



Using Feedback and Improvement Processes to Strengthen Safety Culture

Gary Grant
CH2M HILL Plateau Remediation Company
11/09/2011

**Joint ISM &QA and
Contractor Assurance Working Group**

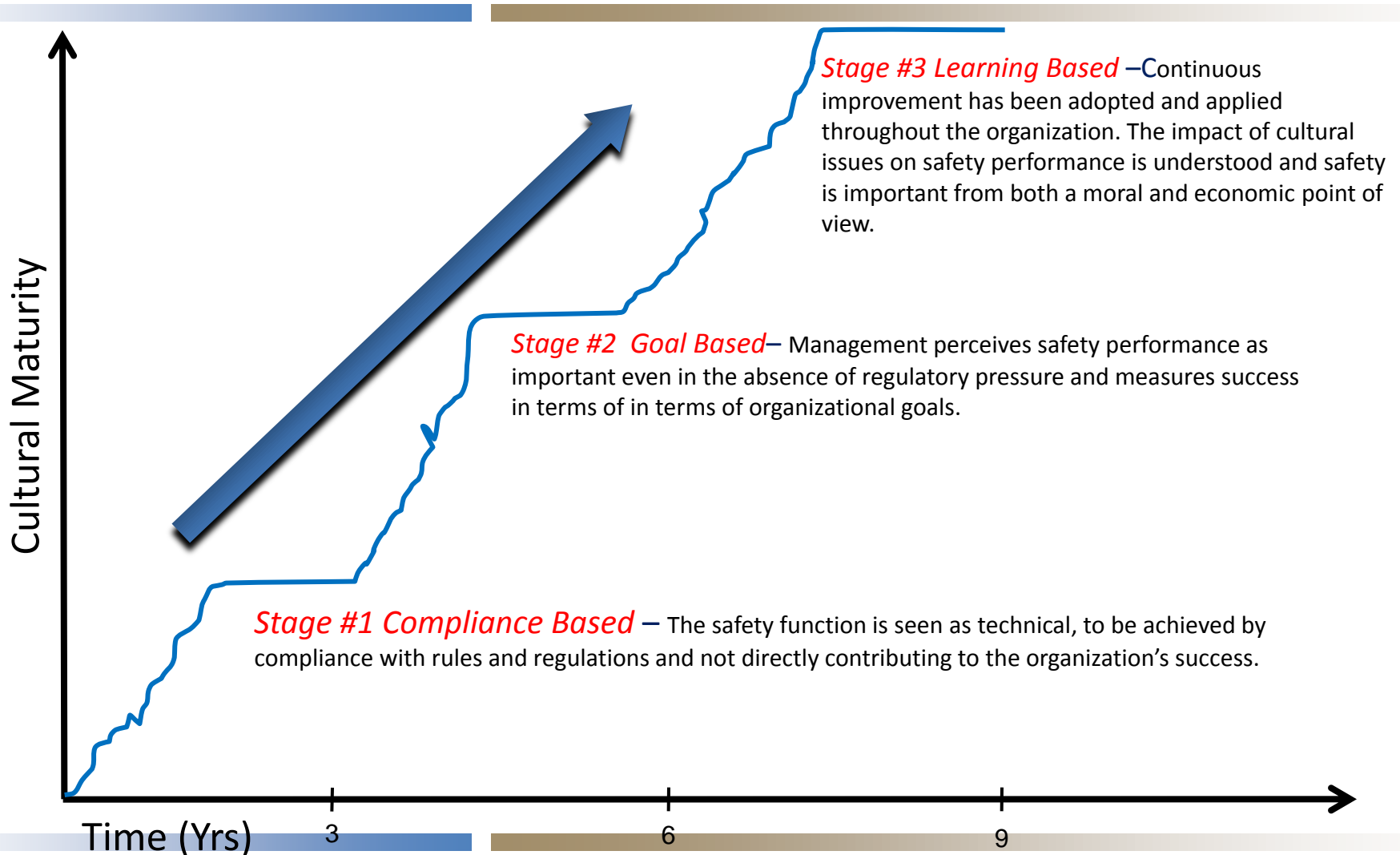
CHPRC's Strategy and Approach

- Overview
 - Safety Culture
 - Stages-Maturity
 - Mechanics to Improve
 - Performance Gaps & Error Traps (Error Precursors)
 - Strategy and Tools We Used
 - Results
 - Monitoring & Reporting Safety Performance

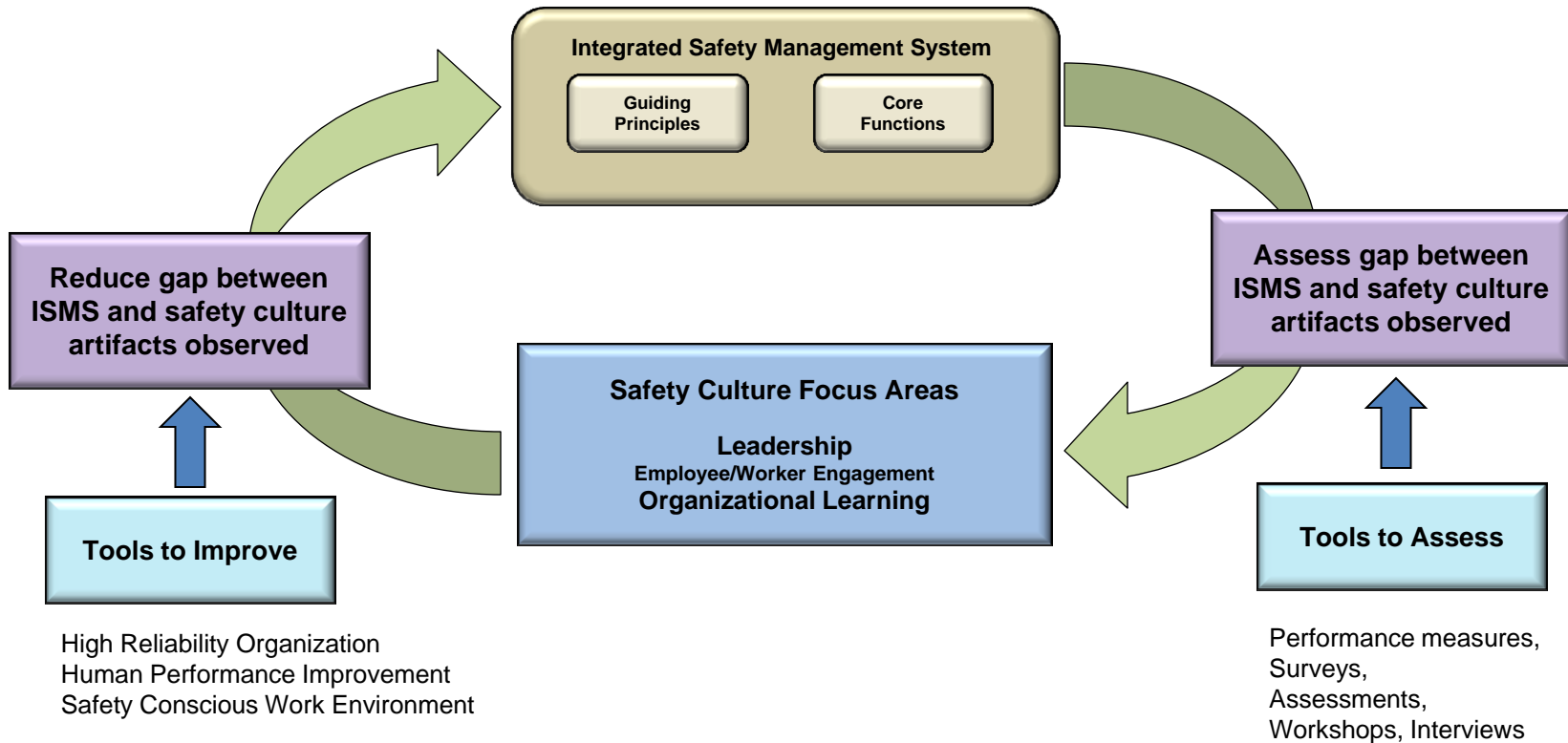


Safety Culture Stages

Modified from IAEA – TECDOC-1329 Safety Culture Nuclear Installations December 2002



Mechanics of Improving Safety Culture

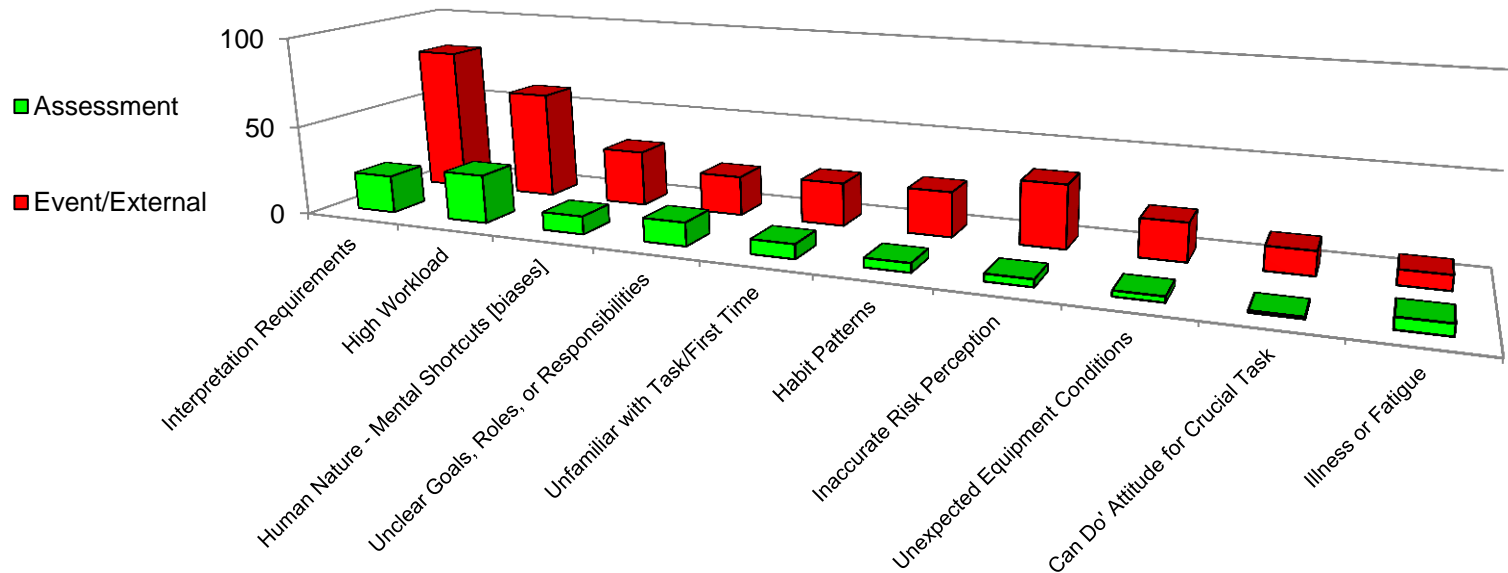


Performance Gaps and Observations

- Disconnect between management expectations and what is observed in the field
- Differences in perceived risk that leads to disagreements on the hazards and associated controls
- Work teams don't always recognize that the work situation is different or changed from what was planned
- Process controls are not a strong influence to work team behaviors
- After stopping when unsure, people proceed based on assumptions

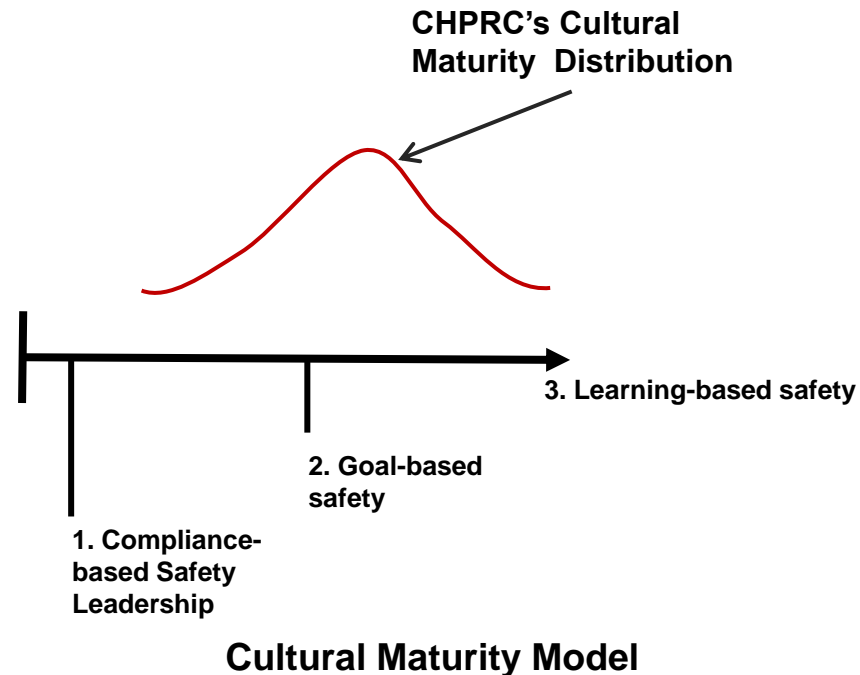
Our Top 10 Error Traps

Error Precursors - Significant and Adverse CRs (3/2010 - 2/2011)



Strategy for Enhancing Safety Culture

- Where we are and what needs improvement
 - Used the Lessons Learned and approach recommended by EFCOG Safety Culture Task Team
 - Survey leadership team
 - Results of recent root cause analysis activities
 - Data analysis of CRRS to identify human performance related factors
- Identified a need to effect a “shift” in safety culture
- Identified a strategy and approach
 - Capitalize on what was already in place
 - Prevention, Detection, Correction



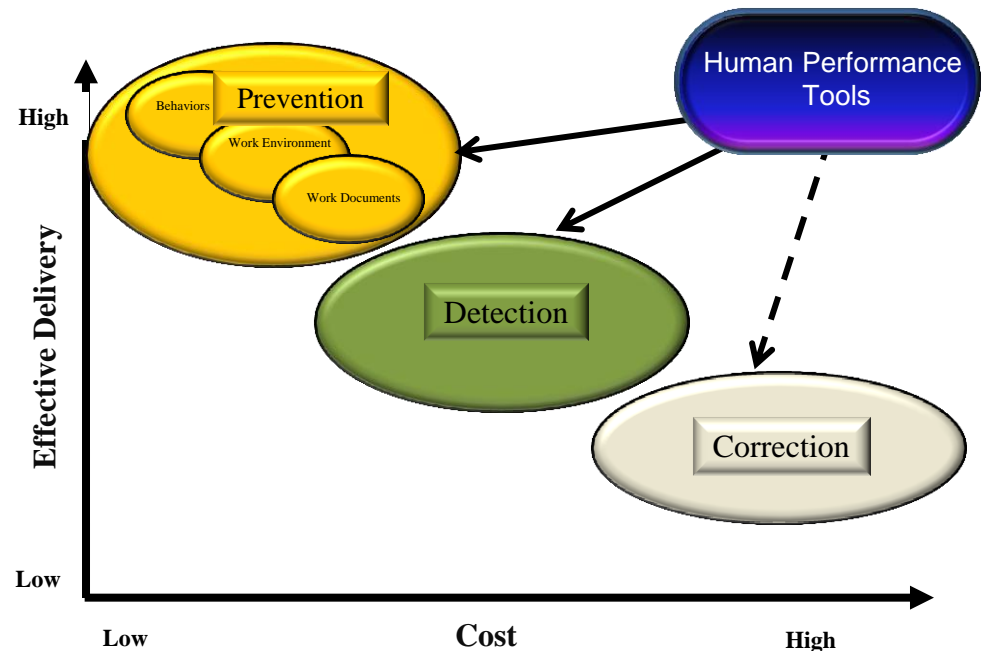
Targeting at Risk-Behaviors

- Recognizing that Organizational Culture is “Deep and Broad” and that is not easily changed
 - Identify specific “targets”
 - Develop a simple approach
- Develop the shared value that error and event prevention is an integral part of work performance and core business
 - Train the leadership team on the critical few human performance tools relative to prevention and detection of at risk behaviors
 - Establish expectations for using the tools
 - Establish performance measures both leading and lagging to reinforce the expectations for using the tools

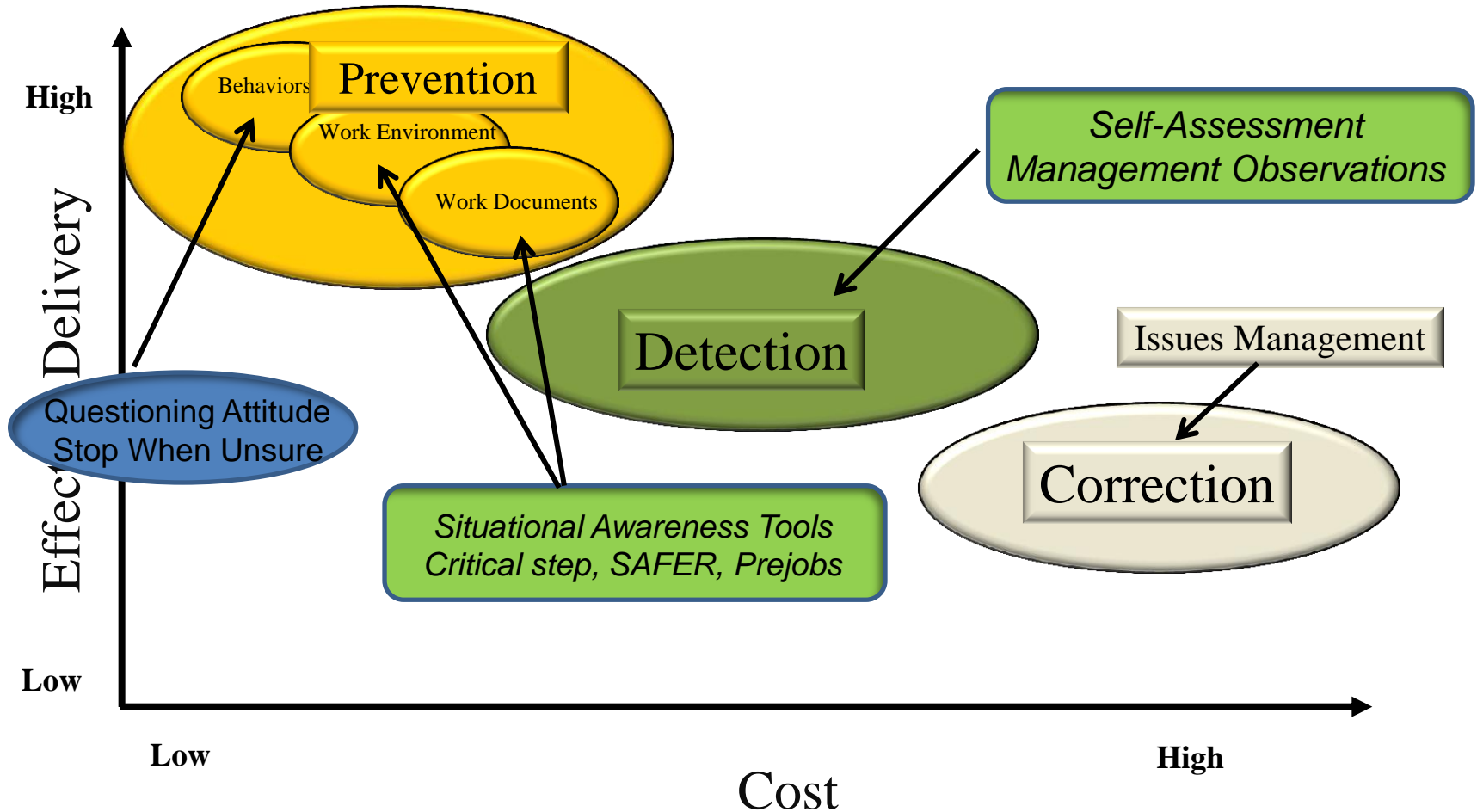
Human Performance Program

- PRC-MP-MS-40403, *Human Performance Program*
 - Provides overview of the Program
 - Defines the strategy and approach
 - Describe roles and responsibilities
 - Provides the tools with specific attributes
 - What, When, Why
 - Provides processes that have the tools
 - Prejob Brief
 - Procedure Development
 - Work Management
 - Self-Assessment
 - Issues Management
 - Based on benchmarking
 - Florida Power & Light's program
 - EFCOG

Prevention, Detection, Correction Strategy



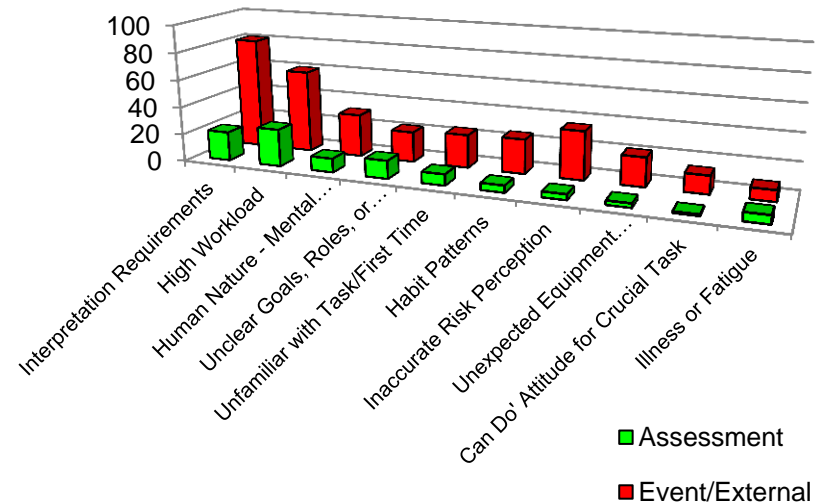
Specific Tools Target Specific Activities



Management Observation Program

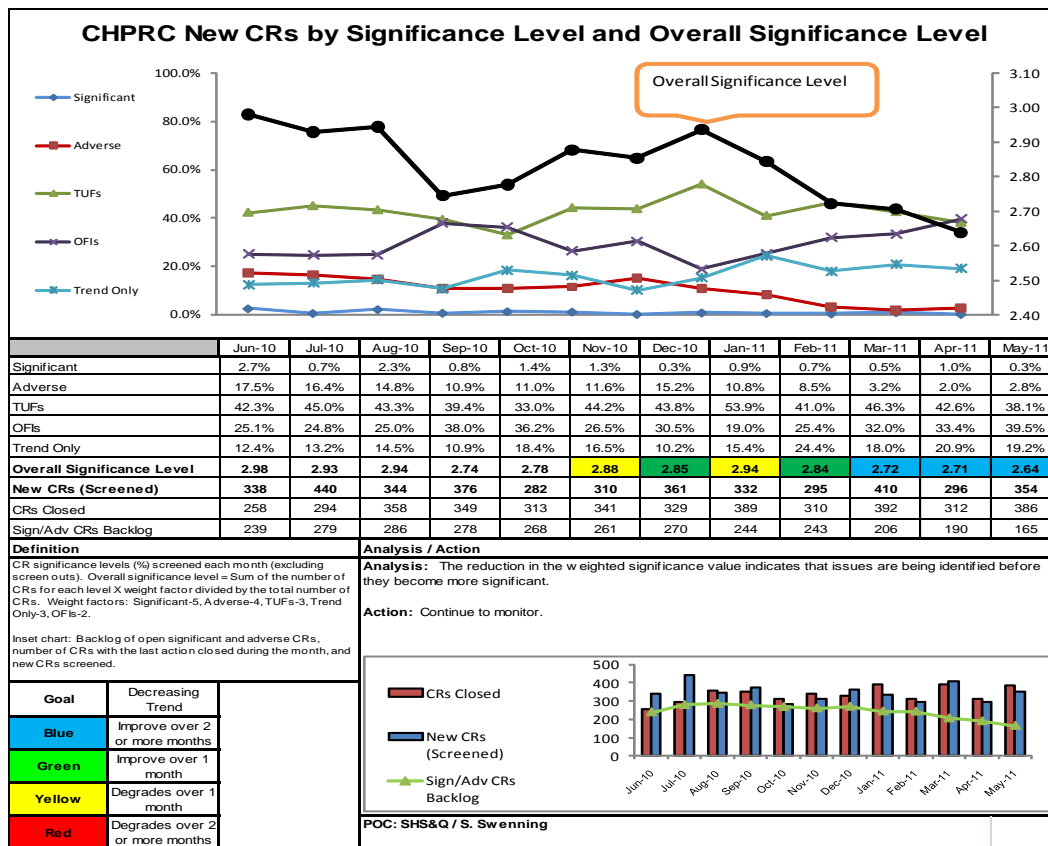
- PRC-PRO-QA-40099, Management Observation Program
 - Definition and expectations for management oversight of work activities
 - A checklist was developed and promulgated based on INPO's Worksite Assessment guidance
 - Focus management observations on the organizational behaviors that result in the causes of events and occurrences.

Error Precursors - Significant and Adverse
CRs
(3/2010 - 2/2011)



Reporting Culture

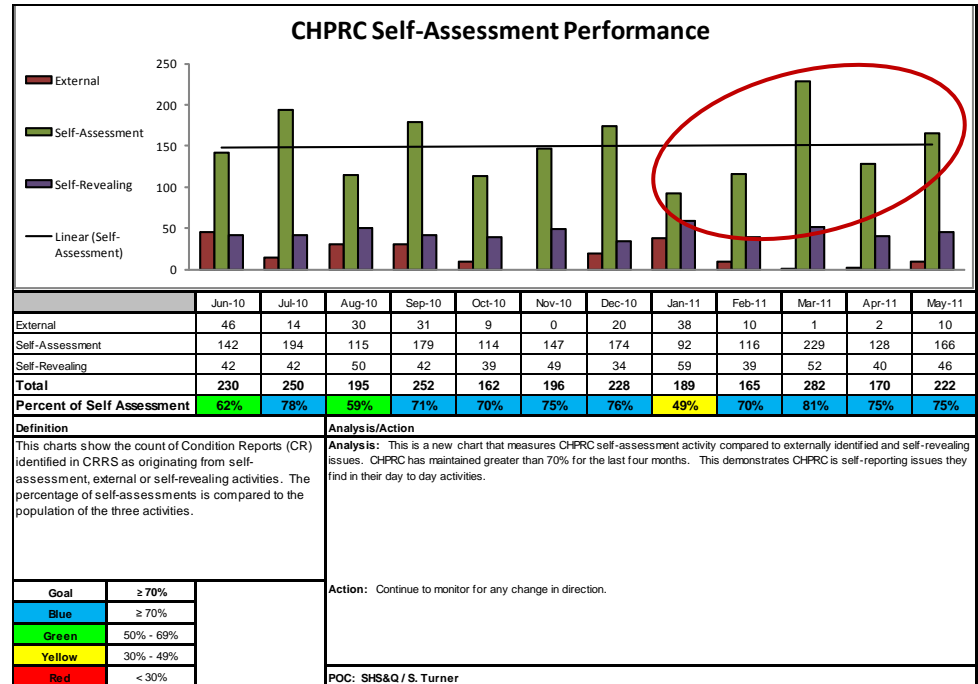
- **Continuous Improvement Plan**
 - Defines Expectations
 - Defines Strategy
- **Issues Management Process**
 - High volume low threshold
 - Web based open access system
 - 4000 CRs/year 350 CRs/month
 - Over 30% of the workforce from VPs to represented worked have submitted CRs



Feedback and Improvement to Shift Safety Culture

Assessment Program Plan

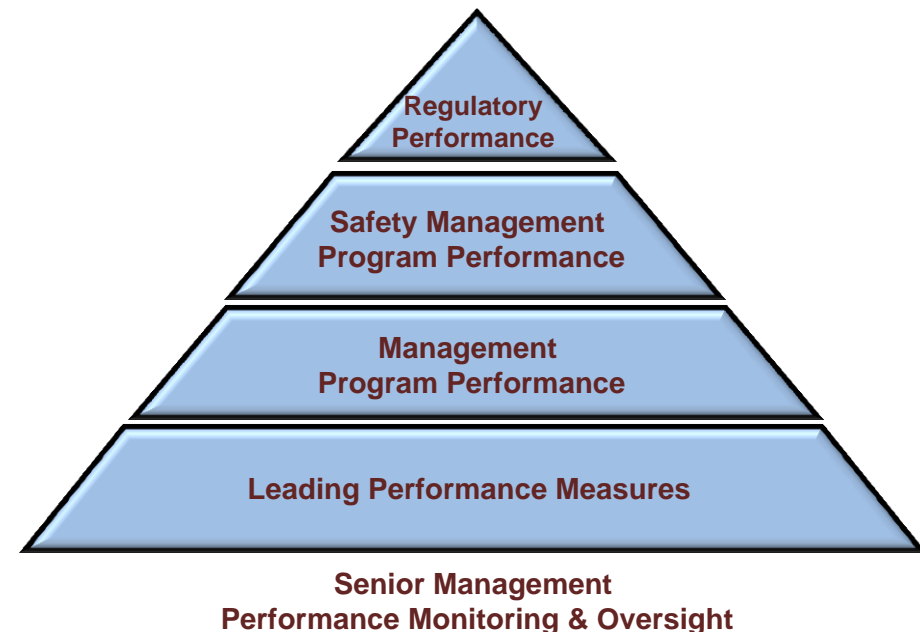
- Provides overview of the Assessment Program
 - Assessment types (Independent, Management, Surveillances, Work Site, Management Observation Program [MOP], and Worker)
 - Roles and Responsibilities – including Safety Management Program Owners
 - Improve self-assessment approach to target not only safety management program compliance, but include “at-risk” performance behaviors



Monitoring Safety Performance

- **Continuous Improvement Plan**
 - Defines strategy, approach and expectations based on industry performance standards
 - Institute of Nuclear power Operations (INPO) , *Achieving Excellence in Performance Improvement* (09-011)
- **Performance Analysis Process**
 - Organize and report monthly to the ESRB Safety Trending Analysis on three focus areas
 - Needs Improvement
 - Positive Performance Change
 - Watch list
 - Project Trending
 - Trend Working Group
 - Company Trending
- **Executive Safety Review Board**
- **Performance Improvement Center of Excellence Charter**

Measurement Strategy



Reporting Safety Performance

Measurement Strategy



CHPRC Performance Dashboard

May 2011

Performance Indicator	Goal	Feb-11	Mar-11	Apr-11	May-11
1. Personnel Safety & Health					
Total Recordable Case Rate	<1.30	1.16	1.20	1.18	1.26
Day Away, Restricted, Transferred Case Rate	<0.60	0.52	0.51	0.51	0.50
First Aid Cases	NA	32	35	28	33
2. Industrial Operations					
Hazardous Energy-Process Compliance	0	0	1	0	0
Hazardous Energy - Below Threshold	0	3	0	0	0
Hazardous Energy - Hazard Contact	0	0	0	0	0
Vehicle Safety	0	0	0	0	0
Heavy Equipment	0	0	0	1	0
Hoisting & Rigging	≤1	0	0	1	0
Fall Protection Events (cumulative)	0	0	1	1	1
Fall Protection Issues	NA	3	2	1	1
Fire Protection	NA	5	21	6	0
Self-Assessments		4	21	18	12
3. Operations					
Transportation	0	0	0	0	0
TSR Violations (cumulative)	0	2	3	3	3
Criticality Safety	0	0	0	0	0
Potential Safety Analysis Inadequacies (USQ)	NA	0	0	0	1
ORPS EM Score	<2.04	0.41	1.07	1.04	0.72
Near Misses (Target-0)	NA	0	1	0	0
EP Drill Performance	<10%	0%	0%	0%	0%
Self-Assessments		6	20	1	2
4. Work Control					
CONOPS Procedure Compliance	<3.50	4.74	6.87	7.10	6.49
Work Management	<8	22.59	22.99	23.66	15.99
Error Precursors	NA	50%	25%	18%	25%
Self-Assessments		20	28	21	26

Performance Indicator	Goal	Feb-11	Mar-11	Apr-11	May-11
5. Radiological Safety					
Rad Control Boundaries	0	1	3	4	0
Collective Dose (ALARA) (cumulative)	115.78 person-rem	12.84	21.88	28.51	42.29
Skin/Clothing Contamination	≤ 2	0	0	2	0
Contamination Spread	0	0	0	1	0
Unplanned Dose Intake Events	≤ 2 events, >10 mrem CEO	0	1	0	0
Self-Assessments		2	5	3	2
6. Environmental Performance					
Notice of Violations (cumulative)	0	0	0	0	0
TPA Milestones	0	0	0	0	0
Environmental Spills - Reportable	0	0	0	0	0
Environmental Spills - Non-Reportable	<5	6	7	15	27
Self-Assessments		5	15	6	7
7. Feedback and Improvement					
Self-Assessments - Planned vs Completed	100%	92%	97%	96%	88%
Self-Assessment Performance	≥70%	70%	81%	75%	75%
Condition Report Quality	≤10%	29.2%	26.7%	3.6%	0.0%
CRs by Significance Level	Decreasing Trend	2.84	2.72	2.71	2.64
Self-Assessments		7	17	8	13
8. Business Operations					
Medical Appointment Attendance	100%	97.0%	93.8%	96.3%	94.4%
Training No Shows	NA	134	116	134	112
Self-Assessments		3	12	4	5

LEGEND

Performance Level Flags	Excellent	Good	Marginal	Poor