

Brunswick Nuclear Plant Human Performance

NRC Region II Visit
January 14, 2010



Agenda

- | Human Performance (HU) Excellence Plan
 - w Development
 - w Inputs
 - w Focus Areas
- | Focus Area Key Actions
- | Results
- | Summary

HU Excellence Plan Development

- | Benchmarked Industry
- | Established a Living Plan with action assignments tracked by the Corrective Action Program
- | Established Metrics to monitor effectiveness
- | Action assignments tracked in the Corrective Action Program
- | Plan reviewed by Fleet and INPO
- | Aligned Station through high visibility and consistent communication of the plan

HU Excellence Plan Inputs

- | Common Cause Analysis – 2008
 - w Risk Identification/Mitigation
 - w Engineering Technical rigor
 - w Equipment Reliability
- | Corrective Action Program Trend Reports
- | Site Level Human Performance Events
- | INPO Performance Indicators
- | NRC Cross Cutting Matrix

HU Excellence Plan Focus Areas

- | Focus Areas

- | Behavior Change and Reinforcement

- | Procedures

- | Risk Identification and Mitigation

- | Work Control

- | Key Enabler

- | Training



Behavior Change and Reinforcement

Key Actions

- | 17 Key actions
- | Increased First Line Supervisor oversight of field activities
- | Conducted Leadership Assessment
- | Conducted Accountability training to all site personnel
- | Site Leadership completed a Leadership workbook
- | Established Supervisor Steering committee
- | Enhanced oversight and training of Supplemental Personnel

Behavior Change and Reinforcement

Key Actions

- I Implemented Dynamic Learning Activities
- I Implemented new Observation program in September 2009
 - w Allowed better trending of data
 - w Improved entry and monitoring process
 - w Implemented at a fleet level
 - w Implemented in-process Technical review observations
 - w Improved Major Projects utilization of the observation program
- I Developed, proceduralized and implemented consistent HU clock reset criteria

Behavior Change and Reinforcement

Key Actions

- I Communicated HU Excellence Plan site-wide
- I Established HU Program Oversight
 - w HU Program Manager position reporting to Director of Site Operation
 - w Human Performance Core Team lead by HU Program Manager as the implementation arm of the HUSC
 - w Human Performance Steering Committee (HUSC) as the senior site management team
 - w Review Boards
 - w Shared learning through site and fleet communications
 - w Nuclear Safety Review Committee standing agenda item
- I Established and communicated NGG Leadership Behaviors

Behavior Change and Reinforcement

Key Remaining Actions

- | Develop supervisor training guideline to support line employee transition to supervision
- | Perform Self-Assessment of monthly observations in comparison to monthly Nuclear Condition Reports to evaluate effectiveness of identifying, coaching & correcting behaviors at a low threshold
- | Conduct a Supervisory effectiveness Self-Assessment
- | Implement a training strategy to improve performance of supplemental craft, supervision and supplemental project management oversight

Procedures

Key Actions

- | 46 Key Actions
- | Site personnel completed an Adverse Human Performance Trend, Procedure Use and Adherence / Work Management Activities, workbook
- | Implemented industry best practices Procedure Use and Adherence standards into a fleet NGG procedure
- | Placekeeping requirements established for procedures and work orders
- | Developed and implemented a plan (resources & timeline) to accelerate upgrade to site procedures and work off PRR backlog

Procedures

Key Actions

- | Implemented a graded approach to planning to prompt more rigorous reviews for pre-defined work activities
- | Developed and implemented process for early identification of work activities requiring increased rigor reviews to confirm procedure adequacy
- | Established maintenance planning review committee
- | Proceduralized requirements for quality critical work tasks

Procedures

Key Remaining Actions

- | Revise procedure writers guide to incorporate HU & industry best practices (Human factors)
- | Formalize the use of checklists for procedure writers and procedure reviewers
- | Work the plan to accelerate upgrade to site procedures and reduce PRR backlog
- | Conduct training on the Engineering Product Quality procedure focusing on processes and tools to improve quality

Risk Identification and Mitigation

Key Actions

- | 22 Key Actions
- | Risk significant activities identified, communicated, supervisor oversight established and specific mitigation measures put in place and discussed at the morning meetings
- | Developed and implemented procedure 0AP-060, Technical Risk/Rigor Risk Assessment
- | Implemented improvements to the Post Maintenance Testing process

Risk Identification and Mitigation

Key Actions

- | Implemented modification quality improvements
- | Revised BNP Integrated Scheduling procedure to include specific behavior changes that are expected for elevated risk activities
- | Implemented method to improve identification and evaluation of organizational contributors to events during Priority 1 and 2A investigations

Risk Identification and Mitigation

Key Remaining Actions

- | Perform Self-Assessment on a site elevated risk activity/task including site behaviors, procedure compliance, and barriers put-in-place
- | Conduct a self-assessment on the implementation of AP-60, Technical Risk/Rigor Risk Assessment

Work Management Key Actions

- | 8 Key Actions
- | Strengthened requirements on written guidance required to manipulate equipment
- | Implemented Industry best practice for “Skill of the Craft”/Minor Maintenance work
- | Implemented OPS-NGGC-1308, Plant Status Control at BNP
- | Signage posted in plant to heighten awareness of work classifications and plant status control

Work Management Key Actions

- Revised Work Management Process procedure to make it clear that changing status of Work Order tasks to finish and using lists to track items not completed is not allowed.
- Implemented Plant Labeling upgrade

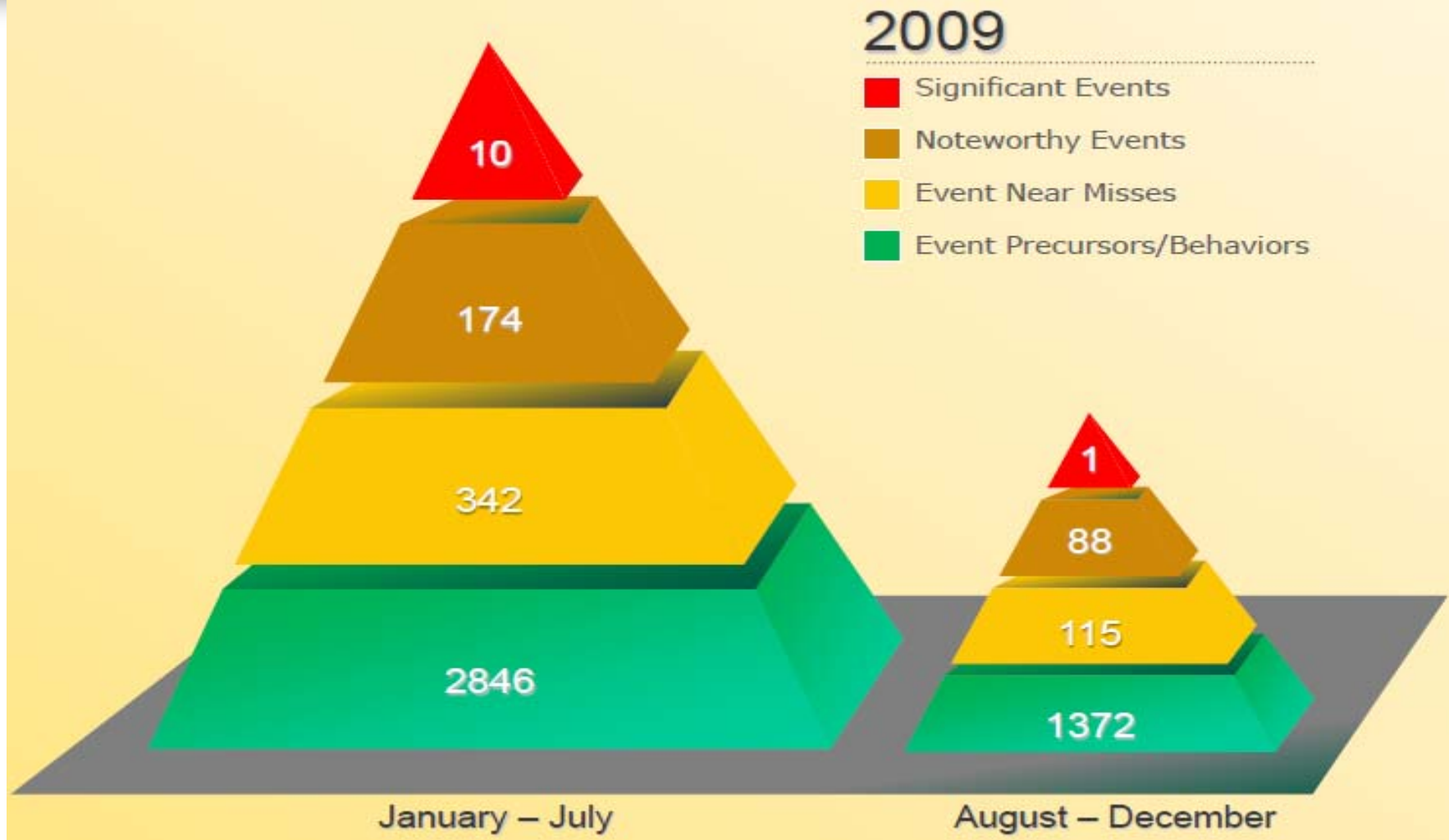


Work Management Key Remaining Actions

- | Complete plant labeling upgrade
- | Perform a site survey to verify knowledge level pertaining to the Work Management Process procedure requirements

Results

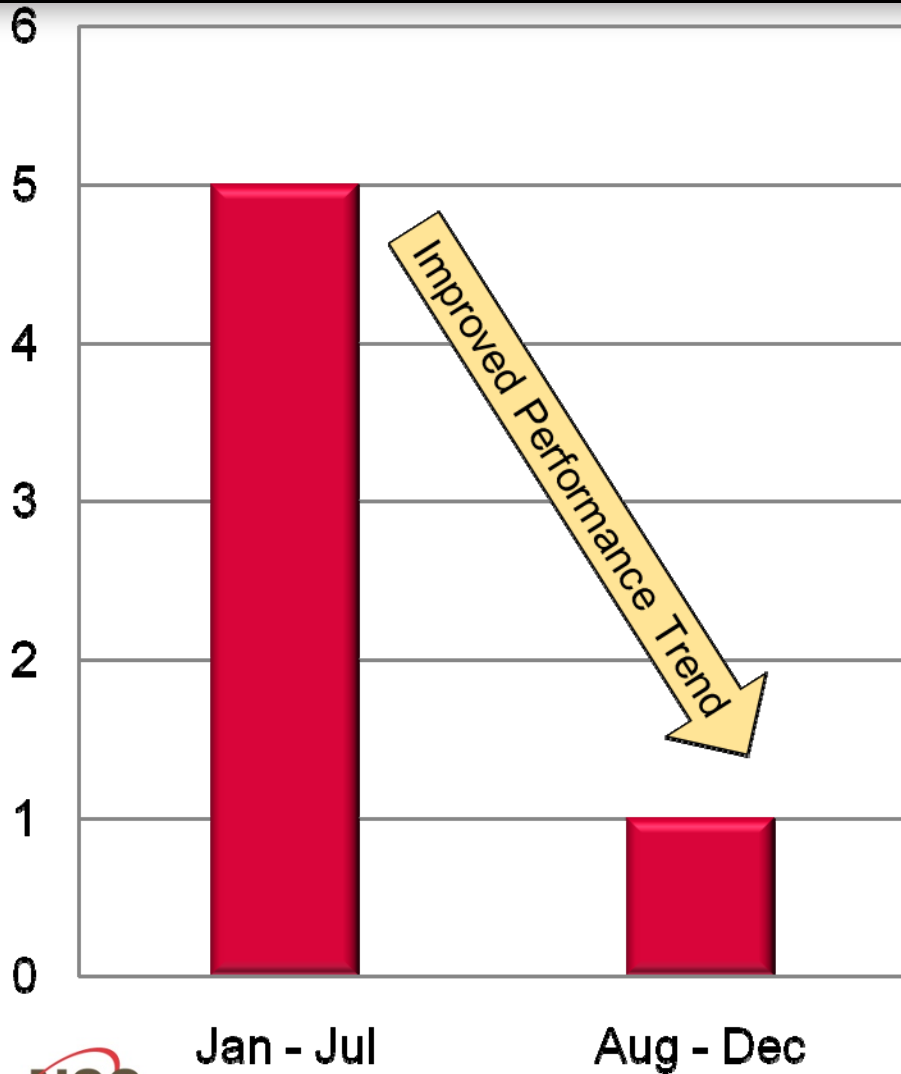
Human Performance Event Tree



Results

- | Station HU Events: ~72% reduction in rate of site level HU events
- | Plant Status Control (PSC): ~50% reduction in rate of PSC events
- | Clearance Tagging: ~52% reduction in rate of tagging errors/precursor events

Site Human Performance Events - 2009

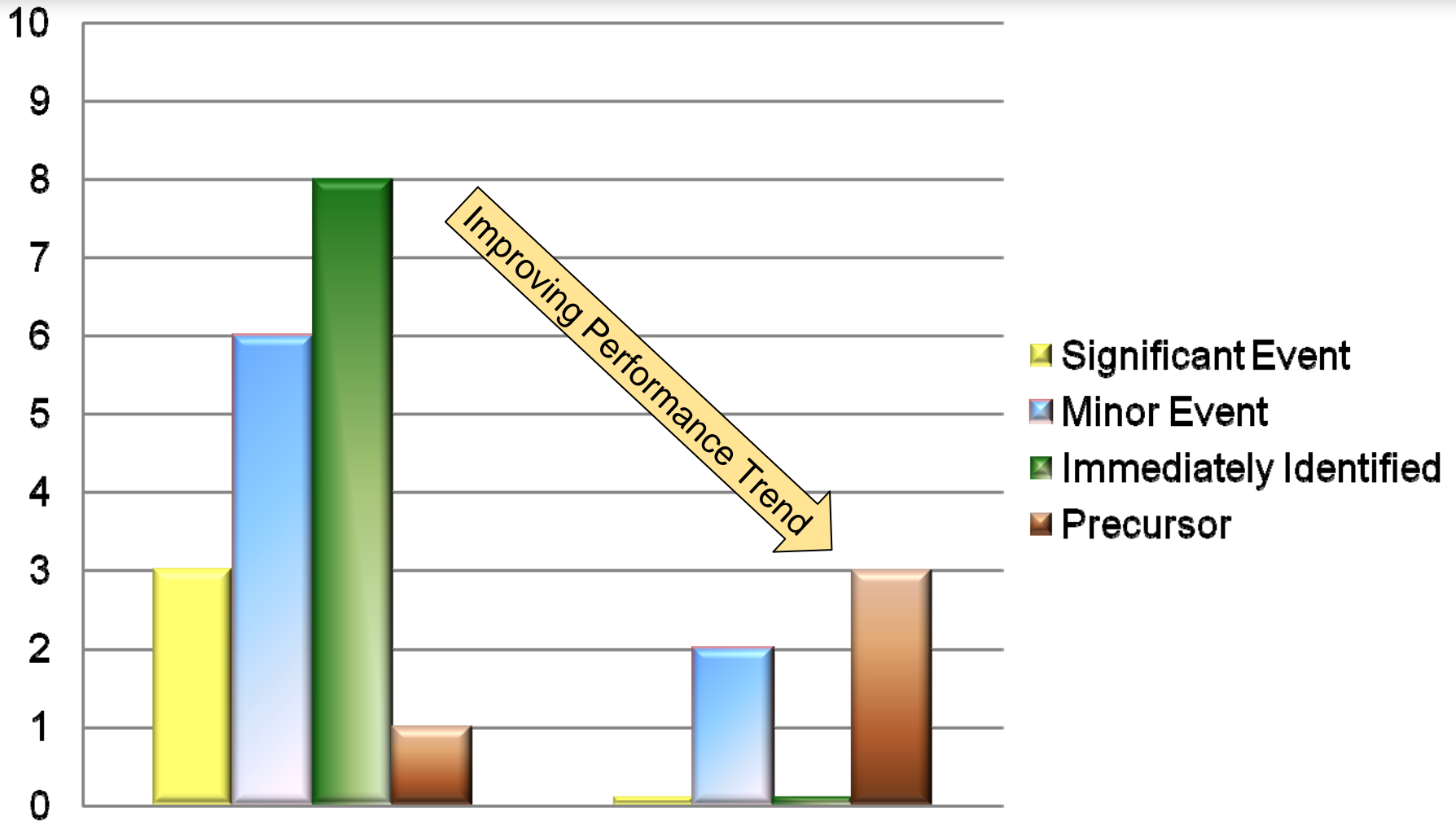


December 2009 Performance

Average Days	52.8
Days Since Last Event	47
December Events	0
Year to Date Events	6



Status Control Events - 2009



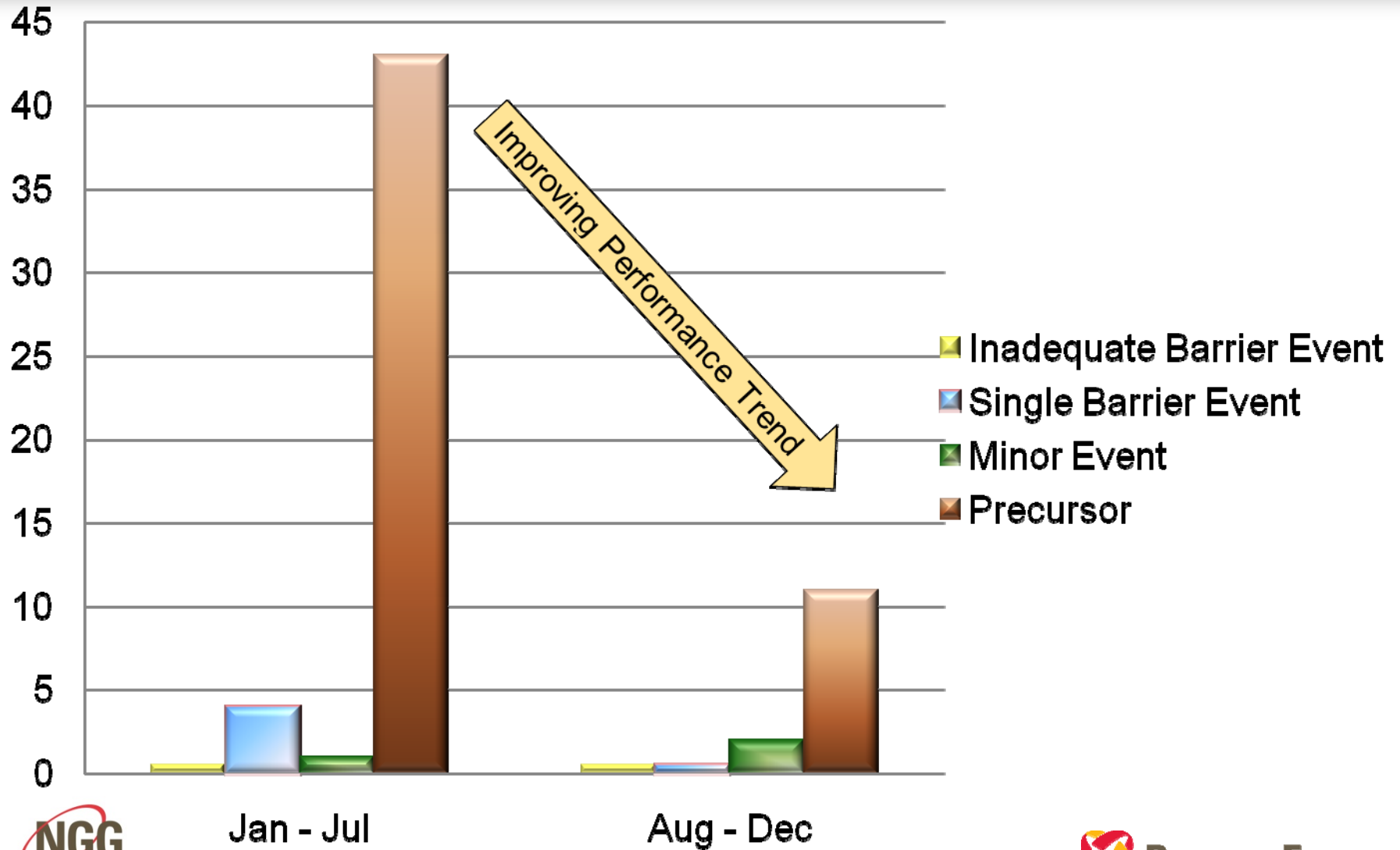
Jan - Jul
22

Aug - Dec

01/13/10



Clearance Tagging Events - 2009



Jan - Jul

23

Aug - Dec

01/13/10



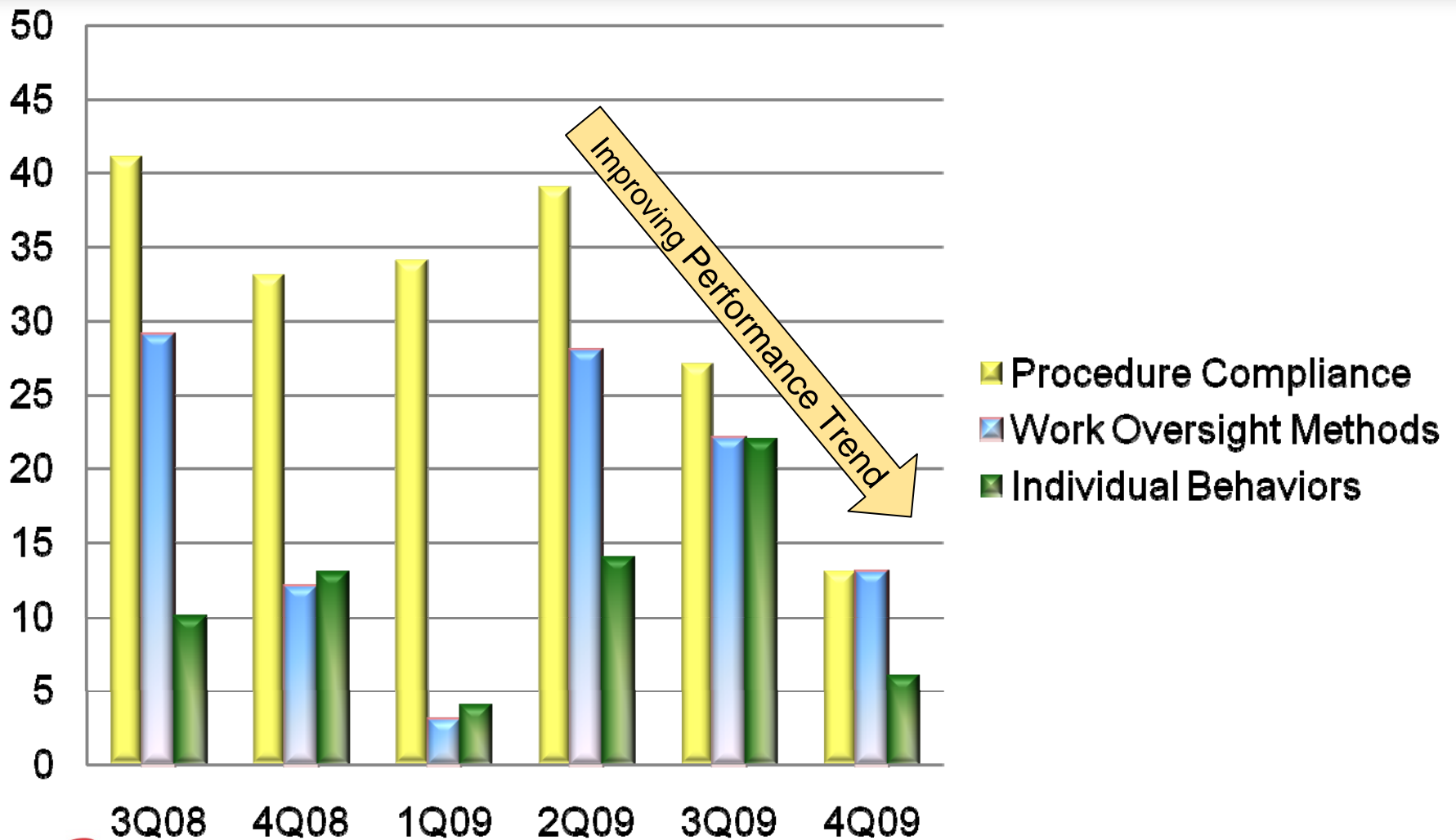
Results

- | Operations HU Clock resets: 38% reduction in reset rate
- | Maintenance HU Clock resets: 45% reduction in reset rate
- | Engineering HU Clock resets: 28 % reduction in reset rate

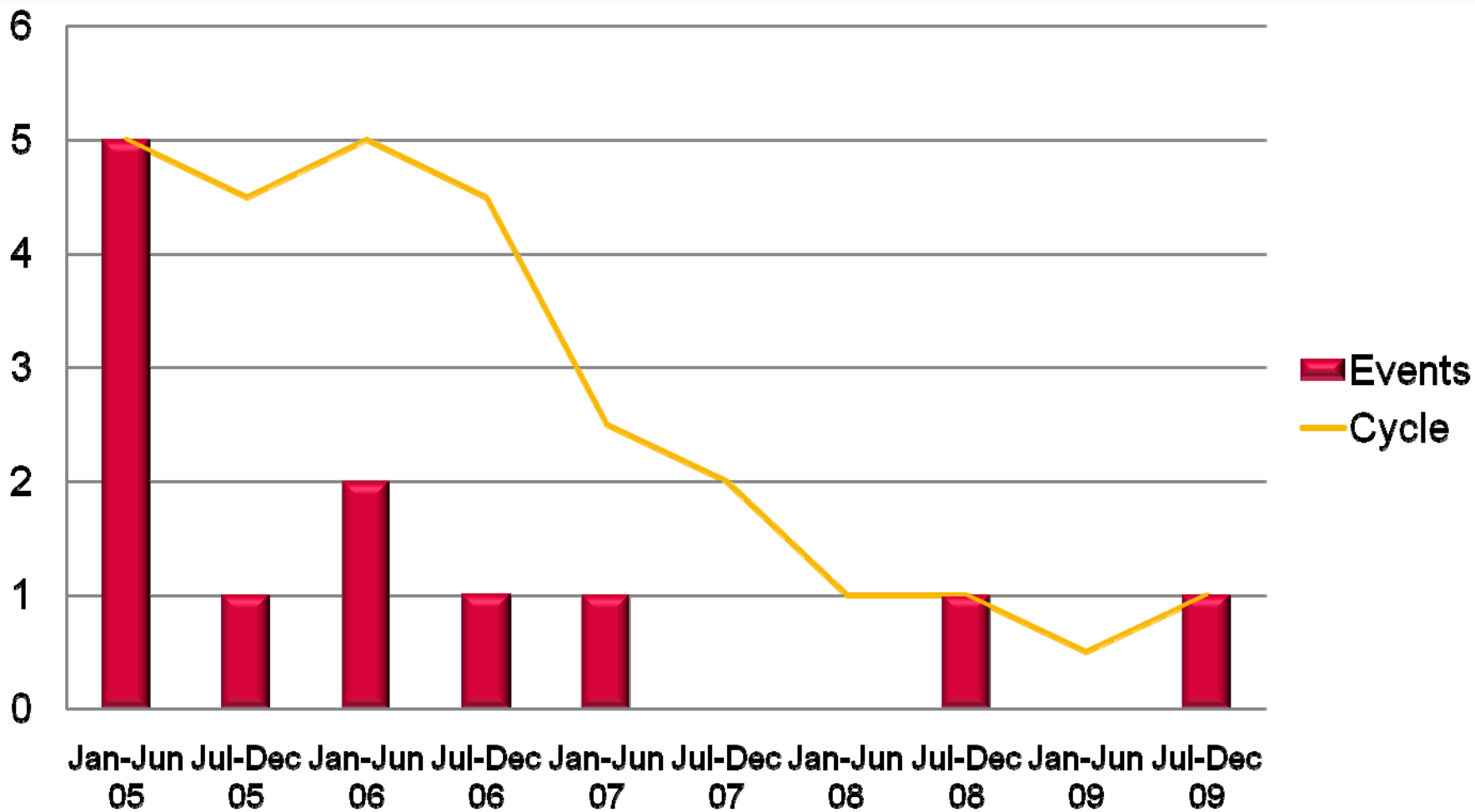
Results

- | 68% reduction in Procedure Use and Adherence Nuclear Condition Reports (NCRs)
- | Improved identification of procedure quality issues due to increased focus on procedure use and adherence prior to causing an adverse condition/event
 - w Procedure Backlog increase due to early identification of issues
 - w Increased Observations showing individuals stopping when questions arise and getting the procedure/work order fixed
 - w 35% Reduction in Procedure Adequacy NCRs

Self Evaluation Roll-up Human Performance

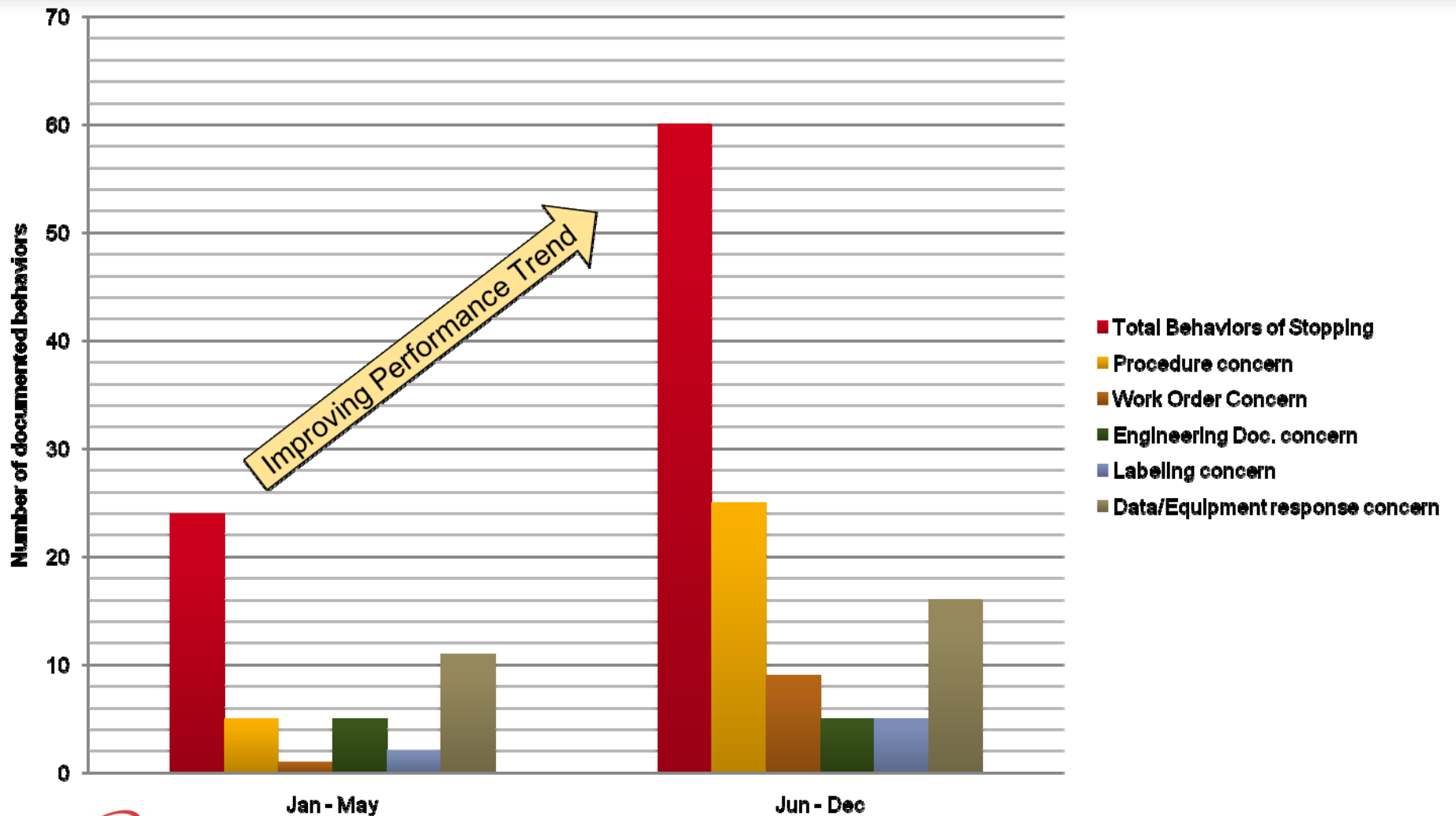


Procedure Related Events

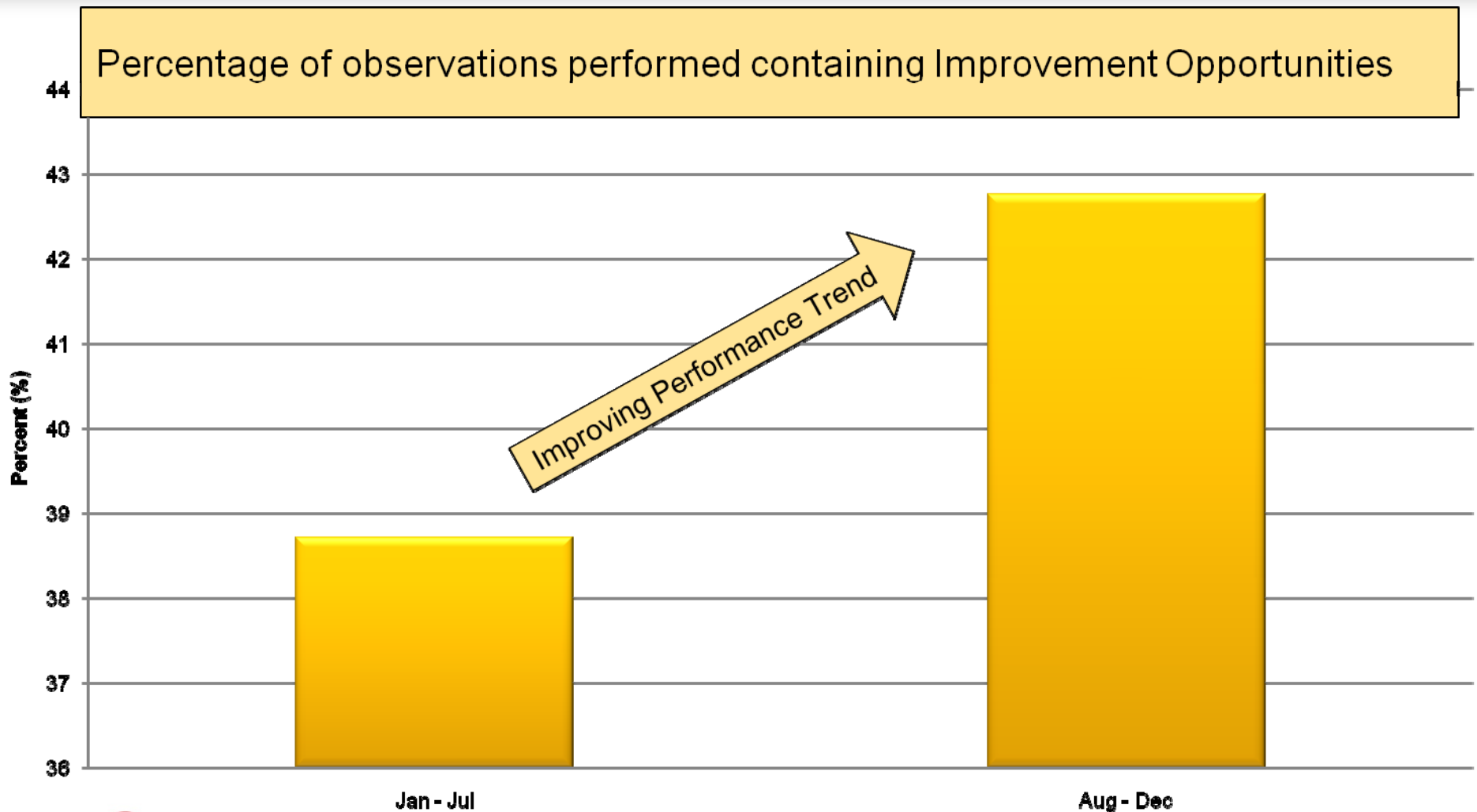


Observations - 2009

Observed Stopping When Unsure



Critical Observations Improvement Opportunities



Summary

- | We have identified, recognized, and have taken actions to address Human Performance
- | We have a comprehensive HU Excellence Plan
- | We have implemented timely and aggressive corrective actions
- | Metrics demonstrate actions taken are improving performance
- | Performance Improvement is institutionalized
- | Sustainability
 - w Focus is on Leadership, Behaviors, and key Process Changes



Questions?

