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MAR 17 1995

Tennessee Valley Authority
ATTN: Mr. Oliver D. Kingsley, Jr.
President, TVA Nuclear
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR UNITS 1 AND 2 - MEETING SUMMARY

Gentlemen:

This letter refers to the meeting conducted in the NRC Region II office in Atlanta, Georgia, on March 16, 1995. The meeting was at your request to discuss TVA's Reasonable Assurance Assessment Report. A list of attendees and a copy of the TVA handout are enclosed.

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:
J. P. Jaudon
Johns P. Jaudon, Deputy Director
TVA Construction
Division of Reactor Projects

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

Enclosures: 1. List of Attendees
2. Presentation Summary

cc w/encls: (See page 2)

IE45

cc w/encls:
Dr. Mark O. Medford, Vice Pres.
Engineering & Technical Services
Tennessee Valley Authority
3B Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

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

Mr. J. A. Scalice, Site Vice Pres.
Watts Bar Nuclear Plant
Tennessee Valley Authority
P. O. Box 2000
Spring City, TN 37381

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

Mr. P. P. Carier, Manager
Corporate Licensing
4G Blue Ridge
1101 Market Street

Mr. B. S. Schofield
Site Licensing Manager
Watts Bar Nuclear Plant
Tennessee Valley Authority
P. O. Box 2000
Spring City, TN 37381

Ms. Beth Zilbert, Energy Campaigner
Greenpeace
20 13th Street, NE.
Atlanta, GA 30309

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

The Honorable Robert Aikman
County Executive
Rhea County Courthouse
Dayton, TN 37381

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

Distribution w/encls: (See page 3)

Distribution w/encls:
S. D. Ebneter, ORA/RII
E. W. Merschoff, DRP/RII
A. F. Gibson, DRS/RII
J. P. Stohr, DRSS/RII
F. J. Hebdon, NRR
A. P. Hodgdon, OGC
B. K. Keeling, GPA/CA
G. M. Tracy, 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

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LIST OF ATTENDEES

Name	Title
NRC Staff	
S. Ebneter	Regional Administrator, Region II (RII)
A. Gibson	Director, Division of Reactor Safety, RII
J. Jaudon	Deputy Director, Division of Reactor Projects (DRP), RII
F. Hebdon	Director, Project Directorate II-4, Office of Nuclear Reactor Regulation (NRR)
M. Thadani	Project Manager, NRR
K. Clark	Public Affairs Officer, RII
R. Gibbs	Project Engineer, DRP, RII
J. Brady	Project Engineer, DRP, RII
TVA Staff	
O. Zeringue	Senior Vice President, Operations
J. Scalice	Site Vice President
R. George	Site Support General Manager
R. Baron	Manager Nuclear Assurance and Licensing
D. Kehoe	Site Quality Manager
B. Schofield	Watts Bar Licensing Manager
P. Pace	Compliance Licensing Manager
B. Martocci	Public Relations Manager
R. Esnes	TVA Contractor
F. McDougal	TVA Contractor

Enclosure 1

NRC/TVA

MANAGEMENT MEETING

MARCH 16, 1995

Enclosure 2

AGENDA

MARCH 16, 1995

I.	INTRODUCTION	O. ZERINGUE
II.	INDEPENDENT ENGINEERING AND FIELD ASSESSMENT	R. GEORGE
III.	REASONABLE ASSURANCE REVIEW	R. BARON
IV.	SITE READINESS FOR OPERATIONS	D. KEHOE

I. INTRODUCTION

O. ZERINGUE

II. INDEPENDENT ENGINEERING AND FIELD ASSESSMENT

R. GEORGE

INDEPENDENT ENGINEERING & FIELD ASSESSMENT

I. GUIDANCE GIVEN TO FIELD ASSESSMENT TEAM

II. SUMMARY OF RESULTS

III. COMPARISON TO 1988 VERTICAL SLICE REVIEW

IV. EVALUATION

V. CONCLUSIONS

INDEPENDENT ENGINEERING & FIELD ASSESSMENT

I. GUIDANCE GIVEN TO FIELD ASSESSMENT TEAM

A. SPECIFIC ATTRIBUTES

- 18 specific areas [e.g., ampacity]
- ~120 technical attribute areas [e.g., tray fill geometry]
- Assessment opportunities (A.O.)

$$\text{A.O.} = \left[\text{no. of components checked} \times \text{no. of technical attributes checked}\right]$$

- Example: 4 specific Containment level transmitters reviewed for:
  1. Location
  2. Installation quality
  3. Separation of tubing
  4. Bend radius
  5. Impulse line routing

$$\left[\text{4 transmitters} \times \text{5 technical attributes} = \text{20 assessment opportunities}\right]$$

- Assessment attribute guidance
  - Answer specific installation questions provided by technical team
  - Specific technical requirements
  - Field information reviewed by technical team

INDEPENDENT ENGINEERING & FIELD ASSESSMENT

B. GENERAL ASSESSMENT

- ~25 rooms assessed
- ~80 technical attribute areas [e.g., conduit separation]
- Assessment opportunities same as for specific attributes; example:

  ~200 flex conduits estimated in 7 rooms reviewed for:

  1. length
  2. condition
  3. termination

  [~200 conduits x 3 technical attributes = ~600 assessment opportunities]

- Assessment attribute guidance
  - Team of WBN and nuclear construction experienced personnel, familiar with G-Spec and installation procedures
  - Note visible nonconforming conditions or obvious differences between similar equipment

INDEPENDENT ENGINEERING & FIELD ASSESSMENT

II. SUMMARY OF RESULTS

	Approximate No. of Assessment Opportunities	No. of Deficiencies Major	Minor	No. of Substantiated Observations	Incidence of Deficiencies & Substantiated Observations
• SPECIFIC ATTRIBUTES					
• RHR System	320	0	1	0	<1%
• Mechanical	400	0	0	4	~1%
• Electrical/I&C	450	0	1 (3 instances)	0	<1%
• Materials	400	0	1	1	<1%
• Civil	780	0	1 (5 instances)	1	≤1%
Sub Total	~2300	0	4 (10 instances)	6	<1%
• GENERAL FIELD ASSESSMENT	>4000				
• Housekeeping/Minor Repairs		0	0	90	~2%
• Repairs/Documentation		0[a]	7[b] (26 instances)	16	~1%

[a] Cut cable still under review

[b] Includes other instances of drain valves installed in wrong flow direction found in RHR System Assessment.

III. Comparison to 1988 Vertical Slice Review

Type of Review	Vertical Slice Review excluded large bore piping and supports	RHR Vertical Slice Review/Independent Review, biased towards electrical and I&C for field assessment
Calculations	Inadequate, incomplete or missing	Complete and adequate
Design Outputs Reflecting As-Installed Conditions	Design documents did not reflect as-installed conditions	Design documents, with very few exceptions, reflect as-installed conditions
Cable Installation	Major findings	Minor findings
Ampacity	Major findings	No findings
Cable Bend Radius	Major findings	No findings
Vertical Drop	Major findings	One minor finding (conduits only)
Cable Damage	Major findings (post VSR)	One finding (included in SCAR)
Separation	Major findings	Panel wiring separation (PER issued)
Flex Conduit	Major findings	Few findings
Grounding	Numerous findings	Findings (PER issued)
Electrical Tagging/Identification	Numerous findings	Several findings
Instrument Lines Component Installation	Major findings	Minor finding of valve installed in wrong flow direction (PER issued)
Instrument Line Slope	Major line slope findings	Minor line damage findings
Heat Code	Major traceability findings	One minor finding
Damaged, Loose, and Missing Hardware	Numerous findings	Work sequencing contributing to findings, improvement to program ongoing
Operating Procedures	Not in scope of VSR	In-process findings
Civil/Seismic CAPs	Major design and program finding	Few minor implementation findings
EQ	Major programmatic findings	One minor finding
Conclusions	Major corrective actions required	Implementation of CAPs and SPs generally providing adequate results

IV. EVALUATION

- Considering present status - field work adequately reflects engineering requirements
- No new significant generic issues identified
- 1-2% deficiencies/observations of assessment opportunities (specific and general); none of which were safety significant (cut cable previously identified)
- Comparison with 1988 VSR review shows significant improvement in WBN construction quality and completion

V. CONCLUSIONS

- Vertical slice review of RHR System, which showed RHR met engineering and construction requirements, is representative of other systems
- Completion of ongoing programs and corrective actions will be adequate to ensure WBN readiness

III. REASONABLE ASSURANCE REVIEW

R. BARON

SUMMARY OF REASONABLE ASSURANCE ASSESSMENT REPORT

A. Overview Outline of the Report

- Multi-layered and diverse approach
- Assesses Readiness Based on Reviews and Oversight Activities Conducted at Watts Bar
- Comprehensive in Depth of Review
- Will Provide An Accurate Assessment of Readiness

B. Report Format/Content

I. Executive Summary

II. Background

III. Regulatory Review Assessment

- Traditional Approach
- Validates Compliance
- Follows Established Licensing Structure
- Documents Completion of WBNPP

IV. Activity Assessment

- Evaluates five critical activities:
  - Design
  - Construction
  - Startup Testing
  - Operational Readiness
  - Oversight

V. Special Area Assessment

- Supportive not "Stand alone"
- Analyzes Significant Issues identified in Reviews, including:
  - Employee Concerns
  - Corrective Action Program
  - Closure Assessment (e.g., TMI Action Items)

VI. Conclusions

MAJOR ASSESSMENT ACTIVITIES

Provided below are major assessment activities which may be considered in drawing conclusions regarding reasonable assurance:

- General review of previous assurance efforts (roadmap)--Section III of the Report
- Review of adequacy of general "attributes" of activities for different areas of interest--Section IV of the Report
- Detailed review of identified "problem areas" --Section V of the Report
- Activities to assure closure of " items"
- "Coverage Matrix" which will feed activities for further oversight review or the upcoming IDI, if needed (Example)
- Comparison of results of past major review efforts to assess improvement over time
- Comparison of results of past significant problem "timeframes" to assess improvement over time
- Others (As determined to be needed during assessment)

SAMPLE COVERAGE MATRIX

Hardware Elements/ Attributes	Project Final Verif.	PAC/AQ	QA Integr. Verif.	Indep. Des./Field Assess.	Final IDI (NPP Vol. IV)
HWE: Cable					
Design Attributes					
▸	✓	✓			
▸		✓	✓	✓	
▸					*Review*
Construction Attributes					
▸	✓	✓		✓	
▸	✓				
▸	∅			∅	*Review*
HWE: Large Bore Piping					
Design Attributes					
▸	✓	✓	✓		
▸	✓	✓	✓	✓	*Bases for Reasonable Assurance Acceptable*
▸		✓		✓	
Construction Attributes					
▸	✓	✓	✓		
▸	✓	✓	✓	✓	
▸	✓	✓		✓	
...Continued (20 total HWEs & 21 misc. Programs/Design Features)					

Key: ✓ Indicates Element/Attribute Within Scope of Review
∅ Indicates Identification of Significant Weakness Warranting Further Review

CANDIDATE ATTRIBUTES UNDER CONSIDERATION

DESIGN:

- Inputs
  - Design criteria comply with lic. commitments; DBDs
  - Implementing documents contain design criteria; design standards/guides, system descriptions, etc.
  - Known issues addressed
- Implementation
  - Adequacy of technical/administrative instructions
  - Adequacy of design methods, techniques
  - Adequacy of design implementation; calcs, engineering evaluations, etc.
- Outputs (drawings, specs, etc.)
  - Consistency of outputs with design criteria & implementation results
  - Consistency of procurement specs
  - Consistency of test requirements
  - Consistency of operating procedures
  - Consistency of vendor documentation
- Design Control, Configuration Control, QA
  - Testing reconciliation
  - As-built reconciliation
  - Design documents updated; DCNs, SRNs, FSAR changes
  - Adequacy of corrective actions; CAQs/SCARs

CONSTRUCTION:

- Workplans reflect design requirements
- Installation records document work process
- Workmanship/Quality
- Inspection records
- Hardware Verification
  - Nameplate data, identification/tagging
  - General arrangement/configuration
  - As-built; dimensions, tolerances, clearances, slope, etc.
  - Welding
  - Structural loadings
  - Missing, loose or damaged parts
  - Material identification/traceability
  - Anchorage/support of equipment
  - Electrical; terminations, separation, etc.
  - Instrument setpoints
  - Seismic II/I interaction
  - Environmental conditions

STARTUP & TESTING:

- Program & Procedures
- Testing Implementation
- Testing Results
- Test Deficiency Notices Trending
  - Equipment Failures
  - Installation Errors
  - Procedure Adequacy
  - Test Conduct
  - Design Errors

PRELIMINARY HARDWARE/PROGRAM SCOPE

Hardware Elements	CAP/SP
1. Cable	✓
2. Cable Raceways	✓
3. Cable Raceway Sup.	✓
4. Electrical Equipment	✓
5. HVAC Duct and Eqpt.	✓
6. HVAC Supports	✓
7. Instrumentation	✓
8. Instrumentation Lines	✓
9. Instrument Line Supt	✓
10. Large Bore Piping	✓
11. Large Bore Piping Spt	✓
12. Small Bore Piping	✓
13. Small Bore Piping Spt	✓
14. Valves	✓
15. Mechanical Equipment	✓
16. Concrete Structures	✓
17. Foundations	✓
18. Struct. & Misc. Steel	✓
19. Masonry Walls	✓
20. Coatings	✓

Programs/Design Features		CAP/SP
21.1	Control Room Habitability	✓
21.2	Electrical Separation	✓
21.3	Environmental Qualification	✓
21.4	External Hazards	✓
21.5	Fire Protection	✓
21.6	High Energy Line Breaks	✓
21.7	Human Factors	✓
21.8	Internal Missiles	✓
21.9	Mech/Elect Syst Layout/Des	✓
21.10	Mech/Elect Syst Testing	✓
21.11	Mod. Energy Line Break	✓
21.12	Non-radiological Design	✓
21.13	Radiological Design	✓
21.14	Seismic Qualification	✓
22.1	Replacement Items	✓
22.2	Microbio. Induced Corrosion	✓
22.3	Soil Liquefaction	✓
22.4	Master Fuse List	✓
22.5	Heat Code Traceability	✓
22.6	Q-List	✓
22.7	Vendor Information	✓

Notes:
1) Items 1 through 21 taken from original Systematic Evaluation.
2) Item 22 added to cover remaining CAPs/SPs.
3) Items 21 & 22 may be consolidated or eliminated, as appropriate.

IV. SITE READINESS FOR OPERATIONS

D. KEHOE

TABLE OF CONTENTS

OBJECTIVE

To describe the process that Nuclear Assurance will use to determine WBN readiness to load fuel and transition to operations. Results of the trend and summary analyses will be discussed during the meeting on April 4, 1995.

PROJECT ACTIVITIES

- CONSTRUCTION COMPLETION
- TURNOVER
- OPERATIONAL READINESS

CONSTRUCTION COMPLETION

- CAPS/SP
  - Nuclear Performance Plan Volume 4
  - Independent verification plans
  - 28 CAPS, 10 satisfactorily completed, 13 progressing satisfactorily, 5 require improvement - improvements in progress
  - (e.g., EQ, Fire Protection, Seismic, Instrument Lines)

- QC Acceptance
  - Construction installation - 98% acceptance
  - Maintenance - 100% acceptance
  - Receipt of materials - 100% acceptance

- Audits
  - ASME - Satisfactory
  - Construction activities - Improvement required - Improvements in progress
  - IDI - Future

- Assessments
  - Non CAP construction issues - Minor issues
  - Capital projects - Minor issues
  - Special

- In line reviews
  - Work Orders - Initiations 99% acceptance - Closures 100% acceptance
  - Work Plans - Initiations and closures -100% acceptance
  - Corrective action documents - 90% acceptance
  - NRC Open items - 100% acceptance
  - CATDs - 43% Acceptance
  - Procurement documents - 97% acceptance

TURNOVER

- SPOC/SPAE (isolated issues, generally satisfactory)
  - Identification and completion of:
    - Open work items
    - Programmatic issues
  - Technical review of inputs

- Startup and Test (satisfactory)
  - NA Startup and Test overview group
  - Test program plans
  - Test procedure/test results reviews
  - Assessment results

- Special assessments
  - Locked valves - Improvement required - C/A under development
  - Temporary Alteration Controls - Satisfactory
  - Surveillance Instruction validation and verification - Improvement required - Improvements in progress
  - Control of M&TE - Satisfactory

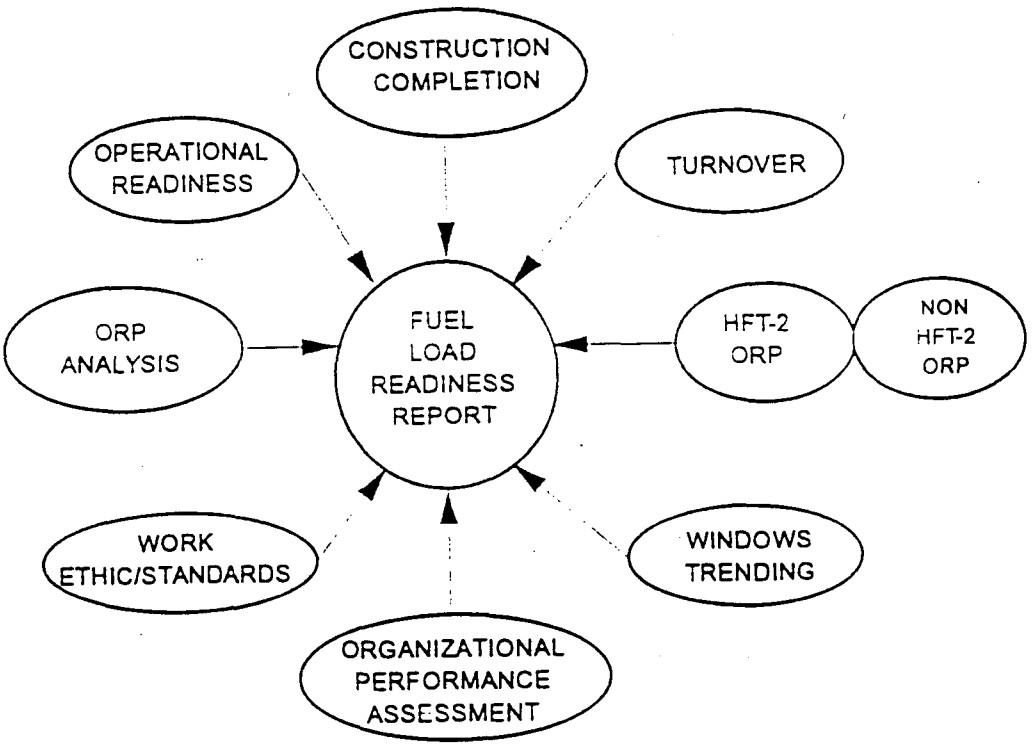
OPERATIONAL READINESS

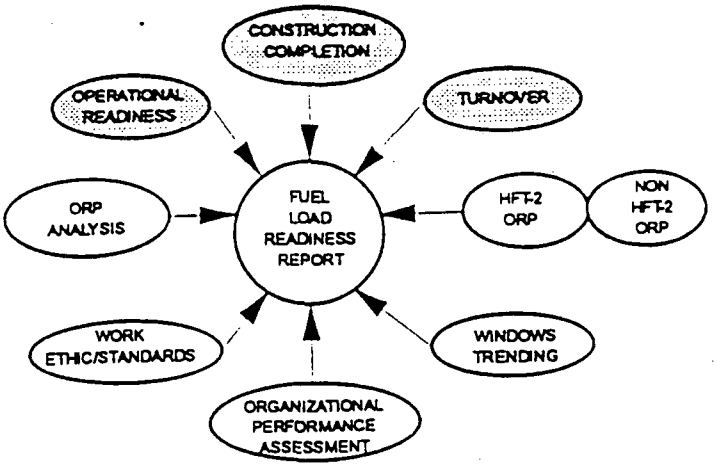
- Scope
  - Assessments performed on 12 functional windows areas
  - 122 subcategories addressing functional areas

- Objectives of assessments
  - Assessment of commitments
  - Evaluation of procedures/programs
  - Assessment of interfaces between organizations
  - Effectiveness of program implementation

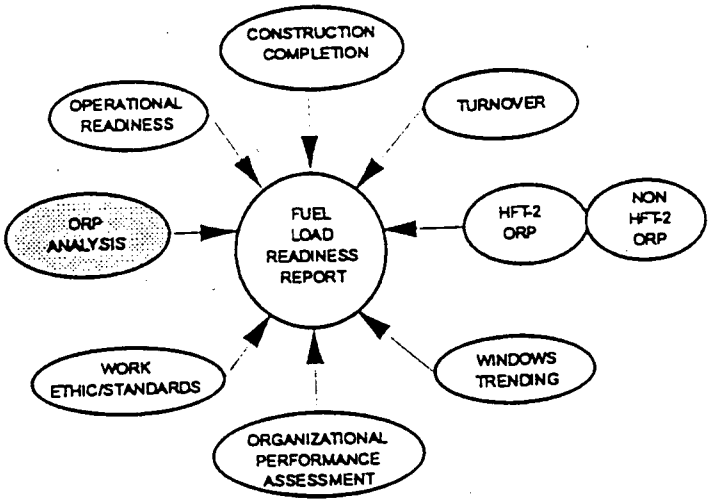
- Status of assessments
  - Over 600 recommendations and concerns identified
    - 91 line organization self-assessments
    - 66 nuclear assurance ORP assessments
  - Fifty percent of concerns and recommendations identified in 12 program areas

READINESS FOR OPERATIONS





- CONSTRUCTION COMPLETION
- TURNOVER
- OPERATIONAL READINESS

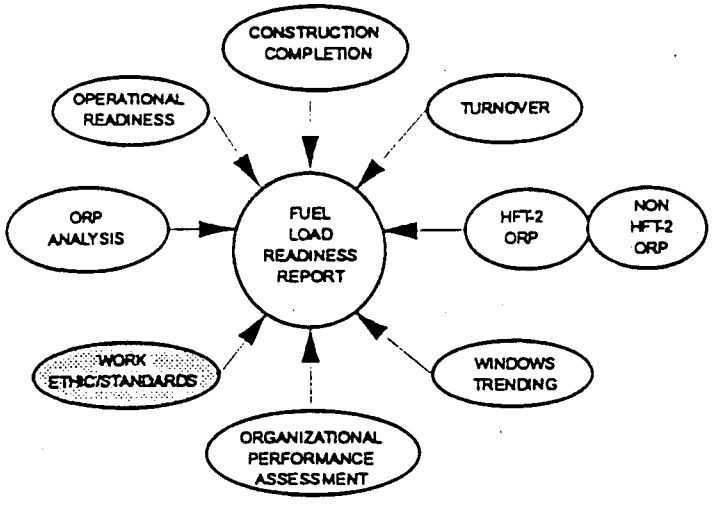


ORP ANALYSIS

- Baseline analysis
  - ORR self-assessments
  - NA independent assessments
  - ORMRT
  - Underlying cause analysis

- Monthly verification of performance
  - Data against baseline
  - New reviews (assessments, external reviews)
  - Corrective action input
  - Performance indicators
  - Comparison to Corrective Action trend analysis

- Real time analysis



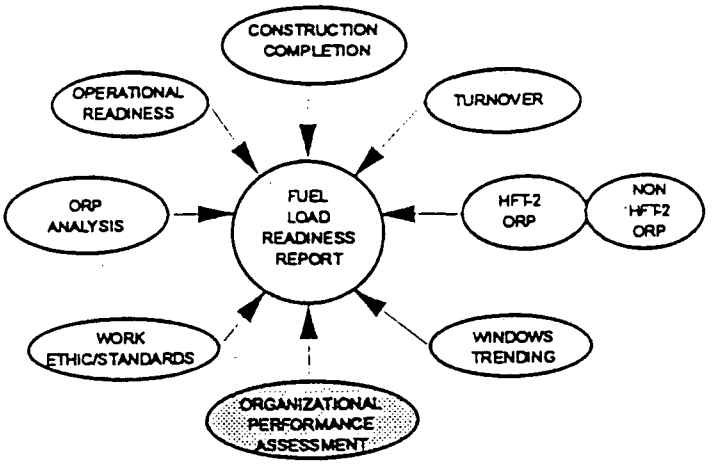
WORK ETHIC/STANDARDS

- Work ethic/standards checklist

  - Issues
  - Activities

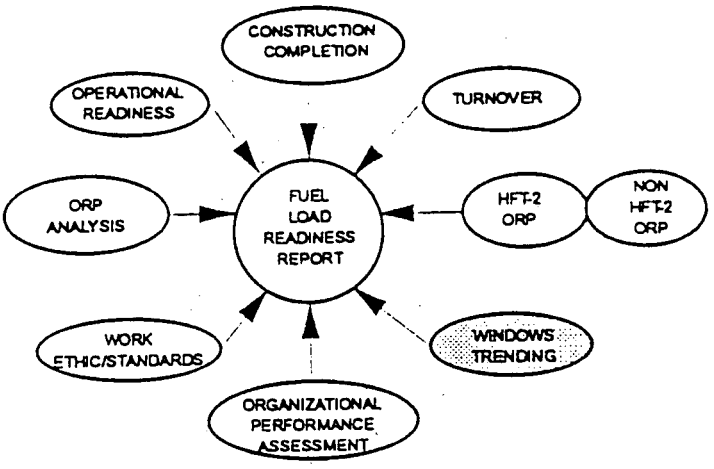
- Attributes
  - Expectations
  - Ownership
  - Timeliness
  - Corrective Action
  - Customer/supplier relationship

- Objectives
  - Gauges plant attitudes
  - Alerts management
  - Ensures management implements mid-course corrections



ORGANIZATIONAL PERFORMANCE ASSESSMENT

- Performance against primary responsibilities
- Performance against support functions (customer/supplier relationship)



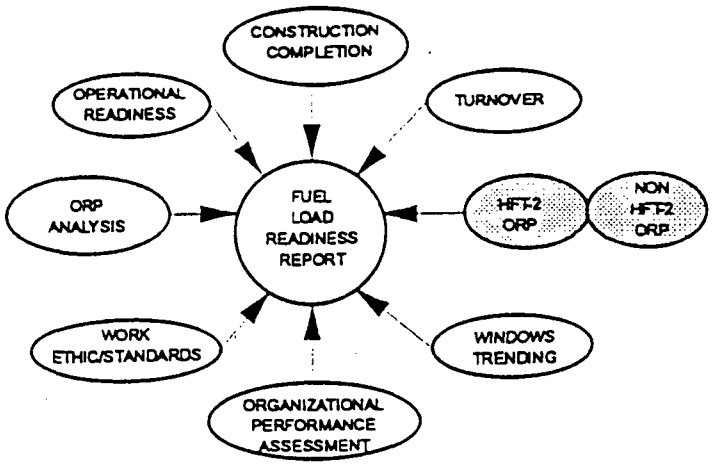
WINDOWS TRENDING

- Integrated performance trending, six month baseline

- Current month's performance compared to baseline - monthly analysis

- Multiple inputs
  - Self-assessments
  - Independent Safety Engineering evaluations
  - Corrective action trend analysis
  - Audits/QA assessments/QC surveillances

- Ratings
  - Green - significant strength
  - White - satisfactory
  - Yellow - improvement needed
  - Red - significant weakness



HFT-2 AND NON-HFT-2 ORP

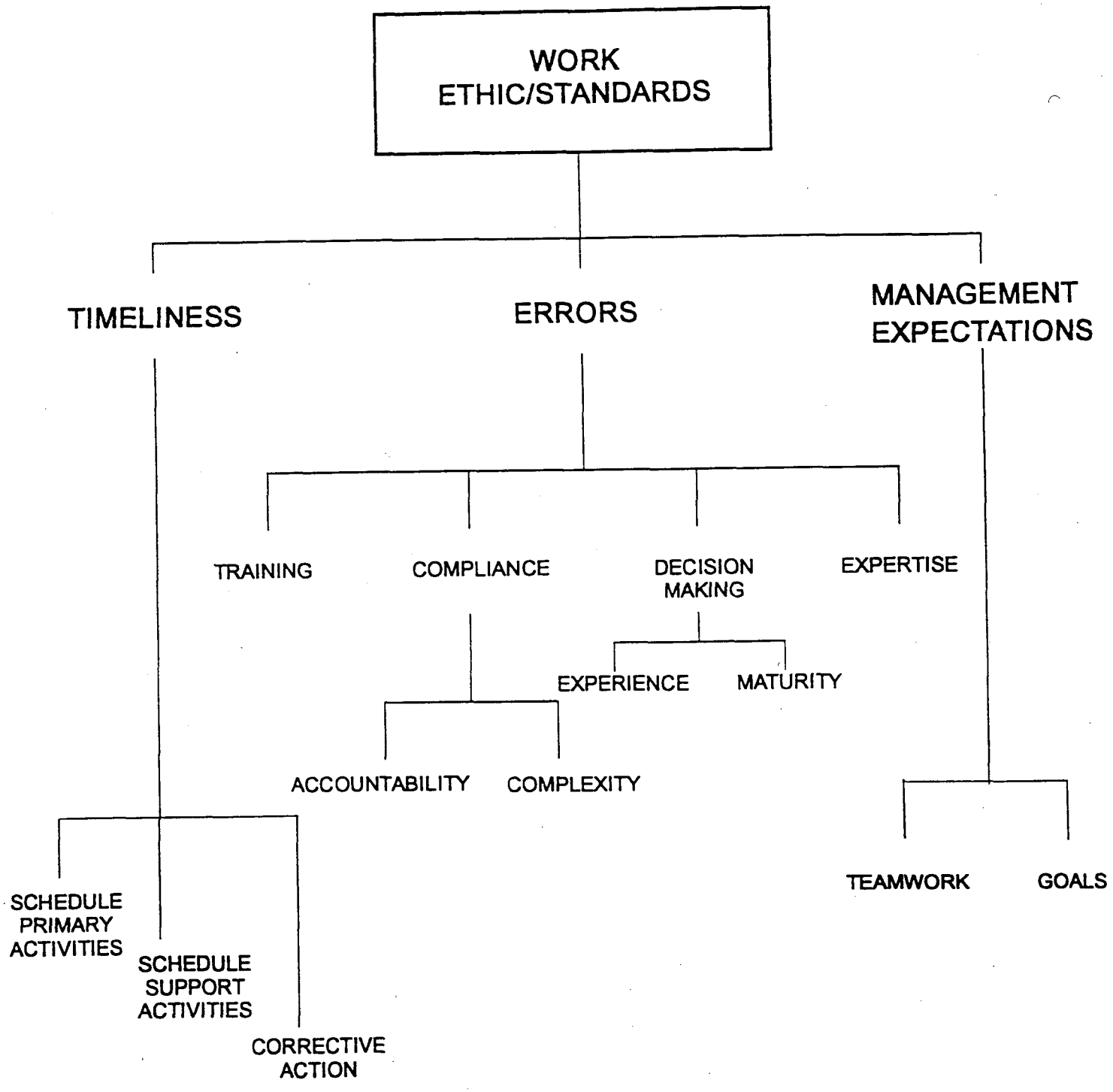
- 122 Operational Readiness program areas
  - 42 Operational Readiness programs to be evaluated during HFT-2
  - Special reviews conducted prior to and after HFT-2
  - Post fuel load reviews

- Performance based objectives
  - Individual observation plans developed for each HFT-2 assessment
  - Testing and startup activities evaluated
  - Field observations of personnel performance

- Technical specialists
  - Technical specialists from other TVA sites used to observe HFT
  - Outside specialists used to evaluate special programs
  - TVA management team oversight of plant readiness

PERSONNEL WORK ETHIC/STANDARDS

ANALYSIS TREE



(EXAMPLE)

NA ORGANIZATION READINESS

- Operational Readiness Management Review Team
  - Establish organization
  - Training
  - Self-assessments

- Strengthening operational experiences
  - Experienced Site Quality manager
  - Manager exchange with operating sites
  - Looking at programs and issues in real time
  - Highly qualified operational pool personnel (SRO, INPO, and other Operations experience)

- Management support
  - Coach personnel on operational awareness
  - Emphasize line organization accountability
  - Include technical specialists
  - Focus on safety-significant activities

- Fuel load criteria
  - Plant is complete
  - Plant is ready to operate
  - Plant management sets and enforces operational expectations
  - Plant staff demonstrates operational expectations and questioning attitude