TVA Nuclear Strategic Performance Improvement Initiatives

December 15, 2003

Atlanta, GA

TVA NUCLEAR

Introduction

- Focus on ‘The Four’ Campaign
- Industrial Safety
- Equipment Reliability
- Excellence in Human Performance
- Intolerance for Equipment Deficiencies
- Follow-Up from October 2002 Meeting
- Closing Remarks
- Open Discussion

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Focus on ‘The Four’ Campaign

- Based on an Assessment of Recent TVAN and Industry Performance Trends
  - Unit Capacity Factor
  - Forced Loss Rate
  - Unplanned Automatic Scrams
  - Fuel Reliability
  - Collective Radiation Exposure
  - Industrial Safety Accidents

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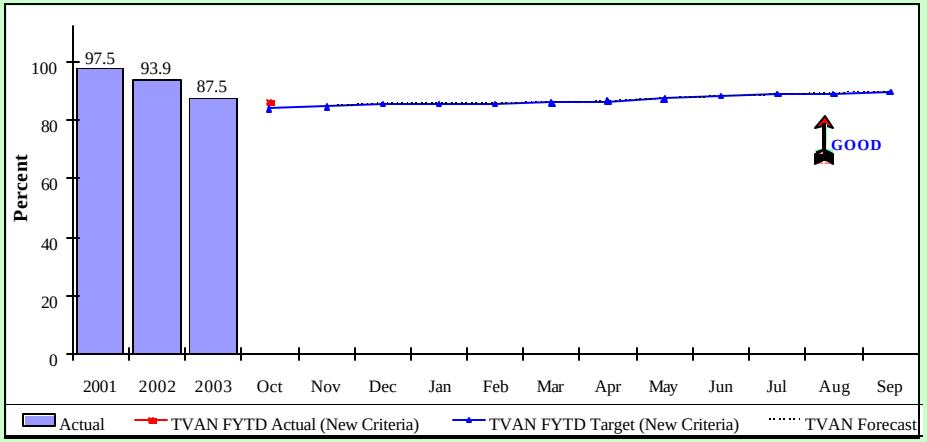
INPO Performance Index
TVA Nuclear
October 2003



BASIS

This is a Winning Performance Indicator

- All sites payout require an INPO 1 rating
- Target is 89.8
- Mid is 92.6
- Max is 95.5

Note:
Industry comparison will be based on the 12 multisite operators.

COMMENTS / IMPROVEMENT PLAN

Unplanned reactor trips are negatively impacting unit capability factor, unplanned automatic scrams and forced loss rate, and are impacting TVAN's INPO Index by 8.4 index points. Radiation exposure is the other major factor impacting INPO Index (4.4 index points). Fuel failures are causing a 0.3 index point loss.

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
BFN2 FYTD Actual	94.3											
BFN3 FYTD Actual	96.0											
SQN1 FYTD Actual	80.7											
SQN2 FYTD Actual	79.3											
WBN FYTD Actual	80.9											
TVAN FYTD Actual	86.2											
TVAN FYTD Target	84.1	84.5	85.6	85.7	85.7	85.8	86.5	87.4	88.1	88.8	89.1	89.8
TVAN Forecast		84.8	85.7	85.6	85.7	85.8	86.4	87.4	88.1	88.8	89.1	89.8

Comments:

Winning Performance Status:

TVAN is on currently better than FYTD target, and expects to meet target at end of fiscal year.

Performance Targets	
BFN2	91.4
BFN3	91.4
SQN1	82.7
SQN2	93.3
WBN1	90.1
TVAN	89.78

Definition:
This indicator is a weighted combination of INPO's nine overall performance indicators. The index is a useful tool for management in trending overall station performance.

Contacts:
Responsible Manager: TVAN Managers
Contact Person: D. K. Baker

John Scalice

NRC Cornerstones
TVA Nuclear
October 2003

Trends are based on a +/- 5% tolerance band from the previous reporting period.

	BWR		Browns Ferry Unit 2			Browns Ferry Unit 3			PWR		Sequoyah Unit 1			Sequoyah Unit 2			Watts Bar Unit 1		
	Green Band		Current	% in	Trend from	Current	% in	Trend from	Green Band		Current	% in	Trend from	Current	% in	Trend from	Current	% in	Trend from
Indicator	Max	Min	Value	Green	Previous	Value	Green	Previous	Max	Min	Value	Green	Previous	Value	Green	Previous	Value	Green	Previous
REACTOR SAFETY																			
Initiating Events																			
Unplanned Scrams	0.0	3.0	0.9	**71%**	Steady	0.0	**100%**	Steady	0.0	3.0	1.1	**63%**	Steady	2.6	**13%**	Steady	1.8	**39%**	Steady
Scrams with Loss of Normal Ht Removal	0.0	2.0	0.0	**100%**	Steady	0.0	**100%**	Steady	0.0	2.0	0.0	**100%**	Steady	1.0	**50%**	Steady	1.0	**50%**	Steady
Unplanned Power Reductions	0.0	6.0	3.4	**43%**	Improve	0.80	**87%**	Steady	0.0	6.0	1.1	**82%**	Steady	0.9	**85%**	Steady	0.9	**85%**	Steady
Mitigating Systems																			
Emergency AC Power System	0.0	2.5	0.8	**68%**	Steady	0.8	**68%**	Steady	0.0	2.5	1.6	**36%**	Steady	1.6	**36%**	Steady	0.8	**69%**	Steady
High Pressure Injection System	0.0	4.0	1.3	**66%**	Steady	0.7	**82%**	Steady	0.0	1.5	0.3	**80%**	Steady	0.3	**80%**	Steady	0.3	**77%**	Steady
Heat Removal - RCIC/AFW	0.0	4.0	0.9	**77%**	Steady	0.6	**84%**	Steady	0.0	2.0	0.5	**75%**	Steady	0.5	**75%**	Steady	0.4	**80%**	Steady
Residual Heat Removal System	0.0	1.5	0.5	**69%**	Steady	0.4	**71%**	Steady	0.0	1.5	0.4	**73%**	Steady	0.6	**60%**	Steady	0.5	**69%**	Steady
Safety System Functional Failures	0.0	6.0	1.0	**83%**	Steady	1.0	**83%**	Steady	0.0	5.0	0.0	**100%**	Steady	0.0	**100%**	Steady	0.0	**100%**	Steady
Barrier Integrity																			
Reactor Coolant System Specific Activity	0.0	50.0	0.00	**100%**	Steady	0.00	**100%**	Steady	0.0	50.0	0.70	**99%**	Steady	1.20	**98%**	Steady	0.1	**100%**	Steady
Reactor Coolant System Leakage	0.0	50.0	11.1	**78%**	Steady	14.4	**71%**	Steady	0.0	50.0	0.4	**99%**	Steady	0.3	**99%**	Steady	0.4	**99%**	Steady
Emergency Preparedness																			
Drill / Exercise Performance	100%	90%	98%	**84%**	Steady	98%	**84%**	Steady	100%	90%	94%	**38%**	Steady	94%	**38%**	Steady	96%	**63%**	Steady
ERO Drill Participation	100%	80%	100%	**100%**	Steady	100%	**100%**	Steady	100%	80%	100%	**100%**	Steady	100%	**100%**	Steady	100%	**100%**	Steady
Alert and Notification System	100%	94%	99%	**85%**	Steady	99%	**85%**	Steady	100%	94%	99%	**82%**	Steady	99%	**82%**	Steady	99%	**86%**	Steady
RADIATION SAFETY																			
Occupational Radiation Safety																			
Occupational Exp Cntl Effectiveness	0.0	2.0	0.0	**100%**	Steady	0.0	**100%**	Steady	0.0	2.0	0.0	**100%**	Steady	0.0	**100%**	Steady	0.0	**100%**	Steady
Public Radiation Safety																			
RETS/ODCM Radiological Effluents	0.0	1.0	0.0	**100%**	Steady	0.0	**100%**	Steady	0.0	1.0	0.0	**100%**	Steady	0.0	**100%**	Steady	0.0	**100%**	Steady
SAFEGUARDS																			
Physical Protection																			
Protected Area Equipment	0.00	0.08	0.008	**90%**	Steady	0.008	**90%**	Steady	0.00	0.08	0.008	**90%**	Steady	0.008	**90%**	Steady	0.004	**95%**	Steady
Personnel Screening Program	0.0	2.0	0.000	**100%**	Steady	0.000	**100%**	Steady	0.00	2.0	0.000	**100%**	Steady	0.00	**100%**	Steady	0.000	**100%**	Steady
FFD / Personnel Reliability Program	0.0	2.0	0.000	**100%**	Steady	0.000	**100%**	Steady	0.00	2.0	0.000	**100%**	Steady	0.00	**100%**	Steady	0.000	**100%**	Steady

>75% in Green **0-75% in Green** **Outside Green**

INPO Index Element Summary
TVA Nuclear
October 2003

Performance Indicator	BFN2		BFN3		SQN1		SQN2		WBN1	
	Actual	% of Max	Actual	% of Max	Actual	% of Max	Actual	% of Max	Actual	% of Max
Unit Capability Factor	89.6	91.2	95.0	100.0	81.7	42.0	89.3	89.6	89.0	87.6
Forced Loss Rate	2.4	94.5	0.0	100.0	1.2	100.0	7.0	38.0	2.8	89.8
Unplanned Automatic Scrams	0.4	100.0	0.0	100.0	0.0	100.0	1.7	25.5	1.8	22.3
High Pressure Safety Systems	0.020	100.0	0.007	100.0	0.00	100.0	0.003	100.0	0.002	100.0
Low Pressure Safety Systems	0.007	100.0	0.006	100.0	0.00	100.0	0.005	100.0	0.008	100.0
Emergency AC Power	0.0099	100.0	0.0099	100.0	0.019	100.0	0.019	100.0	0.012	100.0
Fuel Reliability	29.0	100.0	442.0	94.7	0.000001	100.0	0.000865	91.9	0.000569	98.5
Chemistry Index	1.06	100.0	1.05	100.0	1.02	100.0	1.02	100.0	1.0	100.0
Collective Radiation Exposure	181.0	66.1	181.0	66.1	202.6	0.0	75.0	92.6	124.2	56.1

	Actual	FY Target	Actual	FY Target	Actual	FY Target	Actual	FY Target	Actual	FY Target
INPO Performance Index by unit	94.3	91.4	96.0	91.4	80.7	82.7	79.3	93.3	80.9	90.1

Comments:

Definition:
This is a summary of the nine elements which make up the INPO Index. Shown is the current rolling value of each element and it's contribution to the overall INPO Index value. Industrial Safety was removed from the INPO Index effective January 2003.

Contacts:
Responsible Manager: TVAN Managers
Contact Person: D. K. Baker

Focus on 'The Four' Campaign

- Improvement Initiatives Targeted in Four Areas:
  - Industrial Safety
  - Equipment Reliability
  - Excellence in Human Performance
  - Intolerance for Equipment Deficiencies
- Theme for 2003 TVAN Team Conference
  - Presentations on Vision, Strategy, and Plans for Each Focus Area (with Case Studies)
- Monthly Strategic Business Council Review

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Industrial Safety

- Goals Are to Ensure Every Employee Returns Home from Work Safely and to Achieve Top Industry Performance for Collective Radiation Exposure
  - Improvement Plan Is Based on a Two–Part Strategy
    - Minimize Hazards in Work Place
    - Increase Employee Protection from Hazards
  - Performance is Measured by the Industry Safety Index, Outage Safety Goals, and Comprehensive Set of Dose Measures

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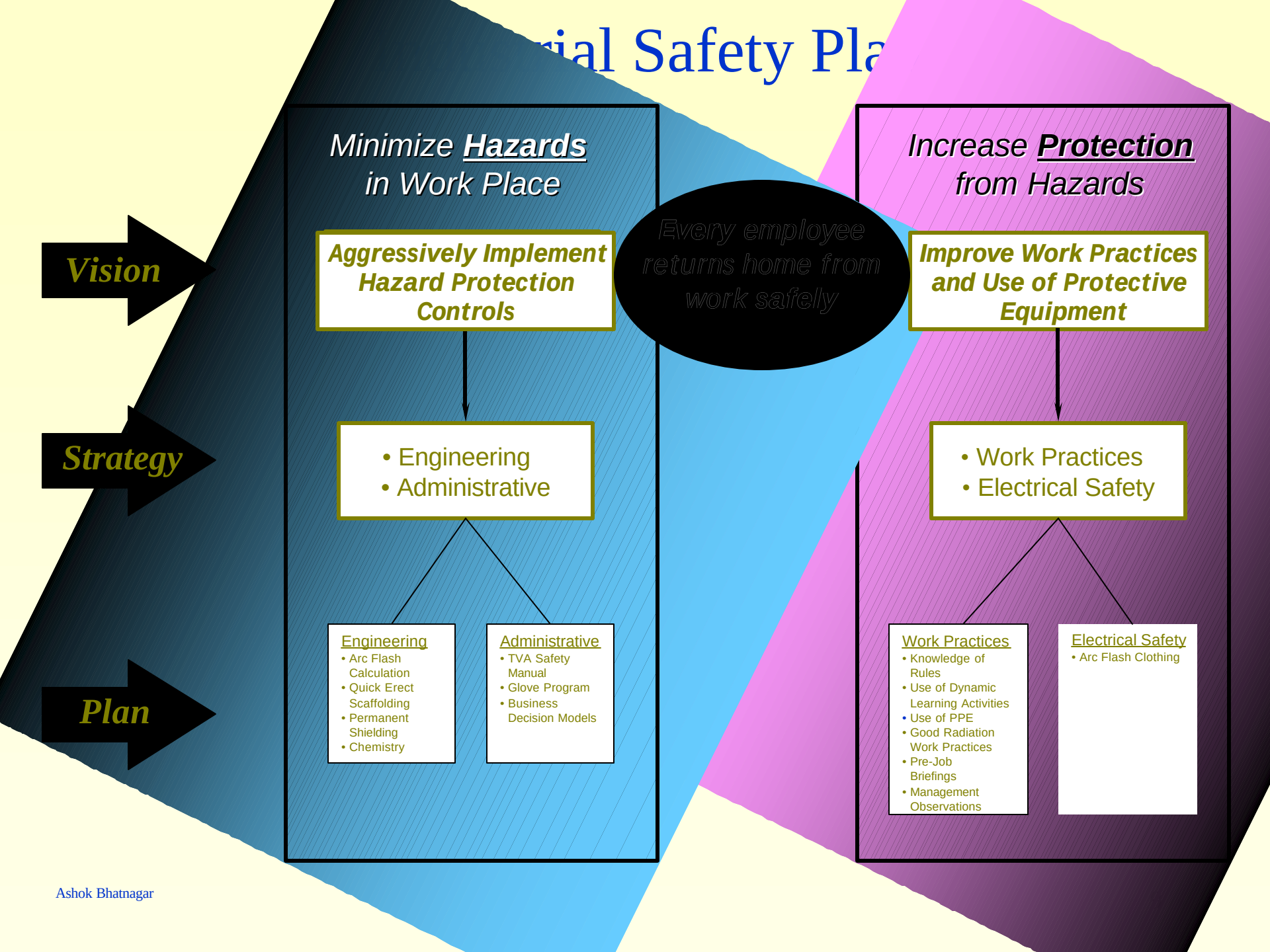
rial Safety Pla



Industrial Safety

- Safety Initiatives Include the Following:
  - TVA Consolidated Safety Manual and Employee Training
  - Arc-Flash Protective Clothing
  - Project Approval Process with Proper Financial Consideration of Dose
  - Contract Incentives for Dose Reduction
  - BWR and PWR Chemistry Optimization
  - Plant Modifications to Support Improved Worker Efficiency and Source Term Shielding
  - Radiation Source Term Reduction

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Equipment Reliability

- Goal Is to Improve Equipment Reliability to Eliminate Unplanned Reactors Scrams, Forced Outages and Power Reductions
  - Performed Gap Assessment of TVAN Equipment Reliability Process Using INPO AP-913, *Equipment Reliability Process Description.*
  - Areas Targeted for Improvement Include:
    - Scoping and Identification of Critical Components and Systems
    - Performance Monitoring
    - Life-Cycle Management

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Equipment Reliability

- Improvement Initiatives Include the Following:
  - Conduct PII Trip Sensitive Component Evaluations to Identify Critical Components
  - Implement Lessons Learned from Critical Component and Systems Reviews
  - Improve System Health Review Process
  - Incorporate System and Component Long-Range Equipment Plans Into Business Planning Process

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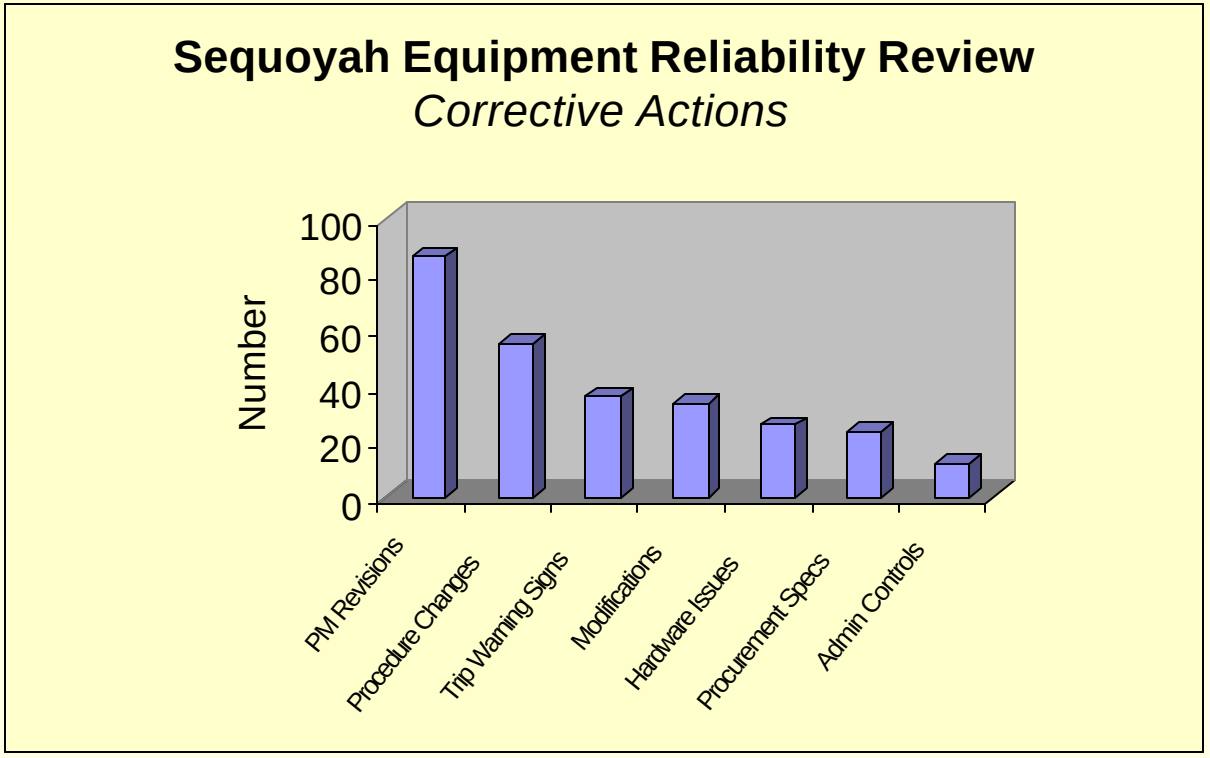
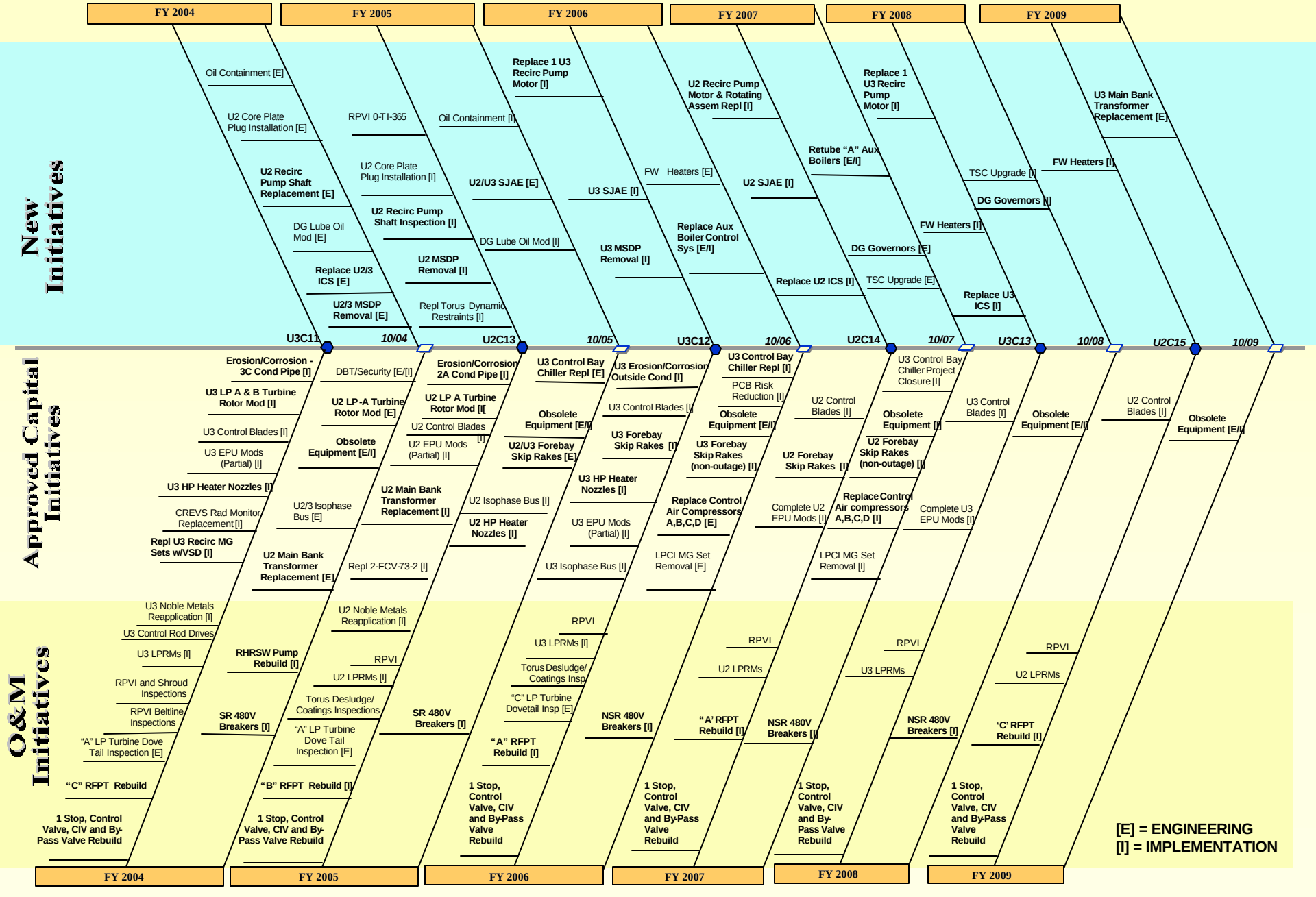
Equipment Reliability

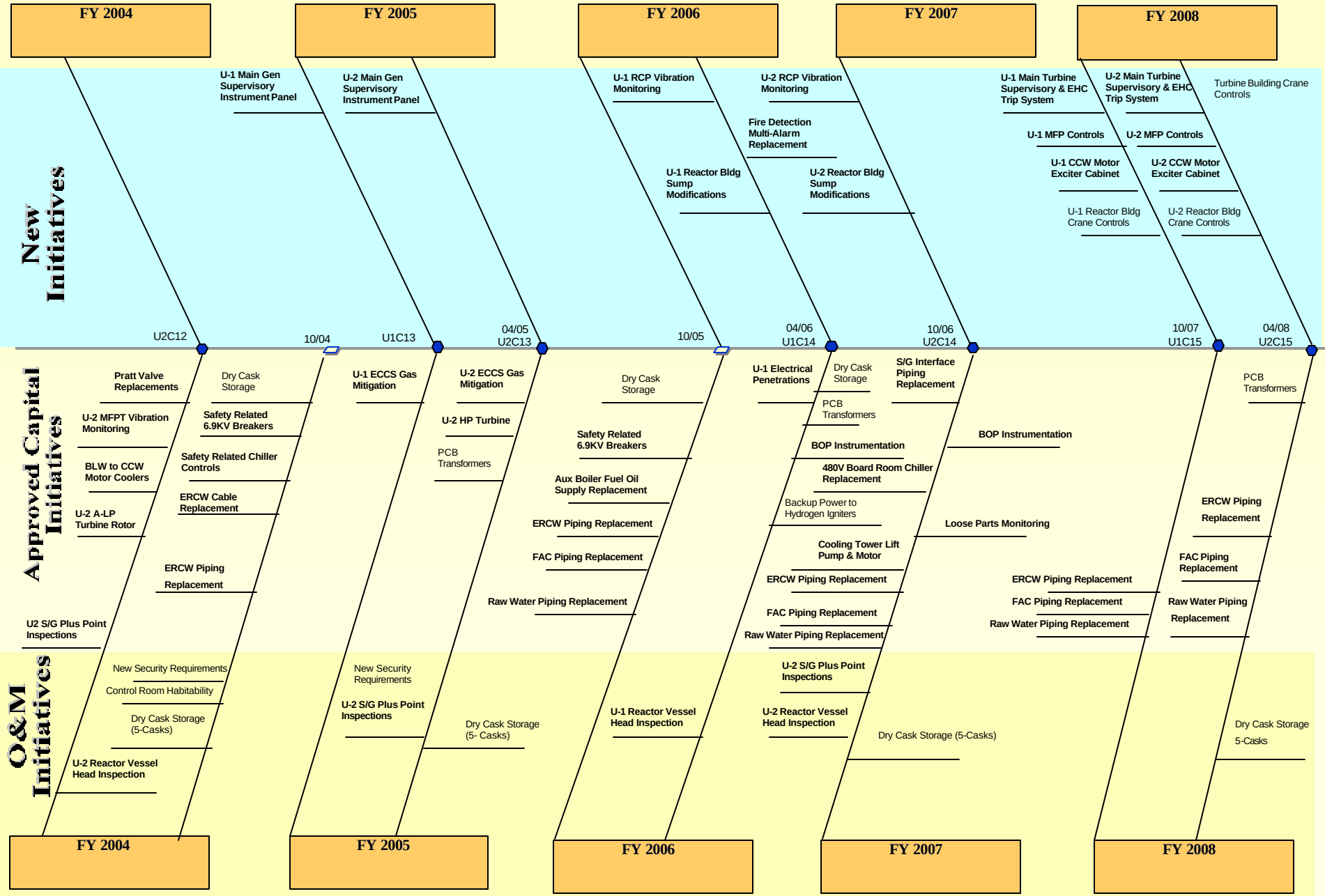


Browns Ferry Nuclear Plant
FIVE YEAR PROJECT PLAN



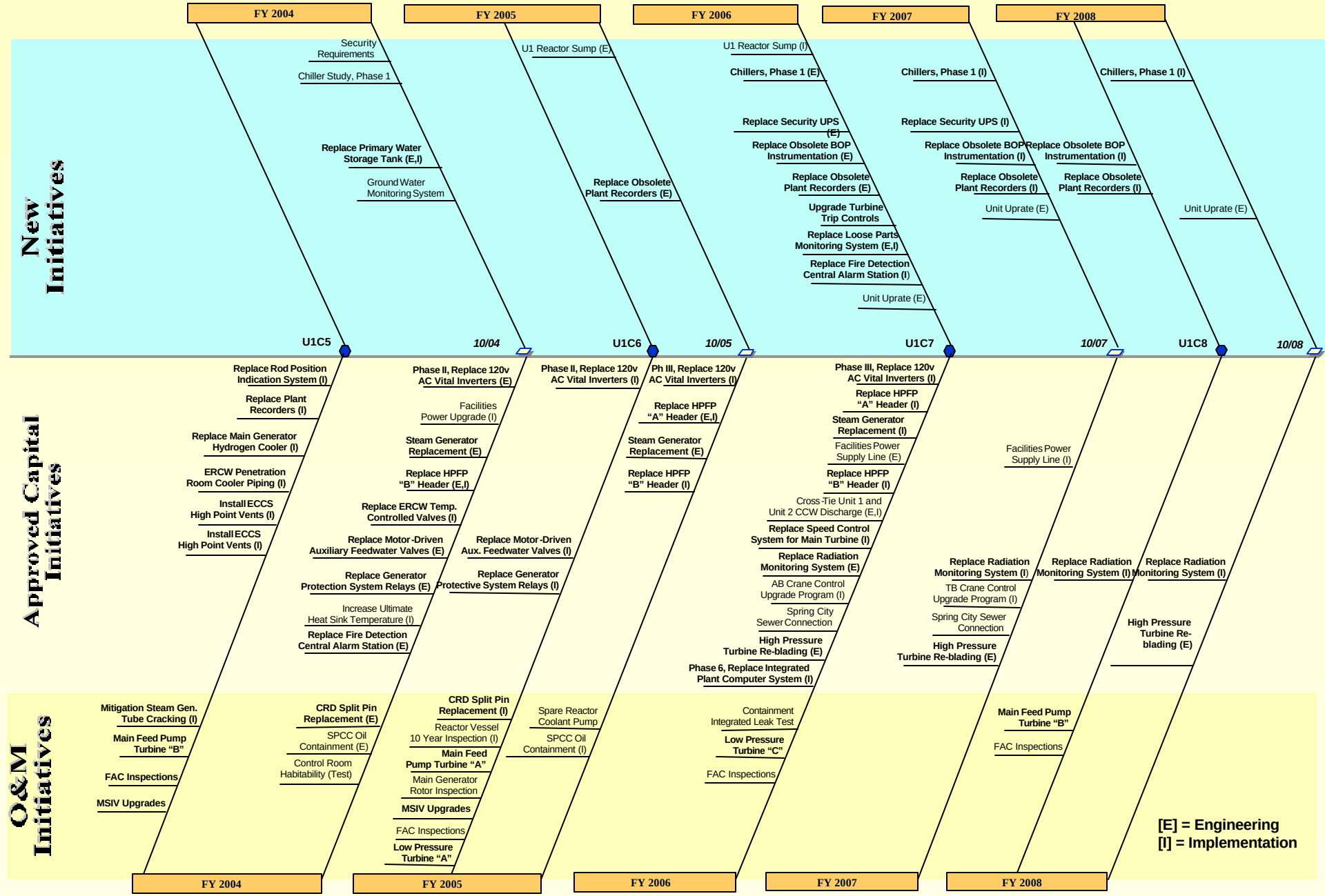
Sequoyah Nuclear Plant

FIVE YEAR PROJECT PLAN



Watts Bar Nuclear Plant

FIVE YEAR PROJECT PLAN



Equipment Reliability

- Improvement Initiatives Also Include:
  - Transfer Ownership for Generator Main Bank Transformers at Nuclear Sites
    - Developing Comprehensive Plan that Will Address Training and Qualification Requirements, Procedure Changes, and Staffing Requirements
    - Identifying and Obtain Additional Spare Parts
    - Developing and Implementing an Improved Equipment Trending Program

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Equipment Reliability

- Fuel Reliability Improvement Initiatives:
  - Shipping Fuel from Browns Ferry to Hot Cell Facility for Root Cause Determination of Unit 2 Corrosion Failures
  - Aggressively Completing Poolside Fuel Inspections to Determine Cause of Single Failures at Watts Bar and Sequoyah Unit 2
  - Increased Participation in EPRI Fuel Reliability Program
  - Additional Oversight of Fuel Vendor Manufacturing
  - Participated in Development of INPO SOER 03-2, *Managing Core Design Changes*

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Excellence in Human Performance

- Goal Is to Protect People and Plant Equipment from Human Error
  - Improvement Plan Is Based on a Two–Part Strategy
    - Aggressive Control of Defense-In-Depth
    - Rigorous Use of Error Prevention Tools
  - Performance is Measured by the Human Performance Index

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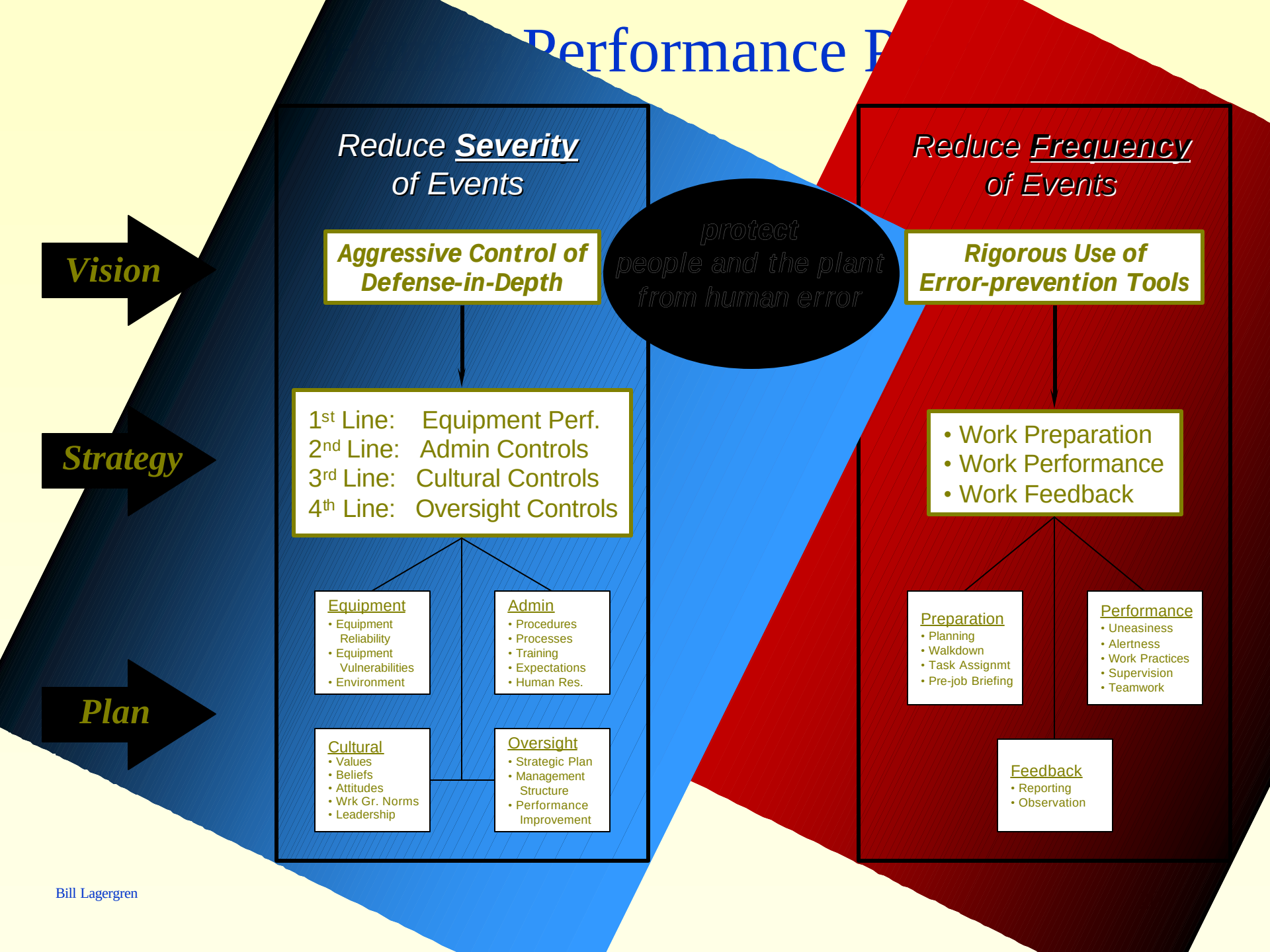
Performance F



Bill Lagergren

Excellence in Human Performance

- Improvement Initiatives Include the Following:
  - Develop Human Error Reduction Toolbox and Incorporate Into Employee Training Programs
  - Identify Critical Steps Associated with Risk-Sensitive Activities in Work Documents and Plant Procedures
  - Ensure Pre-job Briefings Include Identification of Critical Steps and Associated Error-Prevention Practices
  - Develop Human Performance Index for Use as Performance Indicator

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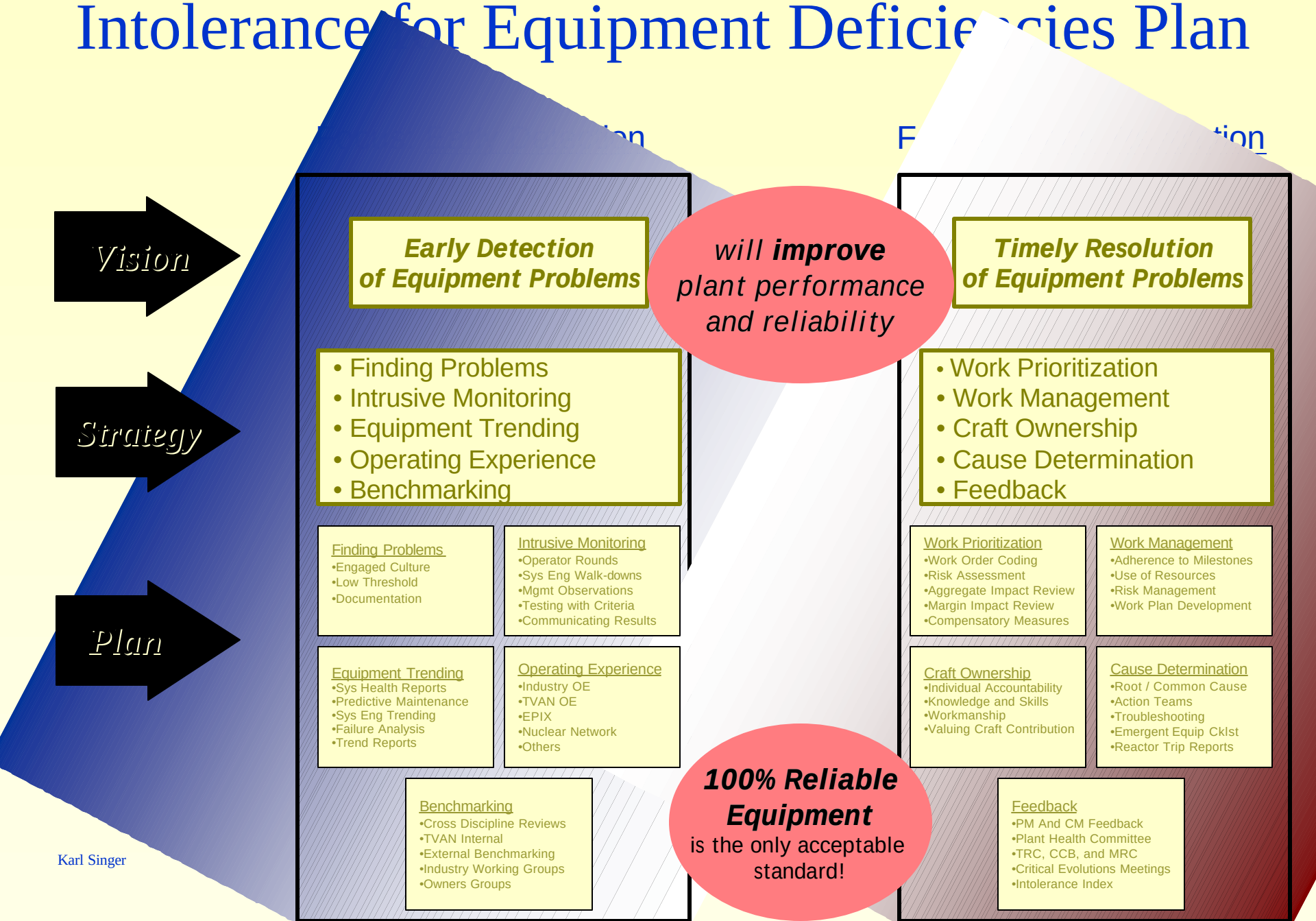
Intolerance for Equipment Deficiencies

- Goal Is to Develop a Culture that Is Unwilling to Accept Component Failures
  - Demonstrated by Timely Detection and Communication of Degrading Trends
  - Cause Determination, Correction, and Prevention Commensurate with Safety and Generation Risk
  - Improvement Plan Is Based on a Two–Part Strategy
    - Early Detection
    - Timely Resolution
  - Performance is Measured by Intolerance for Equipment Deficiencies Index

Intolerance for Equipment Deficiencies Plan



Karl Singer

Intolerance for Equipment Deficiencies

- Intolerance Index Used to Measure Progress :
  - Intolerance Index Used to Measure Progress
  - Aggregate View of Typical and Non-Typical Indicators
  - Executive Sponsorship and Attrition
  - Pilot Process for Other Indices
  - Engaging Wide Portion of Workforce

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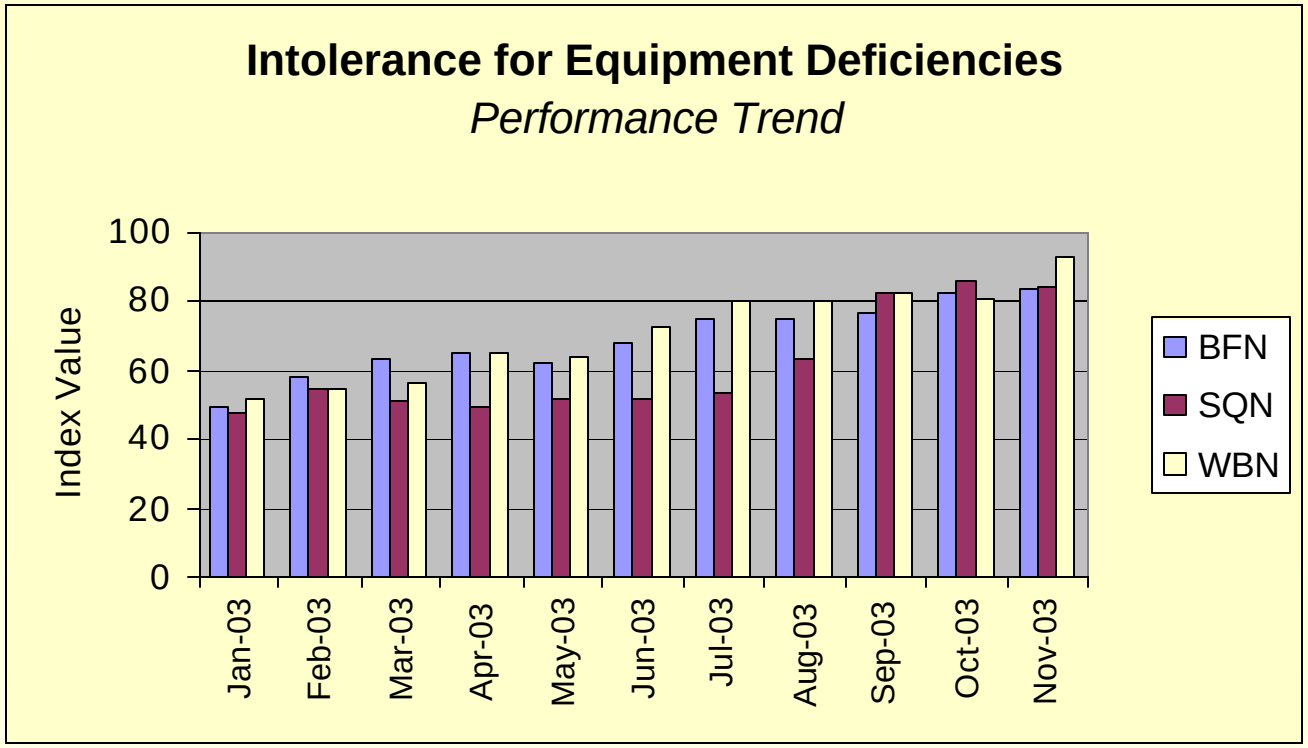
Intolerance for Equipment Deficiencies



TVAN Multi Skill Initiative Status

- Incumbent Level III Training
  - 109 Of 270 Incumbents Trained (Electrical at Browns Ferry Complete)
  - Balance of Level III Incumbents to Be Trained by End of January 2004
- Incumbent Level IV Training
  - Identifying Duty Area Assignments for Incumbents
  - Duty Area Classes Scheduled Throughout FY04
- Incumbent Level V Training
  - Scope and Core Training Content Identified
  - Expect to Begin Level V Training in FY04
- New-hire Electrical and Mechanical (Pipeline) Trainees
  - 79 Currently in Pipeline
  - 39 More to Start Classes in January 2004

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TVAN Multi Skill Initiative Status

- Planner/Supervisor Training
  - Initial Orientation Training Complete
  - Follow Up Training in Progress
  - CBT Modules to Complete by April 2004
- Multi Skill Organization
  - Assign Employees to Work Groups by Duty Area
  - Crew Supervisors Scoping Work/Procedures
  - Identify PM/Procedures to Be Revised
  - First Work Using Revised Procedures in April 2004

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TVAN Work Force Planning Status

- TVAN Has Implemented a Planned, Integrated Approach to Work Force Management.
- Key Elements
  - Work Force Planning (5 Year Plan: How Many, What Kind, When, and Where)
  - Recruiting Initiatives
  - Technical Training Programs (Multi Skilled Work Force)
  - Leadership Development / Succession Planning
  - Knowledge Retention Initiative

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TVAN Work Force Planning Status

TVAN Staffing

(Fiscal Year)

	2001	2002	2003	2004(proj.)
Headcount	2972	2909	2865	2866
Retirements*	100/141	96/101	136/119	153
New Hires	166	92	128	101
Pipeline Hires	59%	69%	68%	93%

* Actual/Projected (Retirement projections are based on employee attrition surveys. Approximately 80% of TVAN employees voluntarily provide dates.)

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Closing Remarks