEARNED (PRINCIPAL INPUTS)



- REVIEWED ~ 30 TVA/NRC/INPO ASSESSMENTS OF WBN, SQN, BFN TO IDENTIFY LESSONS LEARNED ~ 200 ITEMS TOTAL
- IDENTIFIED ROOT CAUSES & FOCUS AREAS
- REVIEWED ~ 1400 SQN HARDWARE & PROCESS ISSUES
- ESTABLISHED "BIG PICTURE" PROCESS TO ASSESS APPLICABILITY & RESOLVE PEOPLE, PROGRAM & HARDWARE ISSUES

# OPERATIONAL READINESS PROGRAM ELEMENTS

- **PROGRAMS**

- ARE NEEDED PROGRAMS IN PLACE?
- WILL PROGRAMS DO WHAT THEY NEED TO DO?
- IS OWNERSHIP CLEARLY DEFINED AND UNDERSTOOD?
- ARE INTERFACES CLEARLY DEFINED?
- ARE PERFORMANCE INDICATORS IN PLACE?

- **PROCEDURES**

- ARE THE PROCEDURES WE NEED IN PLACE?
- WILL PROCEDURES DO WHAT THEY NEED TO DO?
- IS OWNERSHIP CLEARLY DEFINED?
- ARE INTERFACES CLEARLY DEFINED?

- **PEOPLE (INCLUDING TRAINING AND QUALIFICATIONS)**

- IS THE ORGANIZATION CLEARLY DEFINED?
- ARE THE QUALIFICATIONS FOR THE KEY POSITIONS DEFINED?
- ARE THE PEOPLE QUALIFIED FOR KEY POSITIONS?
- ARE PERFORMANCE EXPECTATIONS CLEARLY DEFINED AND COMMUNICATED?
- ARE COMMUNICATION AND TEAMWORK ENCOURAGED AND FOSTERED?

# PROGRAM DESCRIPTION

## PROGRAMS

<u>QUESTION</u>	<u>ACTIONS</u>	<u>STATUS</u>
1. ARE NEEDED PROGRAMS IN PLACE?	1. IDENTIFY REQUIREMENTS USING: - NRC COMMITMENTS - INPO GUIDELINES - INDUSTRY STANDARDS - OTHER REGULATORY REQUIREMENTS	COMPLETE
	2. COMPARE TO EXISTING PROGRAMS	COMPLETE
	3. DEVELOP/UPGRADE PROGRAMS AS REQUIRED	IN-PROCESS
2. WILL PROGRAMS DO WHAT THEY NEED TO DO?	1. IDENTIFY REQUIREMENTS	COMPLETE
	2. REVIEW PREVIOUS ASSESSMENTS	COMPLETE
	3. DEVELOP ACTION PLANS BASED ON RESULTS OF PRIOR WBN ASSESSMENTS	COMPLETE
	4. INCORPORATE LESSONS LEARNED FROM OTHER TVA PLANTS	IN-PROCESS
	5. SELF-ASSESSMENT, INDEPENDENT REVIEW AND MANAGEMENT REVIEW	IN PREPARATION
	6. PERFORM ORR PHASE II	SCHEDULED

# PROGRAM DESCRIPTION

## PROGRAMS (cont'd)

<u>QUESTION</u>	<u>ACTIONS</u>	<u>STATUS</u>
3. IS OWNERSHIP CLEARLY DEFINED AND UNDERSTOOD?	1. DEFINE OWNERSHIP RESPONSIBILITIES	COMPLETE
	2. COMMUNICATE RESPONSIBILITIES - MANAGEMENT - EXPECTATIONS - PERFORMANCE STANDARDS	IN-PROCESS
	3. REINFORCEMENT BY LINE MANAGEMENT	IN-PROCESS
	4. VERIFY EFFECTIVENESS	SCHEDULED
4. ARE INTERFACES CLEARLY DEFINED?	1. IDENTIFY INTERFACES IN IMPLEMENTING PROCEDURES	COMPLETE
	2. VALIDATE INTERFACES	IN-PROCESS
	3. UPDATE PROGRAM DESCRIPTIONS	COMPLETE
	4. VERIFY EFFECTIVENESS	SCHEDULED

# PROGRAM DESCRIPTION

## PROGRAMS (cont'd)

<u>QUESTION</u>	<u>ACTIONS</u>	<u>STATUS</u>
5. ARE PERFORMANCE INDICATORS IN PLACE?	1. IDENTIFY PARAMETERS TO MONITOR	COMPLETE
	2. IDENTIFY INDICATORS CURRENTLY IN PLACE	COMPLETE
	3. DETERMINE NEED FOR ADDITIONAL INDICATORS	IN-PROCESS

# PROGRAM DESCRIPTION

## PROCEDURES

<u>QUESTION</u>	<u>ACTIONS</u>	<u>STATUS</u>
1. ARE THE PROCEDURES WE NEED IN PLACE?	1. IDENTIFY REQUIRED PROCEDURES	COMPLETE
	2. DEVELOP/UPGRADE PROCEDURES	IN-PROCESS
2. WILL PROCEDURES DO WHAT THEY NEED TO DO?	1. VALIDATE OPERATIONS AND SURVEILLANCE PROCEDURES	IN-PROCESS
	2. MULTI-DISCIPLINE REVIEW DURING PROCEDURE APPROVAL	ONGOING
3. IS OWNERSHIP CLEARLY DEFINED?	1. IMPLEMENT UPGRADE PER WRITERS GUIDE	IN-PROCESS
	2. COMMUNICATE EXPECTATIONS	ONGOING
	3. ASSESS EFFECTIVENESS	SCHEDULED
4. ARE INTERFACES CLEARLY DEFINED?	1. FLOW CHARTS FOR COMPLEX PROCEDURES	IN-PROCESS
	2. MULTI-DISCIPLINE REVIEW DURING PROCEDURE APPROVAL	ONGOING
	3. ASSESS EFFECTIVENESS DURING PROCEDURE PERFORMANCE	SCHEDULED

# PROGRAM DESCRIPTION

## PEOPLE

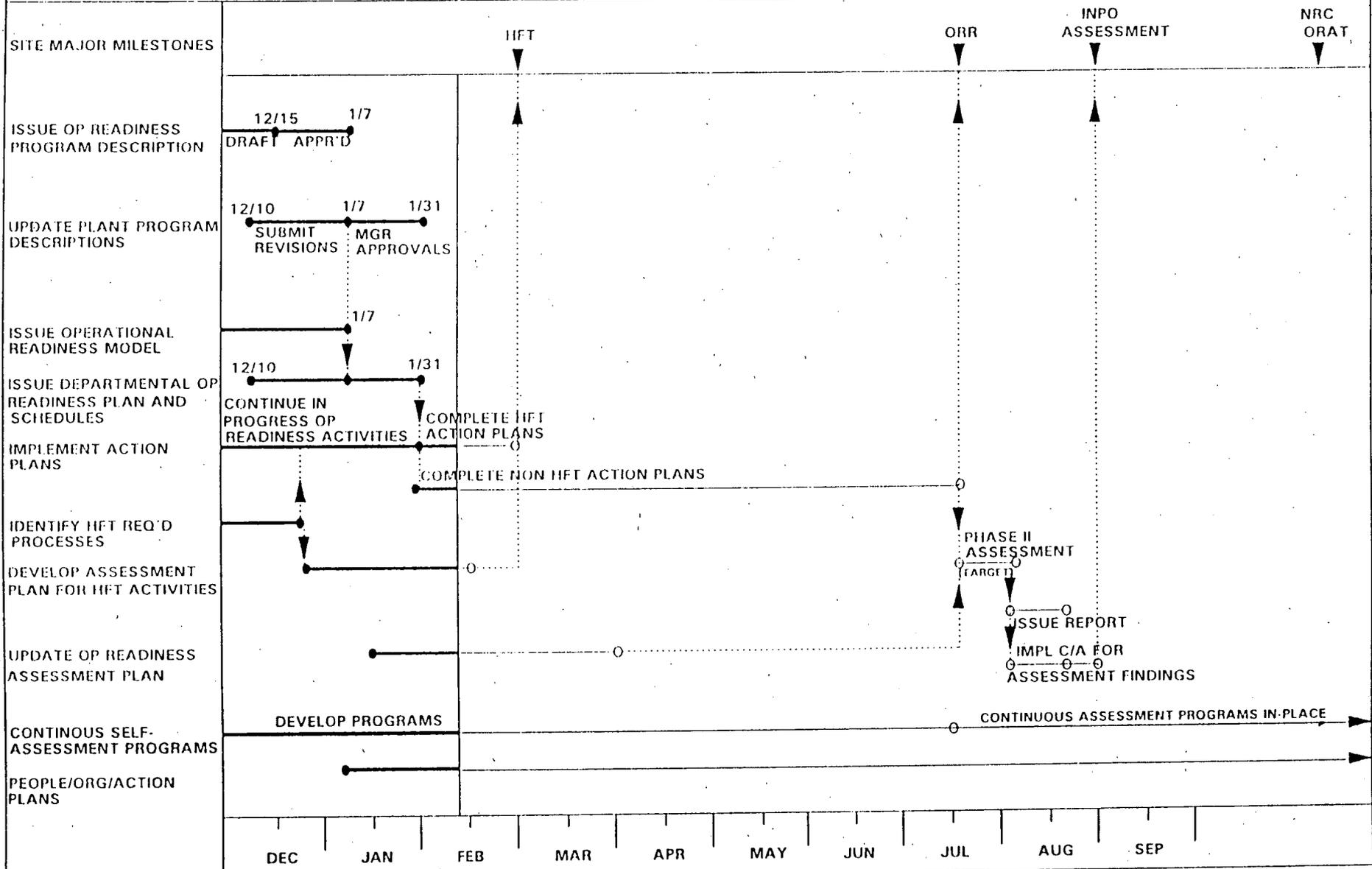
QUESTION	ACTION	STATUS
1. IS THE ORGANIZATION CLEARLY DEFINED?	1. DEVELOP STRUCTURE FOR OPERATING ORGANIZATION	COMPLETE
	2. DEFINE ROLES AND RESPONSIBILITIES IN PERFORMANCE REVIEW AND DEVELOPMENT PROCESS	IN-PROCESS
2. ARE THE QUALIFICATIONS FOR THE KEY POSITIONS IDENTIFIED?	1. IDENTIFY SOURCE FOR QUALIFICATIONS	COMPLETE
	2. INCLUDE QUALIFICATIONS IN APPLICABLE JOB DESCRIPTIONS	COMPLETE
	3. INCLUDE QUALIFICATIONS ON VACANCY ANNOUNCEMENTS	COMPLETE
3. ARE THE PEOPLE QUALIFIED FOR KEY POSITIONS?	1. EVALUATE AND DOCUMENT QUALIFICATIONS OF CURRENT INCUMBENTS	IN-PROCESS
	2. ENSURE THAT PEOPLE SELECTED MEET MINIMUM QUALIFICATIONS	COMPLETE - ONGOING
4. ARE PERFORMANCE EXPECTATIONS CLEARLY DEFINED AND COMMUNICATED?	1. IMPLEMENT THE PERSONNEL PERFORMANCE IMPROVEMENT PLAN.	IN-PROCESS
	2. INCORPORATE MANAGEMENT EXPECTATIONS AND SITE OBJECTIVES INTO PERFORMANCE EVALUATIONS	COMPLETE - ONGOING

# PROGRAM DESCRIPTION

## PEOPLE (CONT'D)

QUESTION	ACTION	STATUS
5. ARE COMMUNICATION AND TEAMWORK ENCOURAGED AND FOSTERED?	1. PROVIDE TEAM BUILDING OPPORTUNITIES	COMPLETE - ONGOING
	2. DEVELOP THE SITE COMMUNICATIONS PLAN	COMPLETE - ONGOING
	3. EVALUATE EFFECTIVENESS OF SITE COMMUNICATION AND TEAMWORK.	ONGOING

# OPERATIONAL READINESS PROGRAM OVERVIEW SCHEDULE



● = ITEM COMPLETED  
○ = ITEM NOT COMPLETED

# WBN SITE READINESS STATUS

- **PROCEDURES**

- 1133 OF 2586 PROCEDURES HAVE BEEN UPDATED AND APPROVED
- 292 PROCEDURES ARE DRAFT COMPLETE, AWAIT SYSTEM COMPLETION
- 512 PROCEDURES ARE IN DRAFT OR REVIEW CYCLE
- TOTAL PROCEDURE UPDATING EFFORT IS ON SCHEDULE

- **STAFFING**

- SITE STAFFING IS 90% COMPLETE
- THE BULK OF REMAINING STAFFING IS ADDITIONAL SECURITY GUARDS

- **TRAINING**

- TRAINING IS  $\approx$  75% COMPLETE
- LICENSED OPERATOR TRAINING
  - GROUP 2 OPERATOR LICENSES ARE FINISHING THIS WEEK
  - SUCCESSFUL COMPLETION OF GROUPS 1 AND 2 GIVE US THE REQUIRED NUMBER OF LICENSES TO OPERATE UNIT 1
  - GROUP 3 WILL START IN  $\approx$  1 MONTH
- BULK OF OUTSTANDING TRAINING REQUIRED FOR FUEL LOAD IS FOR SECURITY GUARDS

- **ASSESSMENT READINESS**

- 40% OF THE  $\approx$  110 PROGRAMS ARE READY FOR SELF-ASSESSMENT

**KEY PERSONNEL FROM NON-TVA PLANTS  
WITH HOT PLANT EXPERIENCE WITHIN  
THE LAST THREE YEARS**

DEPARTMENT	POSITION(S)
Maintenance	Mech Mtn Supv (1) Inst Mtn Supv (1) Mtn Eng & Tech Supv (1) Elec Mtn Supv (1)
Operations	OPS Mgr (1) SOS/ASOS Candidates (8) AUO (13)
Chemistry	Chem Mgr (1) Chem Supv (2) Chem Tech (1) Secondary Chem Supv (1)
RADCON	Shift Supv (7) Health Physics Tech (20)
Tech Suppt	Eng Suppt Program Mgr (1)
Plant	Plant Mgr (1) Plant Program Mgr (1)

# WBN OPERATIONAL READINESS

## SUMMARY

- SCOPE OF REQUIREMENTS UNDERSTOOD
- COMPREHENSIVE PROCESS BEING IMPLEMENTED TO ACHIEVE READINESS
- DEVELOPING PROCESS TO MAINTAIN READINESS

IV. NA ASSESSMENT OF OPERATIONAL READINESS

R. BARON

# NUCLEAR ASSURANCE OPERATIONAL READINESS

- OVERSIGHT OF READINESS FOR ORR PHASE II RESCHEDULED
  - NA CONCURS WITH SITE MANAGEMENT ON READINESS FOR ORR PHASE II
  - APPROXIMATELY 40% OF ORR PHASE 1 CONCERNS AND RECOMMENDATIONS STILL BEING ADDRESSED
  
- OVERSIGHT OF OPERATIONAL READINESS PROGRAM ONGOING
  - PERFORM INDEPENDENT ASSESSMENTS OF PLANT, PERSONNEL AND PROGRAMS
  - ORP AND LLP INTENDED TO ENSURE READINESS
  
- OPERATIONS PERFORMANCE EVALUATION PROGRAM ONGOING
  - RESULTS TO DATE (1/24/94 - 5/14/94)
    - WEAKNESSES
      - LOG KEEPING  
(CONTROL ROOM AND OPERATOR AID LOGS)
    - STRENGTHS
      - PEP TEAM READILY ACCEPTED BY OPERATIONS PERSONNEL
      - PROFESSIONALISM OF OPERATORS
      - AUO SAFETY AWARENESS
  
- HFT OVERSIGHT ONGOING

## UNIT 1 PTI/HFT OVERVIEW ACTIVITIES

THE FOLLOWING ARE TYPICAL ATTRIBUTES USED BY NUCLEAR ASSURANCE DURING OVERVIEW OF PTI/HFT TO PROVIDE ADDITIONAL ASSURANCE THAT THE OVERALL TEST EVOLUTION WILL BE SUCCESSFUL

- **EVALUATE CONDUCT OF TESTING -**
  - Prerequisites Test Verifications
  - Communications
  - M&TE
  - Test Approval
  - Procedure Compliance
  - Acceptance Criteria
  - Test Logs
  - Jumper & Lifted Lead
  - Restoration of Equipment
  - Problem Identification/Resolution
  - Operation of Equipment
  - Clearance/Safety Tagging
  - Test Briefings
  - Interface with Control Room
  - Control Room Response
  - Personnel Performance
  - Self Checking
  - Test Results
  - Test Equipment
  - Independent Verifications
  - Equipment Functionality
  - Supervisory Involvement
- **PERFORM PRE-SELECTED TEST SURVEILLANCE POINTS**
- **REVIEW TEST PROCEDURES AND CHANGES**
- **EVALUATE CONDUCT OF OPERATIONS \* -**
  - Control Room Conduct
  - Staffing
  - Log Keeping
  - Communications
  - Shift Turnover
  - Clearances
  - Operation of Equipment
  - Annunciator Response
  - Reactor Operator Duties
  - Assistant Unit Operator Duties
  - Support Organization Response
  - Supervisory Field Involvement
  - SOS Duties/Involvement
  - Unit ASOS Duties/Involvement
  - Self Checklist
  - Procedure Compliance
  - Human Factors Issues
  - Problem Resolution
  - Unit 2 Interface
  - Control of Interface Equipment
  - Equipment Functionality
  - Control Room Activity
  - Startup Interface
  - Pre-Test Briefings
- **EVALUATE PERFORMANCE OF SUPPORT ORGANIZATIONS -**
  - Response
  - Staffing
  - Personnel Performance
  - Work Planning & Prioritization
  - Communication
  - Interfaces
  - Procedural Compliance
  - Self Checking
  - Proper Tools/Equipment
  - Construction Activities
  - Job Briefings
  - Documentation
  - Supervisory Involvement
  - Control Room Interface

\* To be performed by Performance Evaluation Program (PEP) team.

# HFT READINESS SUMMARY

## JANUARY

### 1. STATUS OF 39 FUNCTIONAL AREAS

• SATISFACTORY	20
• REQUIRING IMPROVEMENT	17
• SIGNIFICANT WEAKNESSES	1
• NO ACTIVITY	1

### 2. CHANGE IN STATUS DECEMBER-JANUARY

• IMPROVING PERFORMANCE	13
• NEW ISSUES/DECLINING PERFORMANCE	4

### 3. CONCLUSION

CONTINUED FOCUS ON AREAS REQUIRING IMPROVEMENT TO ASSURE W3N WILL BE READY FOR HFT

V. CONCLUSION

W. MUSELER

# Facts About: Watts Bar Nuclear Power Plant

## Owner

Tennessee Valley Authority

## Capacity

Two 1,270 megawatt units (2,540 million watts total)

## Site

1,700 acres including the hydro station and coal plant on the Tennessee River in Spring City, Tennessee.

## Fuel

Slightly enriched uranium dioxide pellets in fuel rods clad with Zircaloy metal. 264 fuel rods per fuel assembly, 193 fuel assemblies per reactor.

## Reactor Information

Westinghouse pressurized water reactors fabricated of carbon steel with an internal stainless steel cladding.

Inside diameter - 14.4 feet (4.39 meters)

Inside height - 43.8 feet (13.35 meters)

Side thickness - 9.4 inches (23.86 centimeters)

Holds fuel assemblies. This is where heat is produced through the fission process.

## Nuclear Process

Water in the reactor is heated by uranium fuel being split or fissioned. Heat is released from the fission process. The heat is used to make the water in the reactor vessel very hot. This heated water then goes to the steam generator. The steam generators use the heated water to boil a secondary source of water, creating steam. The steam is used to turn turbines which spin a generator producing electricity.

## Steam Generator

4 per reactor

Height - 67.6 feet (20.60 meters)

Heated water from the reactor passes through tubes inside the steam generators where heat is given up to a secondary source of water. This secondary water source boils and turns to steam.

## Turbines

1 high pressure

3 low pressure

Turbines rotate at 1,800 rpm (revolutions per minute)

Steam inlet temperature to high pressure turbine: 541.5° F (283° C).

Steam inlet temperature to low pressure turbine: 514° F (267.8° C).

## Generator

Produces 24,000 volts. Power leaves the generator and is directed to transformers in the switchyard where it is stepped up to 500,000 volts.

## Condenser

A large box with hollow tubes running through it.

Steam from the steam generator passes through the condenser to be turned back into water.

Water from the Tennessee River passes inside the tubes in the condenser as the steam passes around the outside of the tubes. The steam, as it is cooled, turns back into water. The water in the tubes picks up the heat from the steam. This heated water then goes to the cooling towers to be cooled. The cooled steam, or water, is sent back to the steam generators to be boiled again.

## Cooling Towers

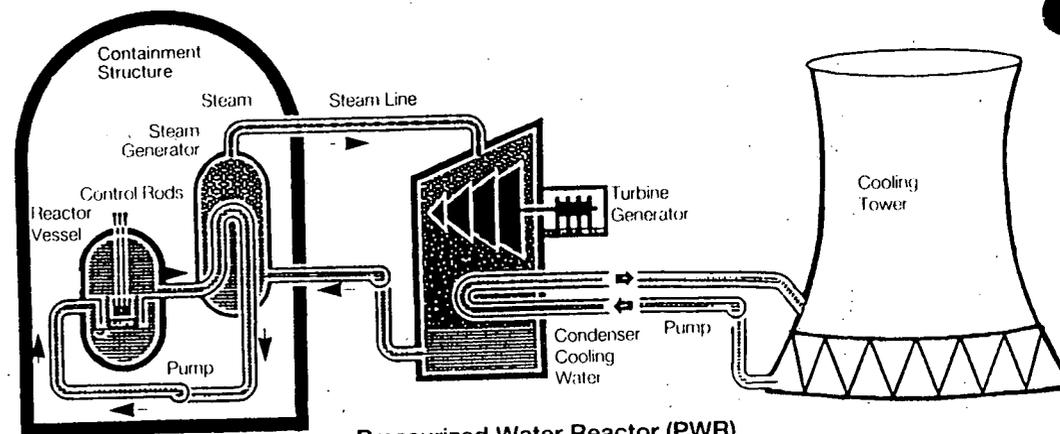
Two cooling towers; one per unit.

Height - 504 feet tall (153.62 meters)

Width at base - 405 feet (123.4 meters)

Each tower basin holds 4,800,000 gallons of water (18,168,000 liters).

The water in the condenser tubes that cooled the steam goes to the cooling towers. 410,000 gallons per minute (1,551,850 liters) of water passes through the condenser and then to the cooling towers. The towers remove heat from the water. What goes out the top of the tower is evaporated water and warm air. The cooled water which falls to the bottom of the tower is collected in the basin and pumped back into the condenser. This is a closed loop system with no water being directed back to the river.



Pressurized Water Reactor (PWR)