



**Luminant**

# HPI Tools

## Selection and Introduction

**Improving Human Performance  
on the Grid - NERC Atlanta 2012**



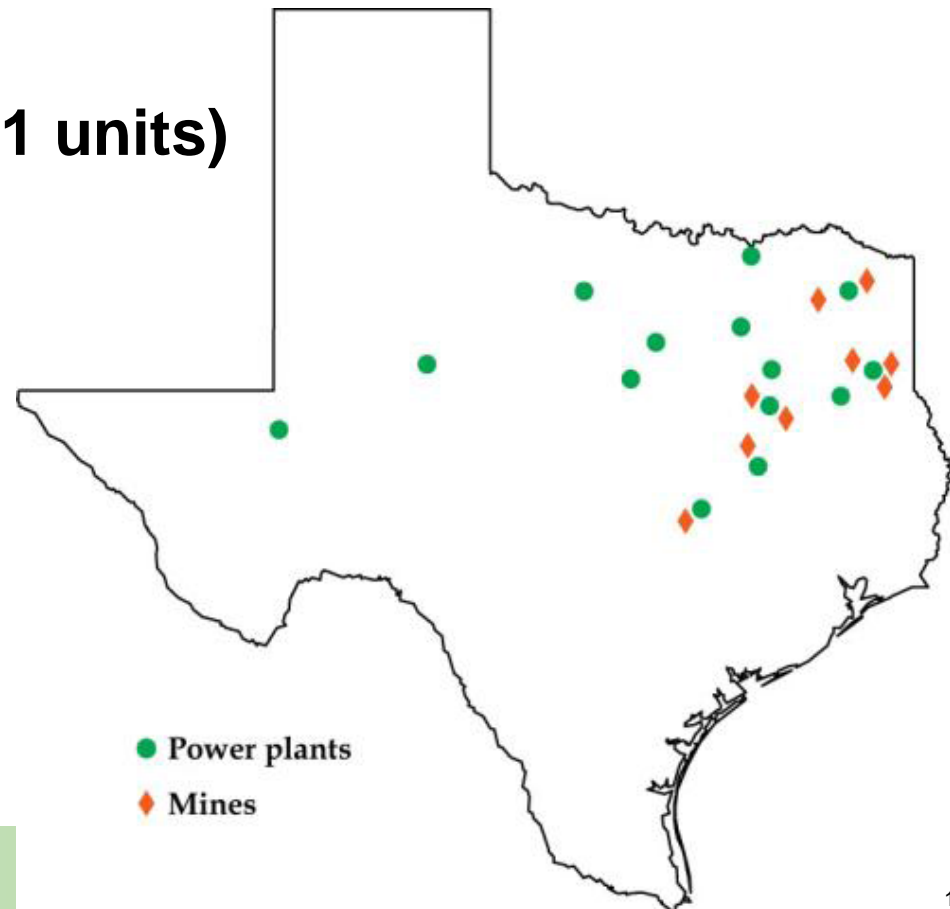
**LUMINANT**



**SANDOW HPI**

# Scope

- Luminant / Fluor Alliance
- 5,500 Luminant plus 2,000 Fluor “base crew” employees
- Five lignite plants (11 units)
- Nine lignite mines
- Eight gas plants



# HPI Tool Selection

Pre-Job Briefing (SPEAK)

Phonetic Alphabet

Three-Way Communications

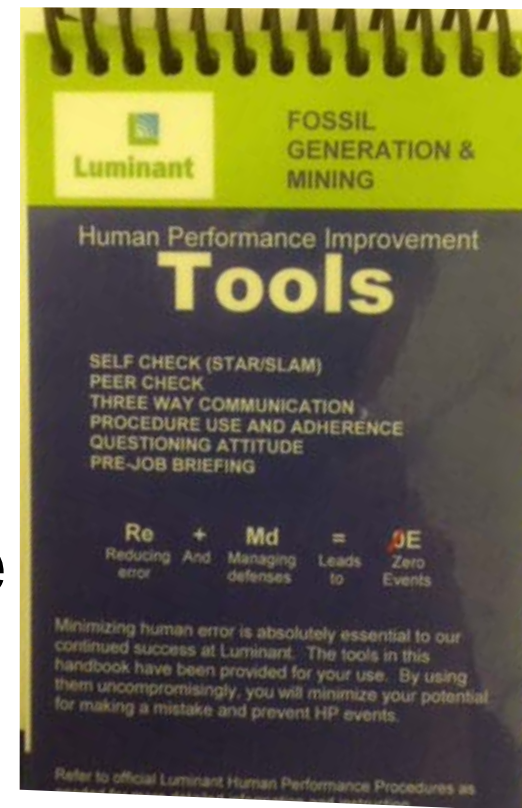
Self Check (STAR)

Peer Check

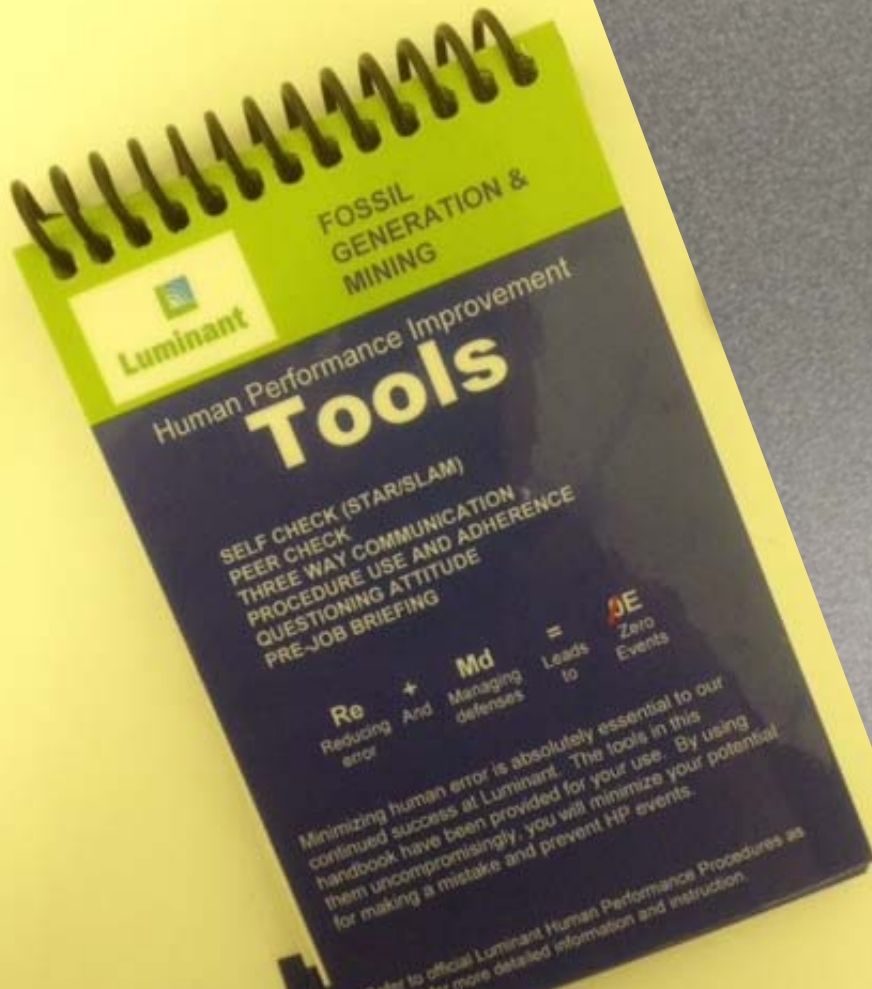
Questioning Attitude

Procedure Use and Adherence

Post-Job Review (CLEAR)



# Job Aids



## Pre-Job Brief: SPEAK

### S-Safety Critical Steps

Work Procedures/Permits	Discuss	N/A
Review JSA?	<input type="checkbox"/>	<input type="checkbox"/>
Inspected work area?	<input type="checkbox"/>	<input type="checkbox"/>
Is a clearance(s)/ LOTO required?	<input type="checkbox"/>	<input type="checkbox"/>
Hot Work (cutting/welding/grinding)?	<input type="checkbox"/>	<input type="checkbox"/>
Live Work (electrical)?	<input type="checkbox"/>	<input type="checkbox"/>
Excavation?	<input type="checkbox"/>	<input type="checkbox"/>
Signs/Barricades needed?	<input type="checkbox"/>	<input type="checkbox"/>
Confined Space?	<input type="checkbox"/>	<input type="checkbox"/>
Fire Impairments (Need permit needed?)	<input type="checkbox"/>	<input type="checkbox"/>
Other/Comments _____		

Tools & Equipment	Discuss	N/A
Are tools in good condition?	<input type="checkbox"/>	<input type="checkbox"/>
Inspection current?	<input type="checkbox"/>	<input type="checkbox"/>
Proper tools for the job?	<input type="checkbox"/>	<input type="checkbox"/>
Trained to use tool or equipment?	<input type="checkbox"/>	<input type="checkbox"/>
Radio / Communication Tools?	<input type="checkbox"/>	<input type="checkbox"/>
Other/Comments _____		

Scaffolds/Ladders	Discuss	N/A
Is Scaffold/Ladder Needed?	<input type="checkbox"/>	<input type="checkbox"/>
Inspect before use?	<input type="checkbox"/>	<input type="checkbox"/>
Scaffold properly tagged?	<input type="checkbox"/>	<input type="checkbox"/>
Other/Comments _____		

Chemical	Discuss	N/A
Are unfamiliar chemicals present?	<input type="checkbox"/>	<input type="checkbox"/>
Review MSDS?	<input type="checkbox"/>	<input type="checkbox"/>
Special precautions _____		

Material Handling	Discuss	N/A
Rigging appropriate?	<input type="checkbox"/>	<input type="checkbox"/>
Rigging inspected?	<input type="checkbox"/>	<input type="checkbox"/>
Lift/load capacity	<input type="checkbox"/>	<input type="checkbox"/>
Personal lifting technique	<input type="checkbox"/>	<input type="checkbox"/>
Other/Comments _____		

Hazards Associated with the job	Discuss	N/A
Electrical shock/ Arc flash	<input type="checkbox"/>	<input type="checkbox"/>
Fall potential	<input type="checkbox"/>	<input type="checkbox"/>
Slip/Trip potential	<input type="checkbox"/>	<input type="checkbox"/>
Weather	<input type="checkbox"/>	<input type="checkbox"/>
Heat or Cold Stress	<input type="checkbox"/>	<input type="checkbox"/>
Combustible Dust	<input type="checkbox"/>	<input type="checkbox"/>
Stored energy present (springs, pneumatic/hydraulic, steam etc.)	<input type="checkbox"/>	<input type="checkbox"/>
Sharp objects/Pinch points	<input type="checkbox"/>	<input type="checkbox"/>
Noise	<input type="checkbox"/>	<input type="checkbox"/>
Poor access/egress	<input type="checkbox"/>	<input type="checkbox"/>
Inadequate lightning	<input type="checkbox"/>	<input type="checkbox"/>
Housekeeping Issues	<input type="checkbox"/>	<input type="checkbox"/>
Other/Comments _____		

### P-Prior Performance

Employee Qualifications / Training	Discuss	N/A
Have all personnel completed required training for task being performed?	<input type="checkbox"/>	<input type="checkbox"/>
Mobile Equipment Operator Competent Person (lead, asbestos, excavations, hazardous material, scaffolds, electrical, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
Discussed known hazards?	<input type="checkbox"/>	<input type="checkbox"/>
Other/Comments _____		

### E-Error Likely Situations

Top 10 Human Error Traps	Discuss	N/A
Time pressure?	<input type="checkbox"/>	<input type="checkbox"/>
Distractive environment?	<input type="checkbox"/>	<input type="checkbox"/>
High work load/multiple task?	<input type="checkbox"/>	<input type="checkbox"/>
First time to perform task?.	<input type="checkbox"/>	<input type="checkbox"/>
First working day after days off?	<input type="checkbox"/>	<input type="checkbox"/>
Half hour after awake or meal?	<input type="checkbox"/>	<input type="checkbox"/>
Vague or incorrect guidance?	<input type="checkbox"/>	<input type="checkbox"/>
Overconfidence?	<input type="checkbox"/>	<input type="checkbox"/>
Unclear communication?	<input type="checkbox"/>	<input type="checkbox"/>
Work stress?	<input type="checkbox"/>	<input type="checkbox"/>
Other/Comments _____		

### A-Anticipate

What could go wrong or change during this activity	Discuss	N/A
Line of Fire?	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shower/Eye Wash Station	<input type="checkbox"/>	<input type="checkbox"/>
Fire Extinguisher	<input type="checkbox"/>	<input type="checkbox"/>
Review needed emergency procedure. (example: spill)	<input type="checkbox"/>	<input type="checkbox"/>
Location of F/Aid Station	<input type="checkbox"/>	<input type="checkbox"/>
Other/Comments _____		

### K-Kinds of Defenses

Personal Protective Equipment	Discuss	N/A
Fall Protection	<input type="checkbox"/>	<input type="checkbox"/>
Eye/Face	<input type="checkbox"/>	<input type="checkbox"/>
Respirator	<input type="checkbox"/>	<input type="checkbox"/>
Foot	<input type="checkbox"/>	<input type="checkbox"/>
Hand	<input type="checkbox"/>	<input type="checkbox"/>
Hearing	<input type="checkbox"/>	<input type="checkbox"/>
Coveralls	<input type="checkbox"/>	<input type="checkbox"/>
Arc Flash Gear	<input type="checkbox"/>	<input type="checkbox"/>
Additional PPE needed (goggles, chemical suits, welding, leathers, etc.) _____		

Overhead Work	Discuss	N/A
Barricades/barrier	<input type="checkbox"/>	<input type="checkbox"/>
Signs/Info Tags	<input type="checkbox"/>	<input type="checkbox"/>
Toe boards	<input type="checkbox"/>	<input type="checkbox"/>
Other/Comments _____		

Communications	Discuss	N/A
Are employees ready and able physically and emotionally to perform the task?	<input type="checkbox"/>	<input type="checkbox"/>
Is communication necessary with Control Room, contractors, others?	<input type="checkbox"/>	<input type="checkbox"/>
Other/Comments _____		

# How to "Speak Clear"

## Performing Pre- and Post-Job Briefs

Use these acronyms to guide your pre- and post-job briefings.

### Pre-Job Brief: SPEAK

#### Safety Critical Steps:

What are the safety critical steps?

#### Prior Performance

Have we done this task before?

#### Error likely steps

What mistakes might be made?

#### Anticipate

Are there special precautions required?

#### Kinds of defenses

Is energy source control needed?

### Post-Job Brief: CLEAR

#### Changes

Do the task instructions need to change?

#### Lessons learned

What should others learn from this task?

#### Errors left uncorrected

Could human error occur during next task?

#### Adequate resources

Do the resources support the task?

#### Results not expected

Were the results unexpected?

# Post-Job Brief

## CLEAR

Complete this side after the job and return the form to the designated site location.

1. Unplanned event? (Injury, Damage, Process change, Near miss, Production interruption) Explain.

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2. Job site cleaned up? Explain.

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3. Problems/safety concerns? Explain.

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4. Corrective actions taken on problem/safety concerns? Explain.

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Reviewed by:

Supervisor: \_\_\_\_\_

# Pre- and Post-Job Briefs

## Completing Tasks Safely

Use this form to "Speak Clear" in your pre-job brief and post-job review.

For the pre-job brief, review each "speak" section that is applicable to your job inside this form and check the box if you discussed it with your team.

For the post-job review, answer the questions on the back of this form to be "clear."

Team Leader: \_\_\_\_\_

Team:

\_\_\_\_\_ / \_\_\_\_\_

\_\_\_\_\_ / \_\_\_\_\_

\_\_\_\_\_ / \_\_\_\_\_

\_\_\_\_\_ / \_\_\_\_\_

Date: \_\_\_\_\_

Location of Task: \_\_\_\_\_

Task Description: \_\_\_\_\_

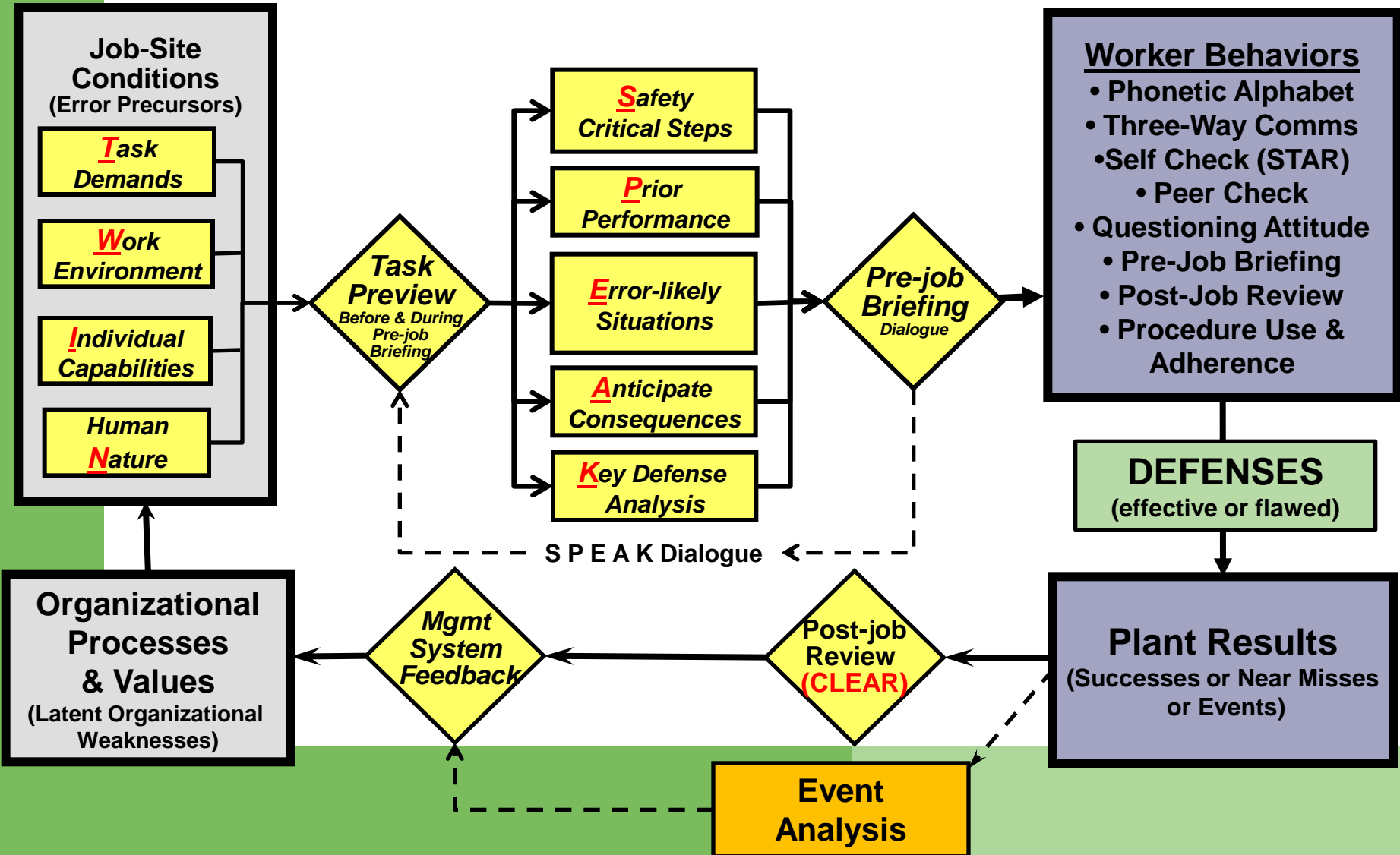
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# Luminant

# Event Prevention Framework



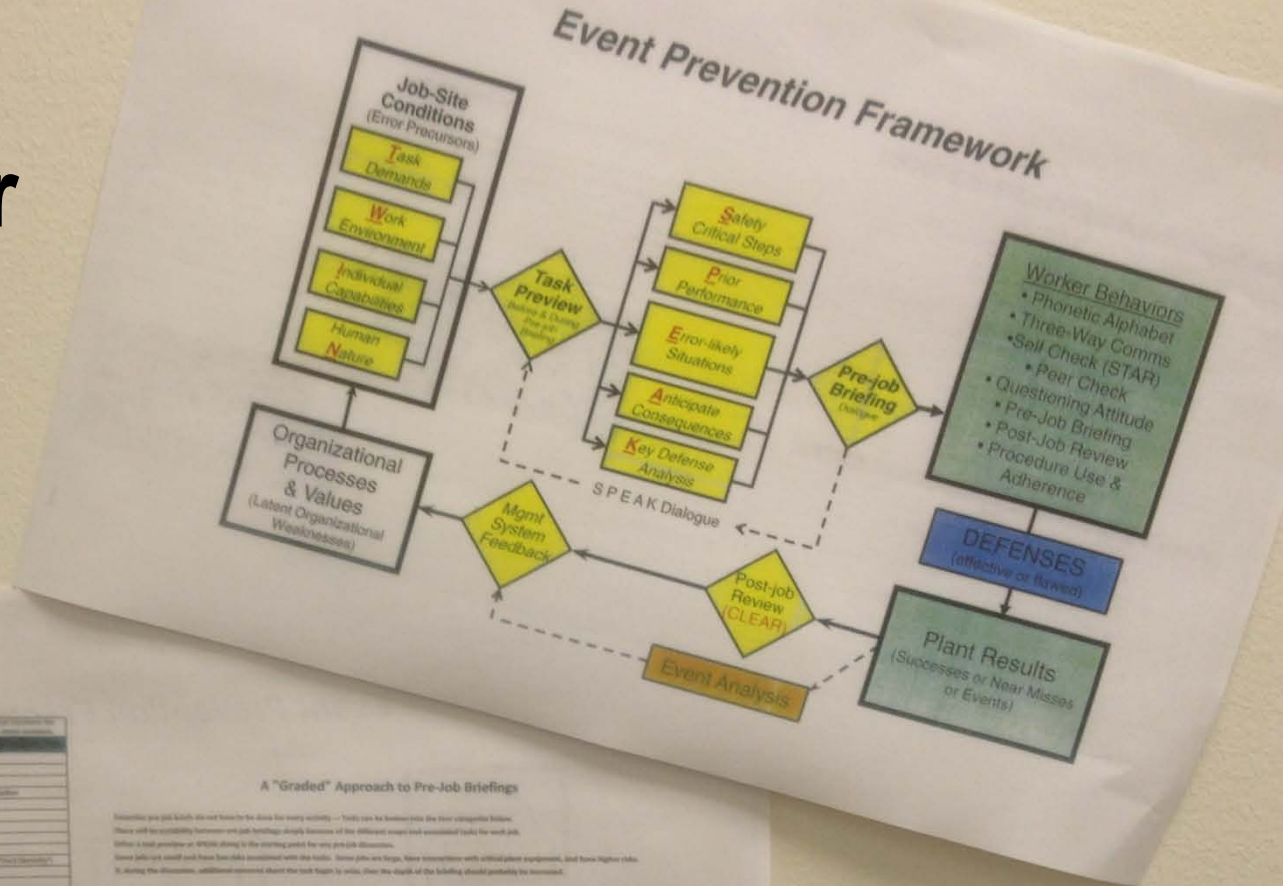
# Supervisor Job Aid

	Low Risk	High Risk
Simple or Repetitive	<p>Examples: Housekeeping, visual inspections, plant walkdowns, etc.</p> <p><b>S P E A K dialog</b></p> <p>At a minimum, the Supervisor should talk through SPEAK with individual assigned the task.</p>	<p>Examples: Routine test on risk-significant equipment, work on energized equipment (steam, heat, hydraulic, etc.), valve replacements associated with stored energy, electrical breaker PMs, etc.</p> <p><b>Pre-planned pre-job briefing form <i>PLUS</i> the S P E A K dialog</b></p> <p>Completion of a customized pre-job briefing adapted to the task, workplace, and worker factors on that particular day.</p>
Complex or Infrequent	<p>Examples: Maintenance on out-of-service equipment, shipping hazardous wastes, pump rebuilds, bearing change-outs on fans, etc.</p> <p><b>Standard pre-job briefing checklist <i>PLUS</i> the S P E A K dialog</b></p> <p>Completion of a standard pre-job briefing checklist, considering the task, workplace, and worker factors on that particular day.</p>	<p>Any activity that places plant equipment in unusual configurations, require complex coordination or sequencing, or involve major changes to plant components, operating procedures, or test methods.</p> <p><b>Next level oversight <i>PLUS</i> pre-planned pre-job briefing form <i>PLUS</i> the S P E A K dialog</b></p> <p>Completion of an extensive, customized pre-job briefing adapted to the task, workplace, and worker factors on that particular day.</p>

***Consider the experience level of the individual or team involved.***

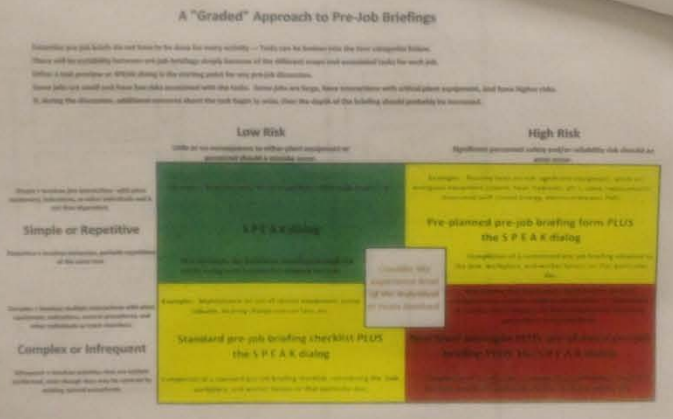


# Supervisor Job Aid



### Error Precursors (Long List)

Category	Item
Organizational	Management
	Supervisors
	Workers
	Contractors
	Subcontractors
	Equipment
	Materials
	Tools
	Methods
	Procedures
Standards	
Human	Human Nature
	Human Error
	Human Factors
	Human Performance
	Human Capabilities
	Human Resources
	Human Skills
	Human Knowledge
	Human Attitudes
	Human Behaviors
Task	Task Demands
	Task Complexity
	Task Volume
	Task Time
	Task Priority
	Task Sequence
	Task Interference
	Task Interruption
	Task Change
	Task Uncertainty
Work Environment	Work Environment
	Work Conditions
	Work Constraints
	Work Hazards
	Work Stressors
	Work Distractions
	Work Interference
	Work Interruption
	Work Change
	Work Uncertainty



# Observations

- Random is best
- Unscientific is OK
- Provide a form
- HPI coaches can help
- Primary goal is to provide feedback to work groups and shape behaviors
- Secondary goal is to provide feedback to leaders on the rate of change


*T06NDV*

## HPI Tools Observation

When your workload permits, set aside some time to observe the use of Human Performance Improvement tools by your work group.

Observations of "Pre-Job SPEAK Dialog" refer to simple/repetitive/low-risk tasks where a full Pre-Job Briefing is usually not required and the SPEAK dialog is adequate.

Please share your observations with your Supervisor, your co-workers, and the HPI Practitioners.



Just because the river is calm do not think the crocodiles are gone.

Work Group / Team	Observation Day / Date	Observation Start Time	Observation Finish Time
<i>V5 DELTA</i>	<i>THURS 1/26</i>	<i>1020</i>	<i>1150</i>
HPI Tool	Used, but Ineffectively	Used Effectively	% of Effective Use
Phonetic Alphabet	<i>IIII</i>	<i>6</i>	<i>66%</i>
3-Way Communications	<i>IIII</i>	<i>8</i>	<i>62%</i>
Self-Check (STAR)			
Peer-Check			
Questioning Attitude			
Pre-Job (SPEAK Dialog)			
Procedure Use and Adherence			

*NUMBERS TELL!*

*"LET'S GO 5 MORE ON BRAVO"*  
*"OK"*  
*"FOUR FOURTEEN" VS. "FOUR ONE FOUR"*

# Observations

- HPI behaviors were integrated into Behavior Based Safety (BBS) program
- Provides an opportunity for leadership to engage workers at all levels
- Provides workers an opportunity to show their proficiency and commitment

HPI Facility: BB ML MO OG SA GPO FES

Questions to ask the Supervisors:

- 1 What is Questioning Attitude? *Discussed* (ME) (NI)
- 2 Give me an example when you used 3-Way Communication on your last job. *Referenced H-mill issues this morning. Phosphate* (ME) (NI)
- 3 What HPI Tool are you concentrating on with your folks this week? (ME) (NI)
- 4 Tell me how to apply Stop-Think-Act-Review (STAR) to a job task? (ME) (NI)
- 5 How would you describe peer checking to one of your crew? (ME) (NI)

ME = Meets Expectations NI = Needs Improvement

Comments: *Phil committed to focusing on the use of phosphate alphabet this week.*

Feedback provided to Supervisors & Card Forwarded to OE group.

Observer: RICE Date: FEB 6/12

HPI Facility: BB ML MO OG SA GPO FES

Questions to ask the Craft:

- 1 If the job scope changes or the job site is not as expected, what do you do? *Stop, perhaps do pre-job brief. Depends on task* (ME) (NI)
- 2 When did you apply Stop-Think-Act-Review (STAR)? *Common sense - doesn't really apply it formally* (ME) (NI)
- 3 Tell me about the last time you used Peer-checking. *Route clearance verification* (ME) (NI)
- 4 What do you do if you can not follow the Work Order? *Ask for clarification* (ME) (NI)
- 5 When a co-worker asks you to do something, how does he know you understood him? *Supervisor supervision.* (ME) (NI)

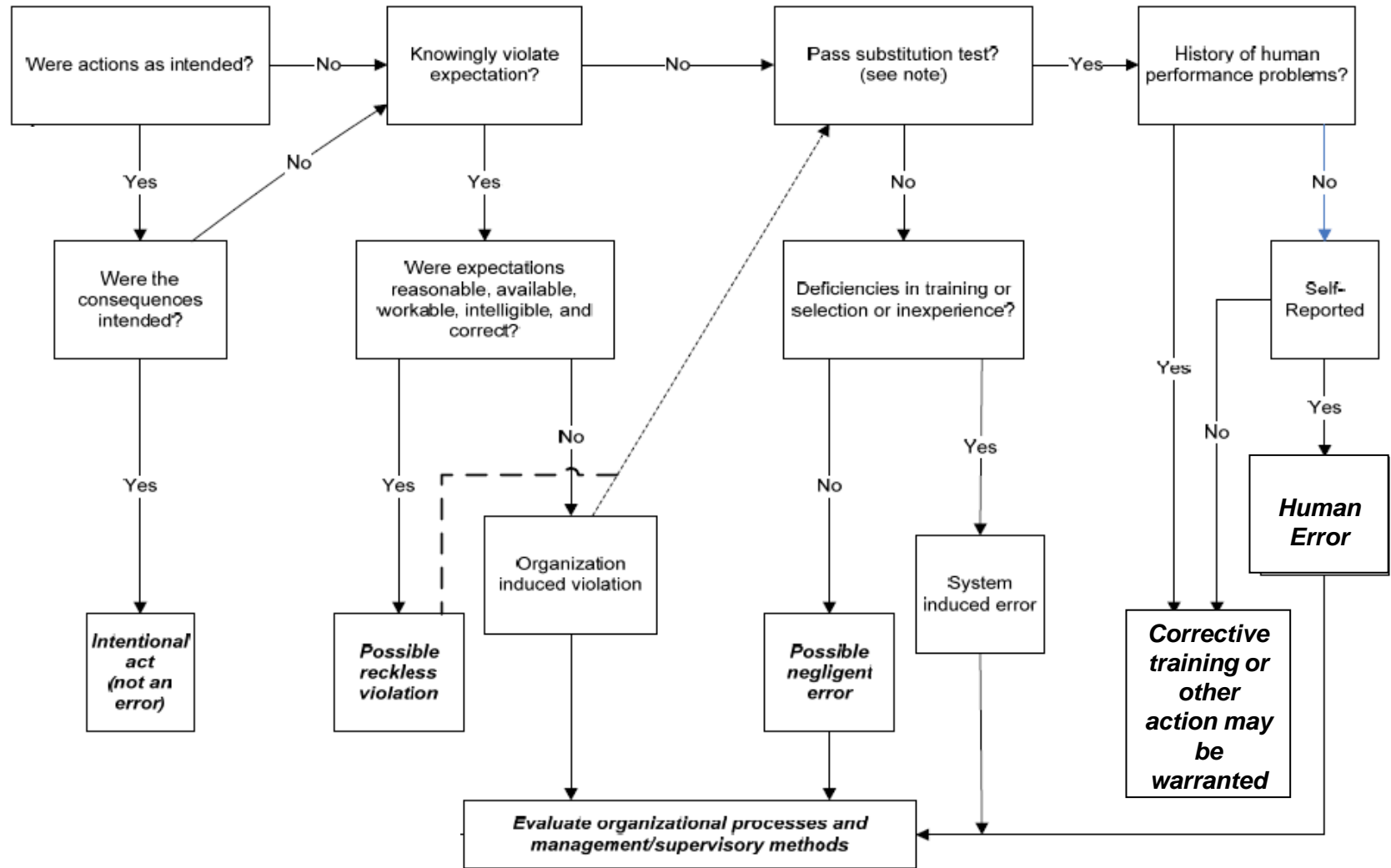
ME = Meets Expectations NI = Needs Improvement

Comments: *Very open and honest. Good dialog and info sharing*

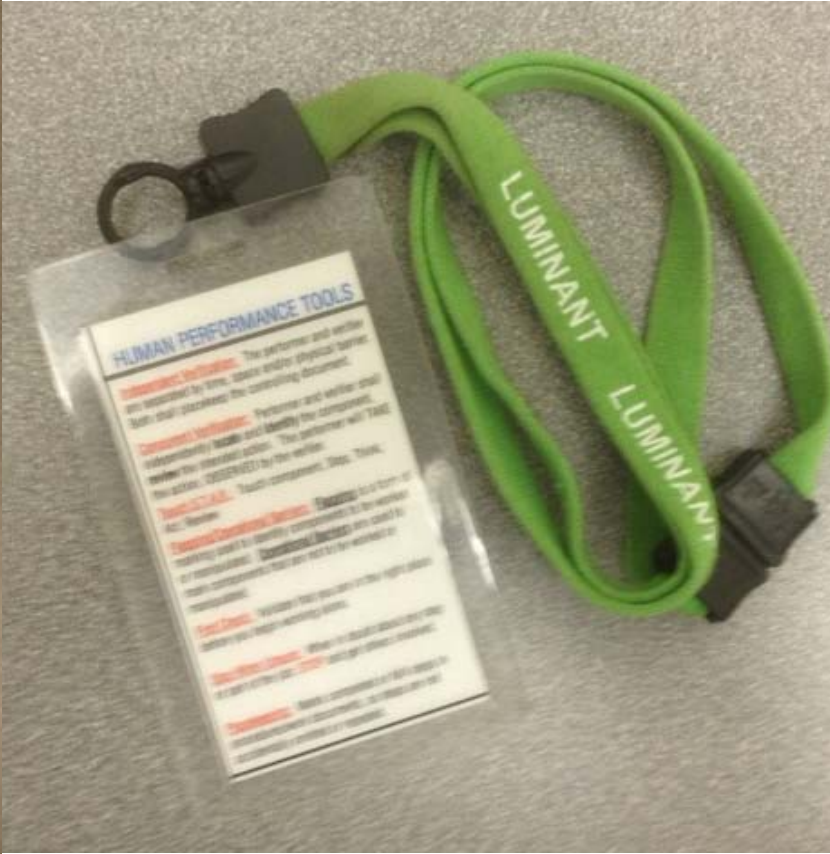
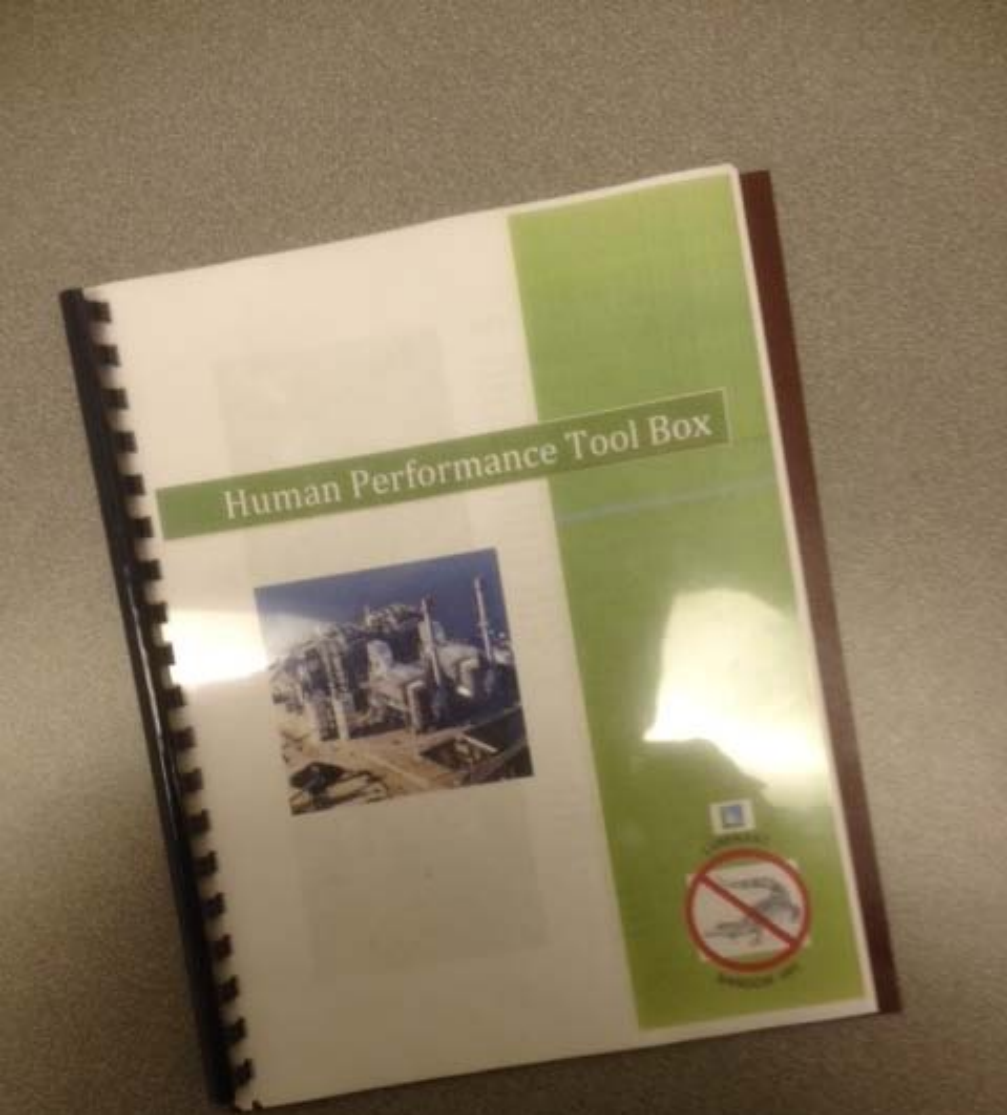
Feedback provided to Craft & Card Forwarded to OE group.

Observer: RICE Date: 2/10/12

# Culpability Matrix



# Revised HPI Toolbox & Job Aids





# HPI Toolbox



# Toolbox

***“Positive Control”***

***“Expected behaviors”***

**One page per tool**

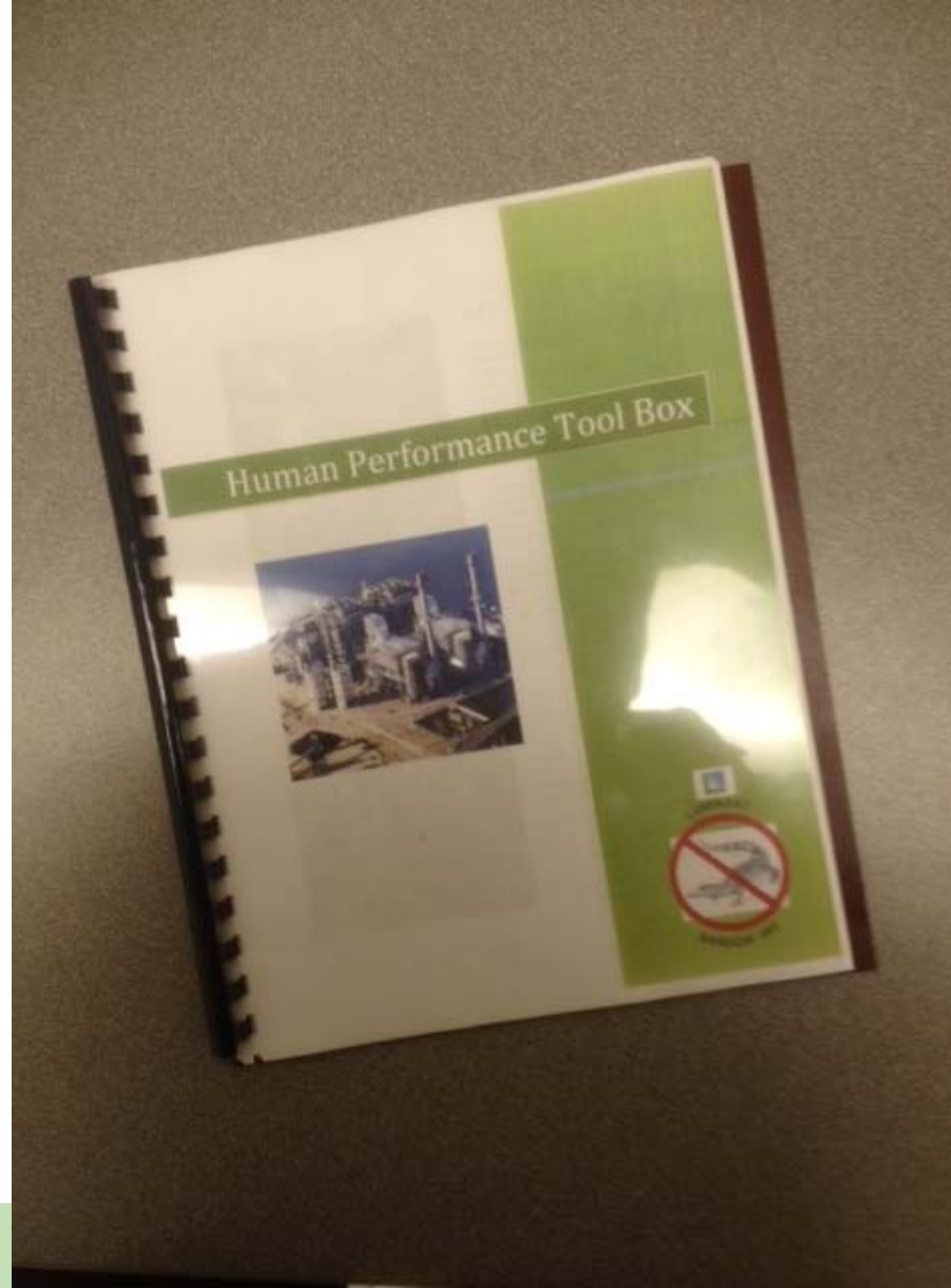
**When to use the tool**

**The behavior standard**

**Behaviors to avoid**

**References / job aids**

**Balance of “Nice to have” tools (TVA)**





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# Questions?

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