



Integrating High Risk Activities with Last Planner System®

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OVERCOMING OUR INDUSTRY CHALLENGES WITH LEAN SOLUTIONS

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Turner Microsoft

Objectives:

- Define Serious Injuries and Fatalities (SIF) and High Risk Activities (HRA)
- Focused Strategy to prevent SIFs
- Last Planner System® ideal tool to integrate HRAs with planning

Heard This Before?

- Great Safety Record Over Last 2 Years
- Lower Than Ever Recordable Rates
- No Lost Time Incident
- Recent Serious Incidents
- Confused and Upset Leadership;
Unexplainable by Our Safety Leaders

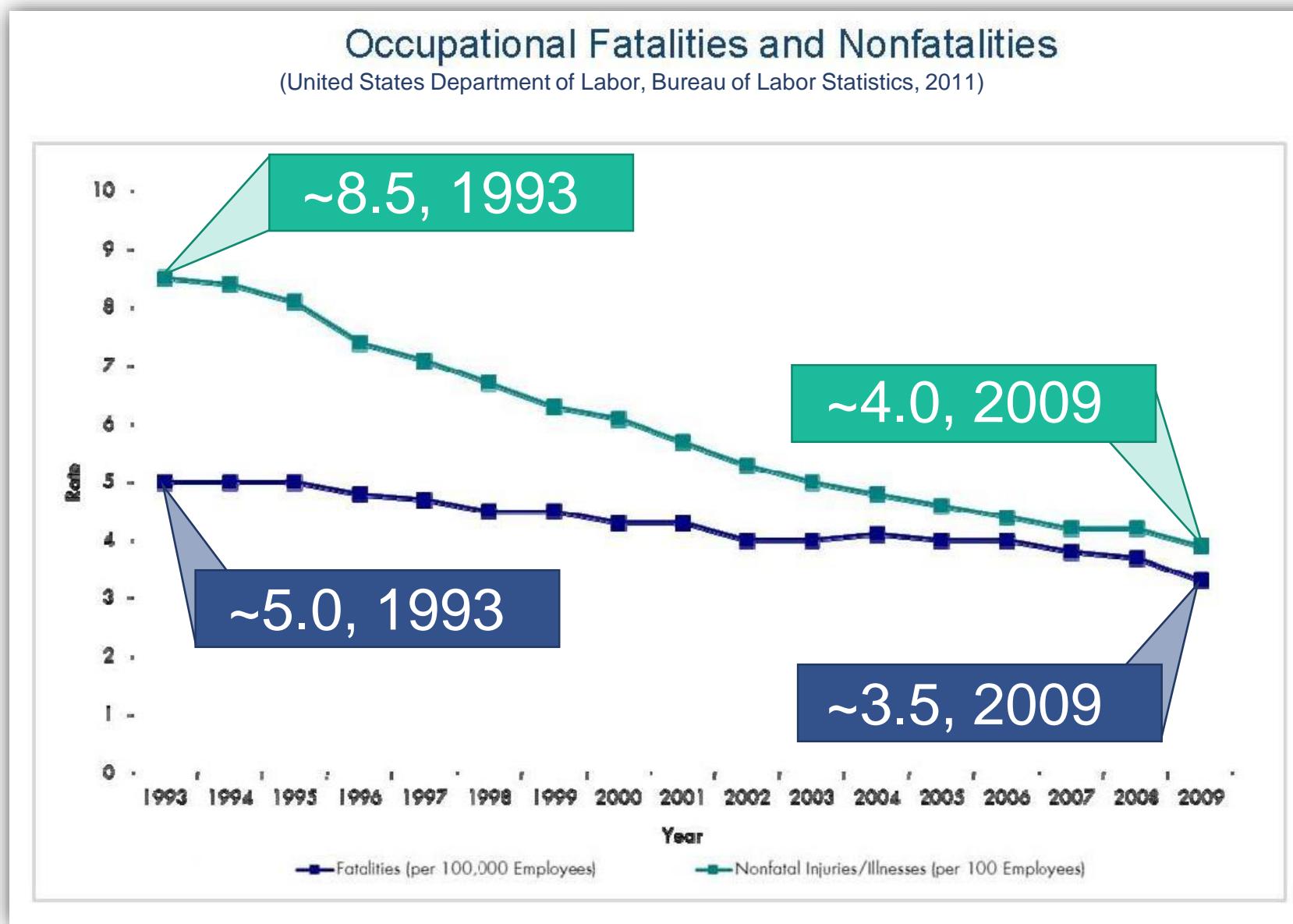


Low Injury Rates ≠ Zero Serious Incidents

Advancing Traditional Safety Management



US National Data



Recordable incident rates have steadily declined, while **fatality rates have stayed essentially level.**

Serious Injuries and Fatalities (SIF)

Two Types:

- **Life-Threatening:** one that if not immediately addressed is likely to lead to the death.
- **Life-Altering:** one that results in permanent or long-term impairment.



Definition of SIF (Serious Injury and Fatalities)

SIF = Any injury or illness that resulted in:

Life-threatening injury or illness: one that if not immediately addressed is likely to lead to the death of the affected individual. Examples include, but are not limited to:

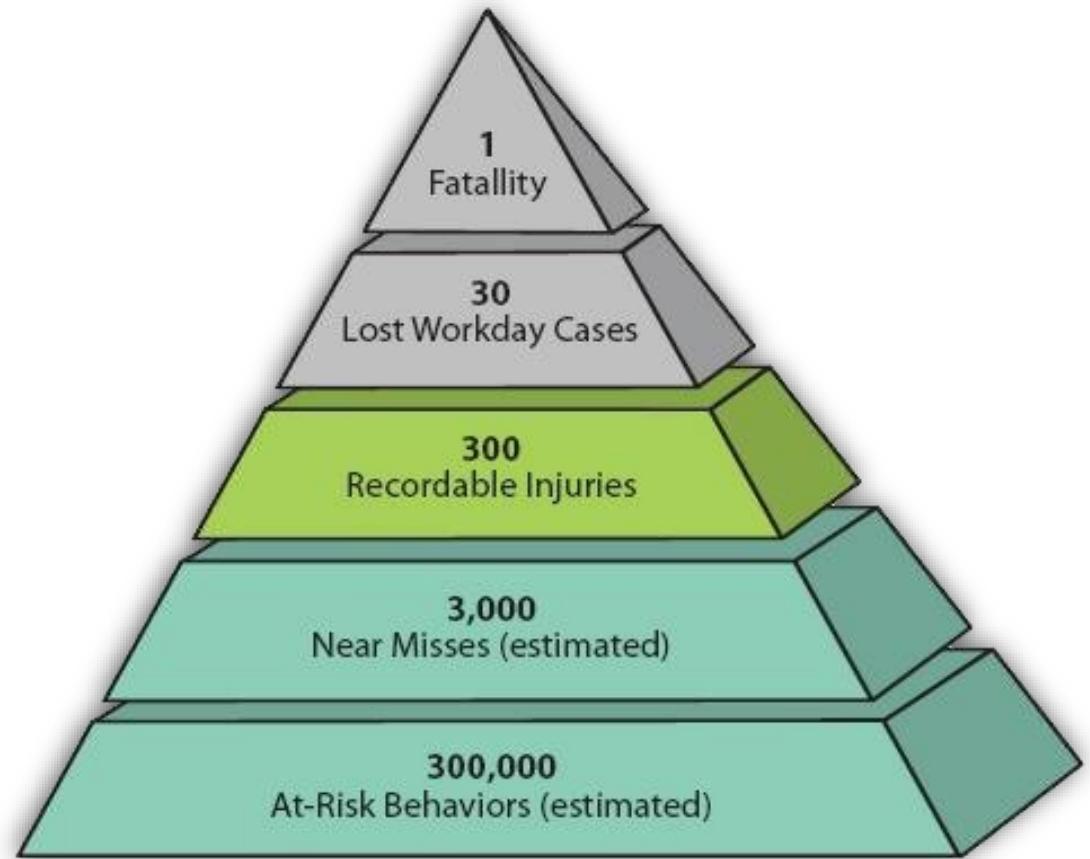
- **Laceration or crushing injuries or significant blood loss**
- **Damage to the brain or spinal cord or Severe burns**
- **Use of cardiopulmonary resuscitation or defibrillator**
- **Chest or abdominal trauma affecting vital organs**

Life-altering injury or illness: one that results in permanent or long-term impairment.

Examples include, but are not limited to:

- **Significant head injuries**
- **Paralysis**
- **Amputations**
- **Major Burns or disfiguring injuries**

The Old Paradigm



“Safety Pyramid”: the idea that minor injuries predict serious ones is embedded in our culture.

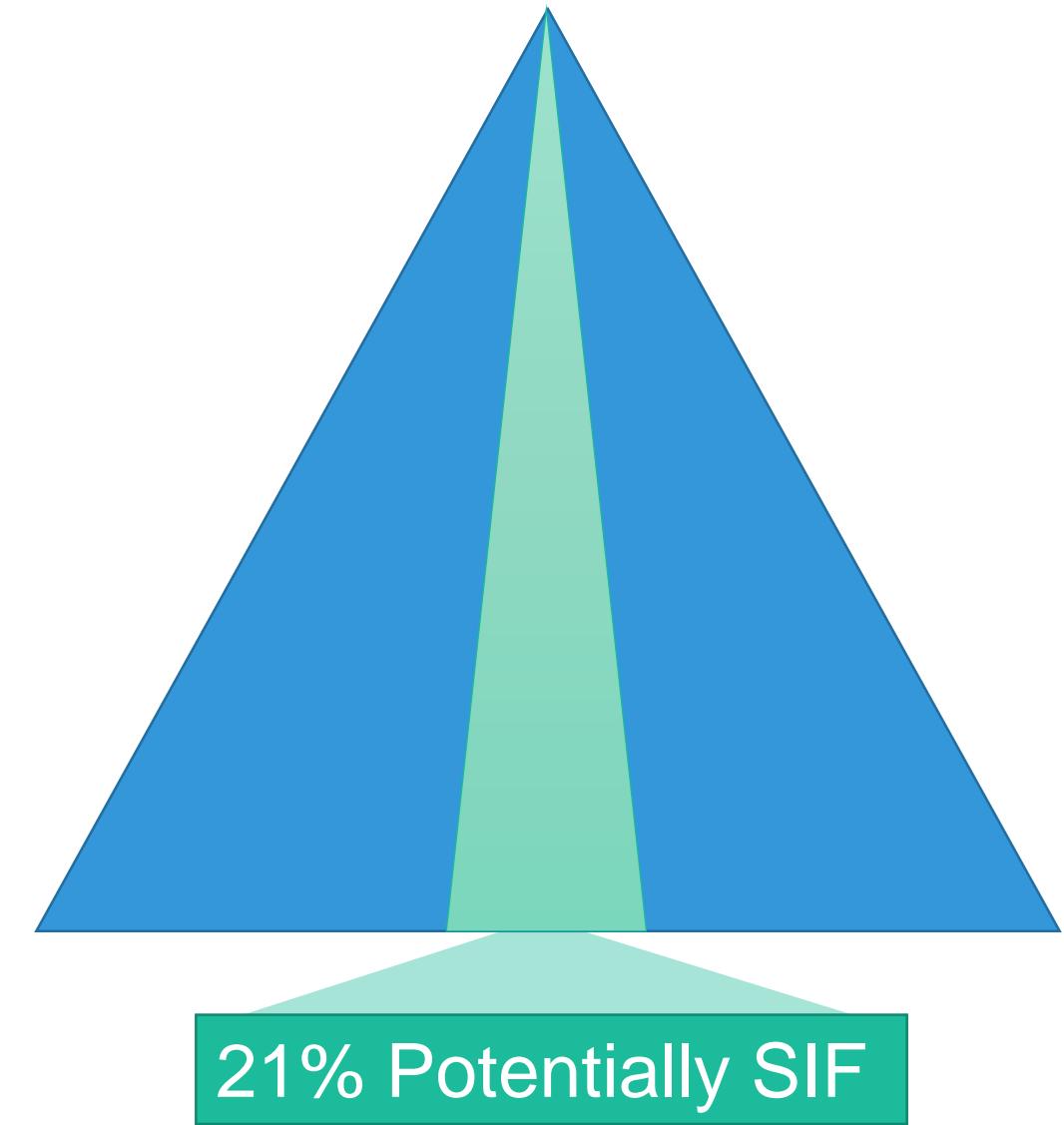
Assumption of Heinrich's Safety Triangle:

1. As injuries increase in severity their number decreases in frequency.
2. All injuries of low severity have the same potential for serious injury.
3. Injuries of differing severity have the same underlying causes.
4. One injury reduction strategy will reach all kinds of injuries equally
 - Reducing minor injuries by 20% will also reduce major injuries by 20%.

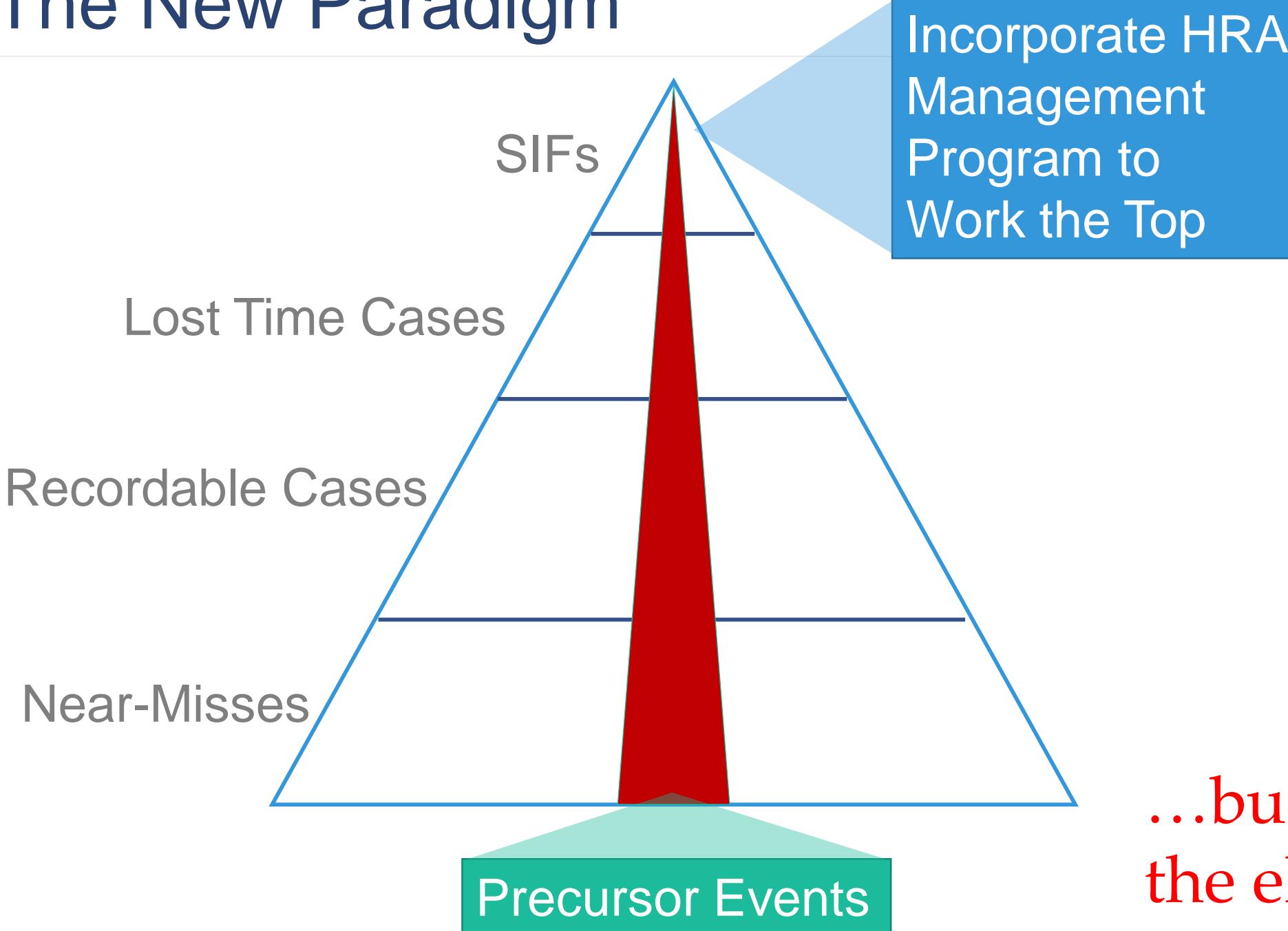
The Reality

- SIFs will **not** be reduced by working at the bottom of the pyramid alone.
 - Causes and correlations are different.
- SIF reduction demands a **different** focus and strategy.
- Precursors of SIFs can be identified and measured.

Precursor: unmitigated high risk situation which will result in a serious / fatal injury if continues.



The New Paradigm



Continue to monitor and ensure regulatory compliance and execution of traditional safety management...

...but the top priority is the elimination of SIFs.

Understanding SIF Potential

Case A: worker fell while walking across a freshly cleared construction site

Result: bruising / swelling of knee

- Classified as “First-Aid” – **SIF = No**

Case B: worker fell 15' after stepping into a hole covered by plywood, but secured

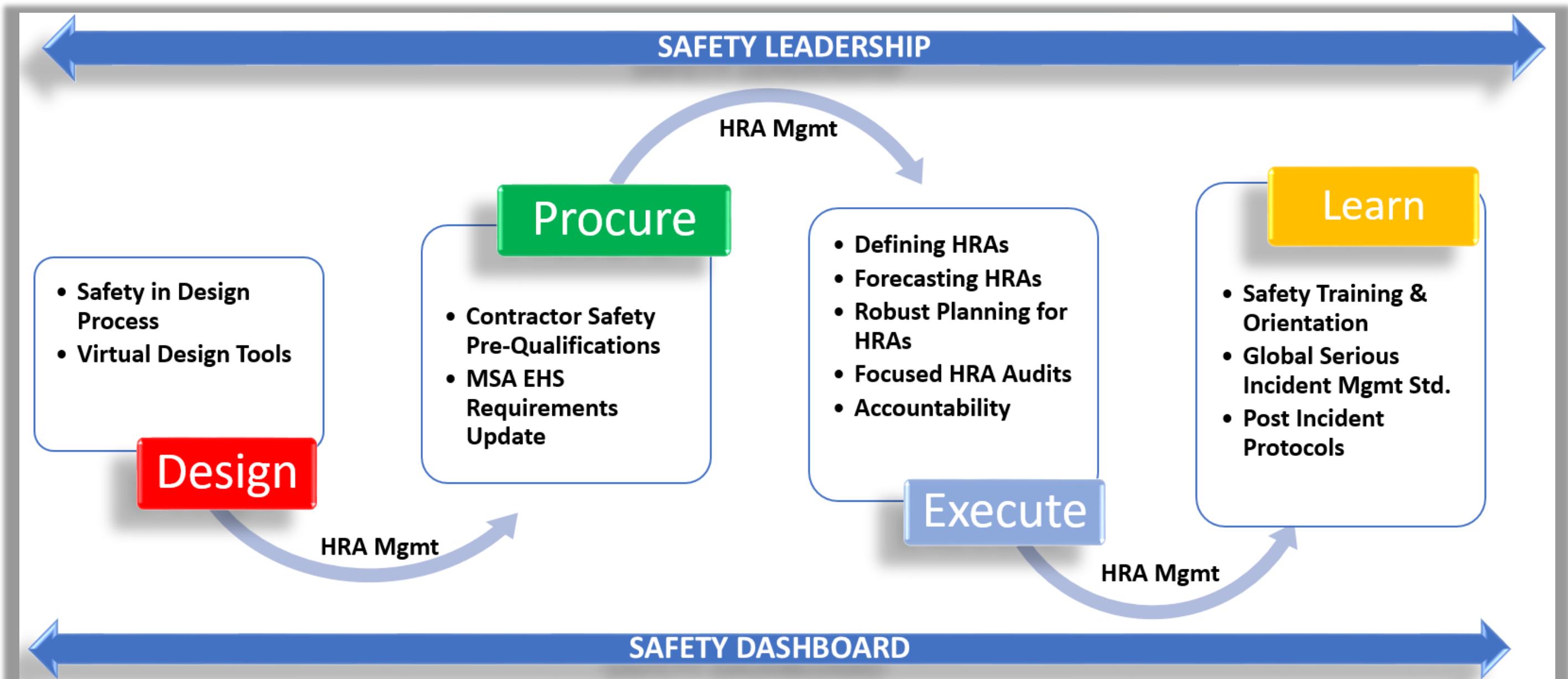
Result: bruising / swelling of arm and rib cage

- Classified as “First-Aid” – **SIF = Yes**

Potential, in addition to, **actual** severity must be identified and analyzed.

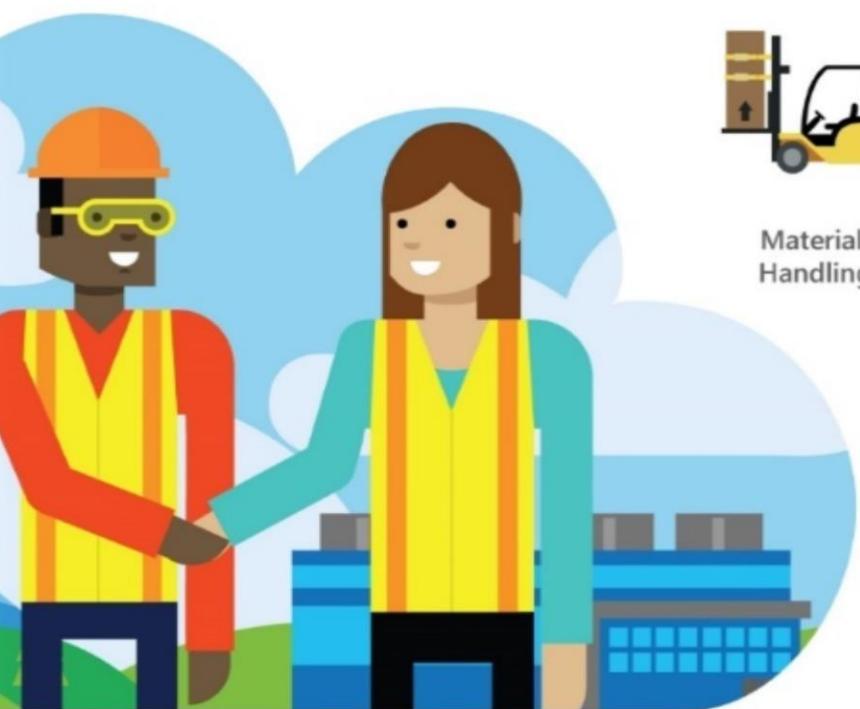
Worst **Potential** Severity (WPS) Rate = #SIF x 200,000 / Total Workhours

Next Generation of Safety



Next Generation of Safety

MCIO High Risk Activities

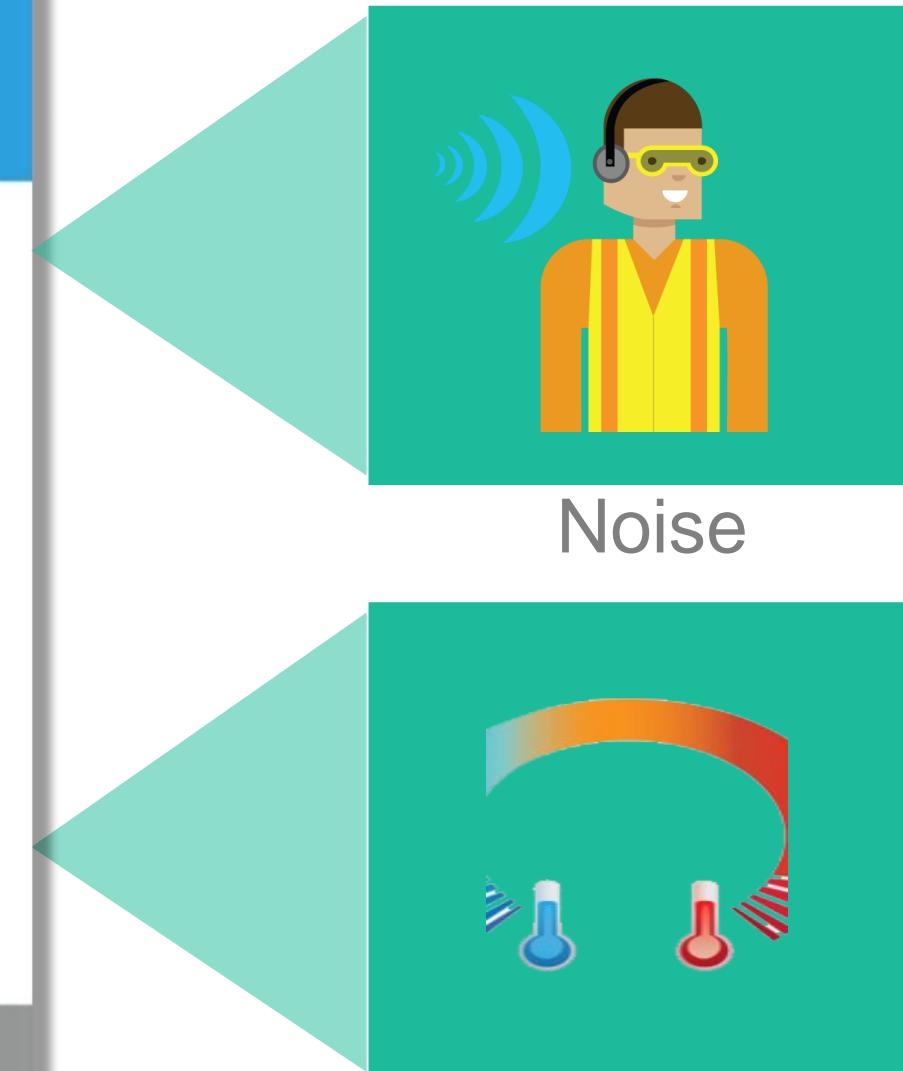


Material Handling Hazardous Material Driving Working From Heights Lifting Operations

Confined Spaces Energy Isolation Electrical Ground Disturbance Mobile Equipment

Empower the Future. Save a Life.

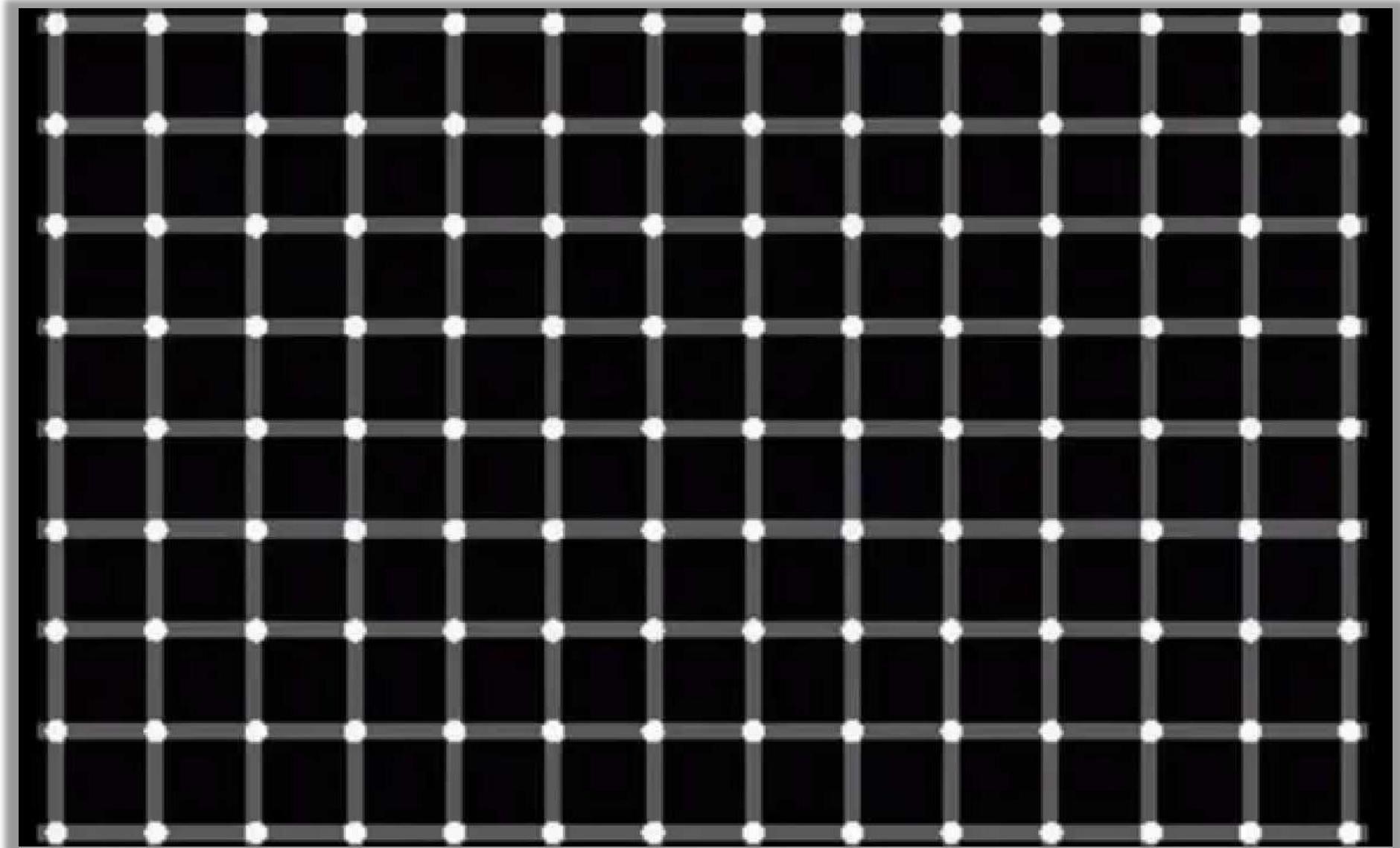
Microsoft



Integrate SIF Mitigation into Project Planning

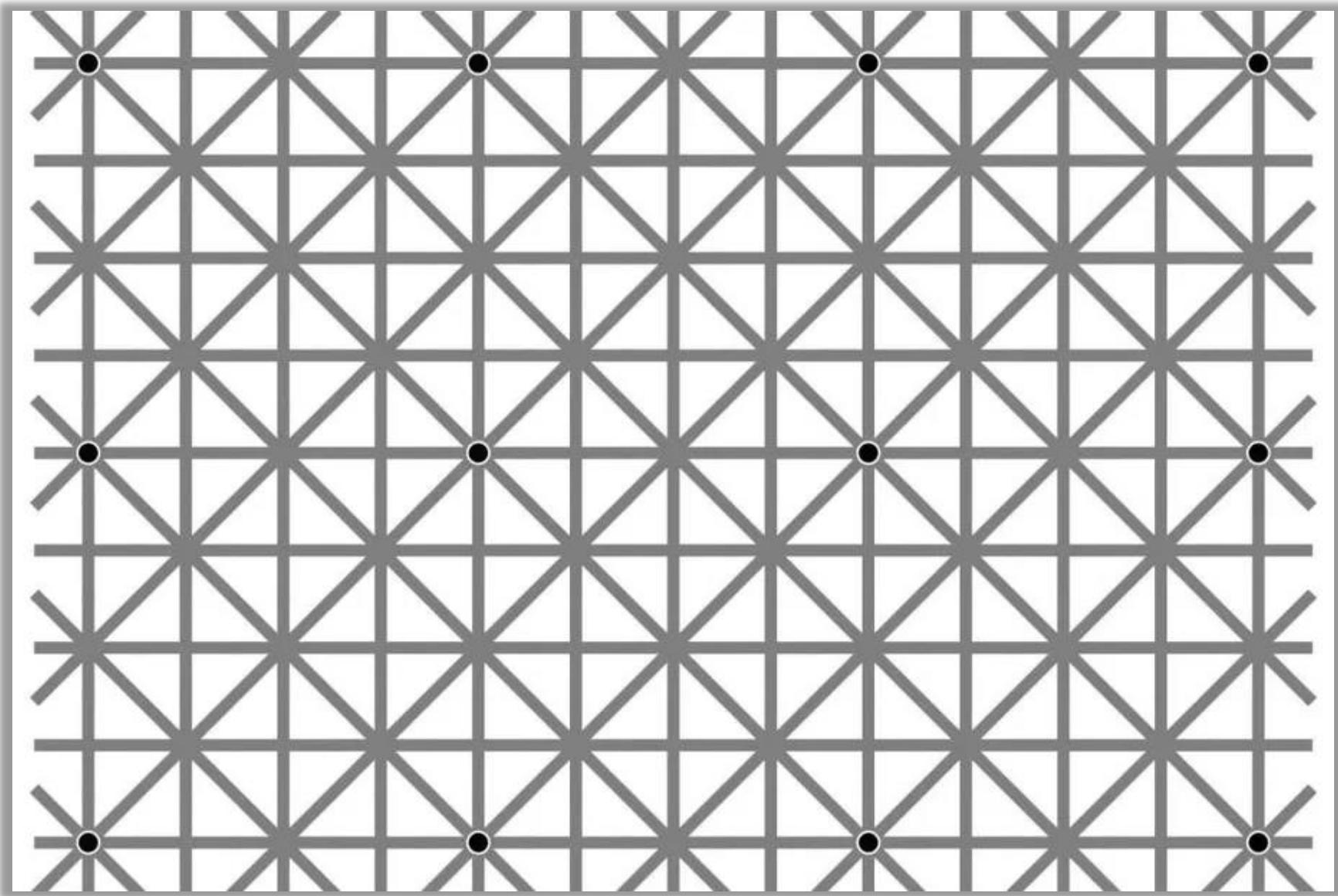


Forecasting & Managing ALL Risks on a Project

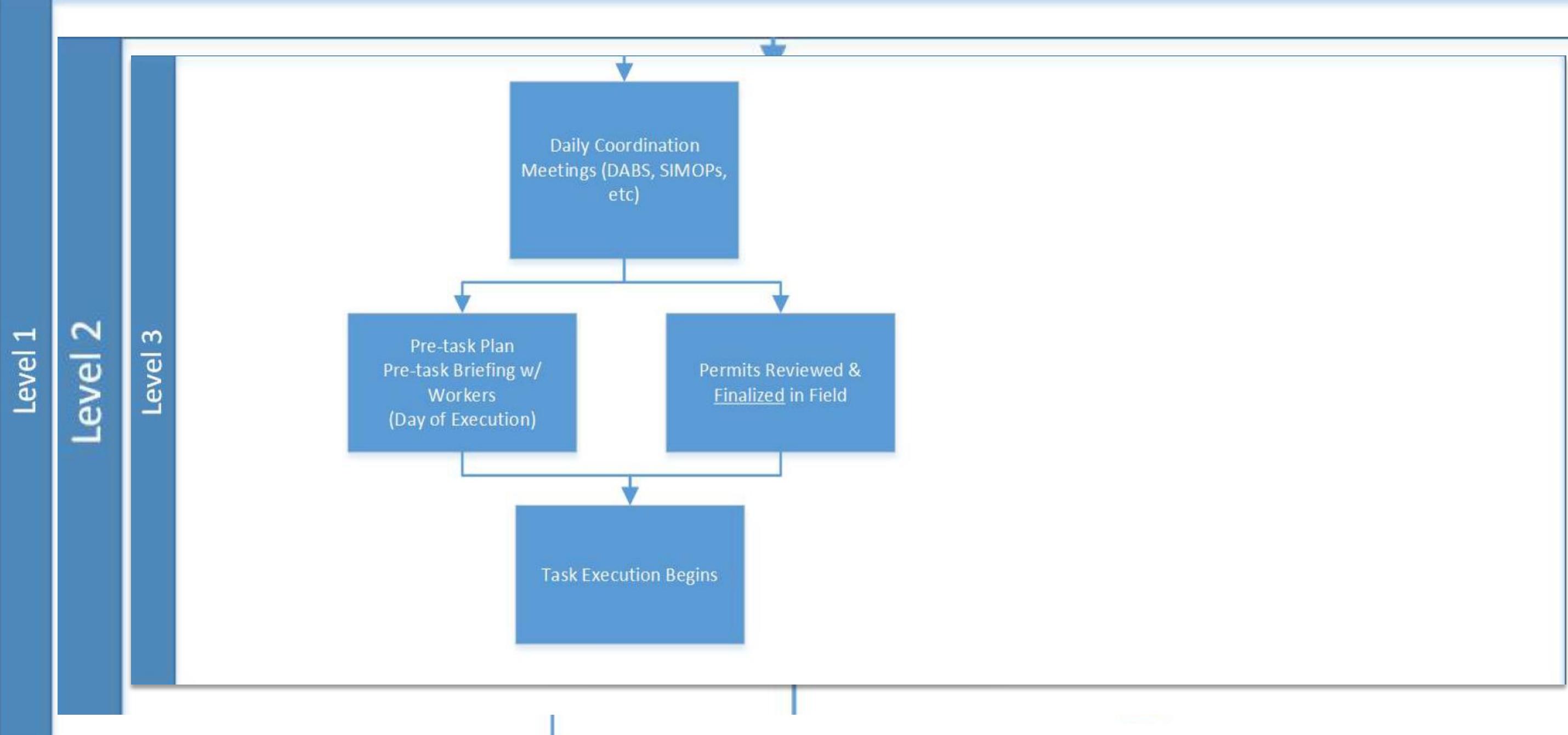


Forecasting & Managing Risks

How many safety risks, represented by black dots, do you see?



High Risk Activity (HRA) Forecasting & Planning Process Flow



High Risk Activities Identified In Project Schedule

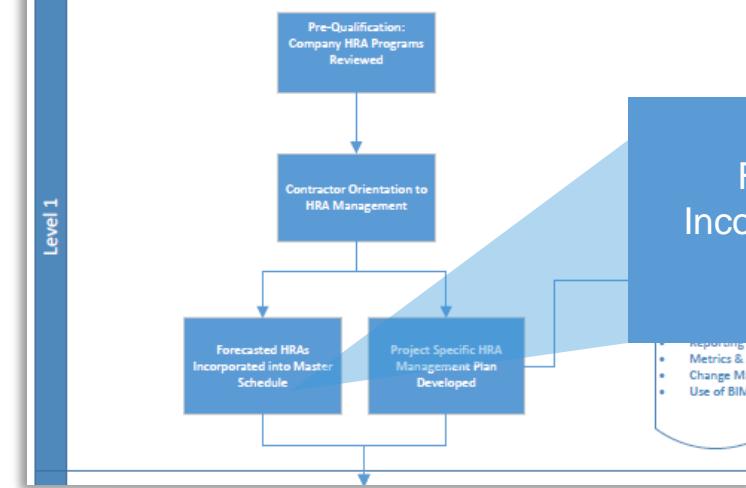
Activity ID	Activity Name	Original Duration	Start	Finish	DSM07 Primary HRA	DSM07 Secondary HRA
COLO-3-CELL-C-5530	Terminate Load Side PDU Cabling	6	12-Aug-19	17-Aug-19	P-WH	S-E
COLO-3-CELL-C-6040	Terminate Line Side PDU Cabling	6	19-Aug-19	24-Aug-19	P-WH	S-E
COLO-3-CELL-C-4320	Install MOR Cabinets	2	21-Aug-19	22-Aug-19	P-MH	S-N/A
Electrical Room		19	09-Aug-19	07-Sep-19		
COLO-3-CELL-C-4580	Install Lighting	6	09-Aug-19	17-Aug-19	P-WH	S-E
COLO-3-CELL-C-6020	Set Inside Lineup Electrical Room Equipment	6	15-Aug-19	19-Aug-19	P-L	S-MH
COLO-3-CELL-C-4530	Install EPMS/BAS Pathways	3	20-Aug-19	22-Aug-19	P-WH	S-MH
COLO-3-CELL-C-4570	Terminate Overhead Cable	12	22-Aug-19	05-Sep-19	P-E	S-MH
COLO-3-CELL-C-4510	Terminate Underground Cable at LVS01	12	22-Aug-19	05-Sep-19	P-E	S-MH
COLO-3-CELL-C-5180	Terminate and Test CAHU Conductors	6	26-Aug-19	31-Aug-19	P-E	S-MH
COLO-3-CELL-C-4370	Install EPMS/BAS Cabinet	2	06-Sep-19	07-Sep-19	P-MH	S-N/A
COLO-3-CELL-C-4580	Install Lighting					
COLO-3-CELL-C-6020	Set Inside Lineup Electrical Room Equipment					
COLO-3-CELL-C-4530	Install EPMS/BAS Pathways					
COLO-3-CELL-A-6020	Set Inside Lineup Electrical Room Equipment	4	22-Aug-19	26-Aug-19	P-L	S-MH
COLO-3-CELL-A-4520	Install EPMS/BAS Pathways	3	27-Aug-19	29-Aug-19	P-WH	S-MH
COLO-3-CELL-A-4580	Terminate Overhead Cable	12	29-Aug-19	12-Sep-19	P-E	S-MH
COLO-3-CELL-A-4410	Terminate Underground Cable at LVS01	12	29-Aug-19	12-Sep-19	P-E	S-MH
COLO-3-CELL-A-5180	Terminate and Test CAHU Conductors	5	03-Sep-19	07-Sep-19	P-E	S-MH
COLO-3-CELL-A-4300	Install EPMS/BAS Cabinet	2	13-Sep-19	14-Sep-19	P-MH	S-N/A
Cell D		50	08-Jul-19	13-Sep-19		
COLO-3-CELL-D-4070	Install Electrical Overhead Branch	45	08-Jul-19	28-Aug-19	P-WH	S-MH
COLO-3-CELL-D-6230	Install Perimeter Telecom Tray	9	29-Aug-19	09-Sep-19	P-WH	S-MH
COLO-3-CELL-D-4090	Install Overhead Fire Alarm Work	6	07-Sep-19	13-Sep-19	P-WH	S-MH
Main Colo		14	16-Aug-19	31-Aug-19		
COLO-3-CELL-D-5600	Pull PDU to HAC Bus Feeders	6	16-Aug-19	22-Aug-19	P-WH	S-E



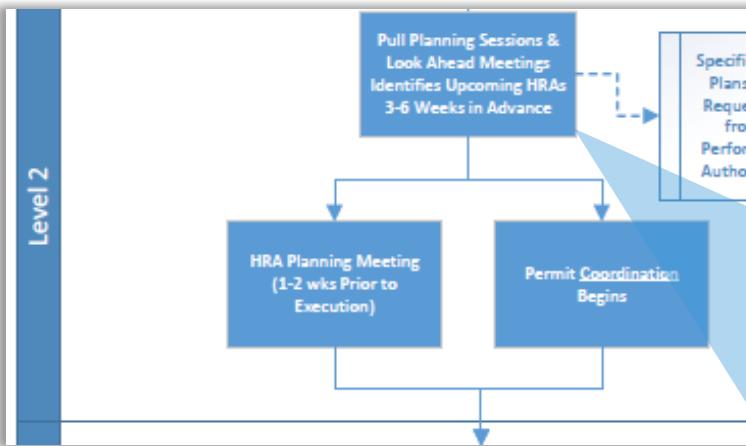
DSM07 Primary HRA	DSM07 Secondary HRA
P-WH	S-E
P-WH	S-E
P-MH	S-N/A
P-WH	S-E
P-L	S-MH
P-WH	S-MH
P-E	S-MH
P-E	S-MH
P-E	S-MH
P-MH	S-N/A

DSM07 Primary HRA	DSM07 Secondary HRA
P-WH	S-E
P-L	S-MH
P-WH	S-MH
P-E	S-MH
P-E	S-MH
P-MH	S-N/A
P-WH	S-MH
P-WH	S-MH
P-WH	S-MH
P-WH	S-E

High Risk Activity (HRA) Forecasting & Planning Process Flow



Forecasted HRAs Incorporated into Master Schedule

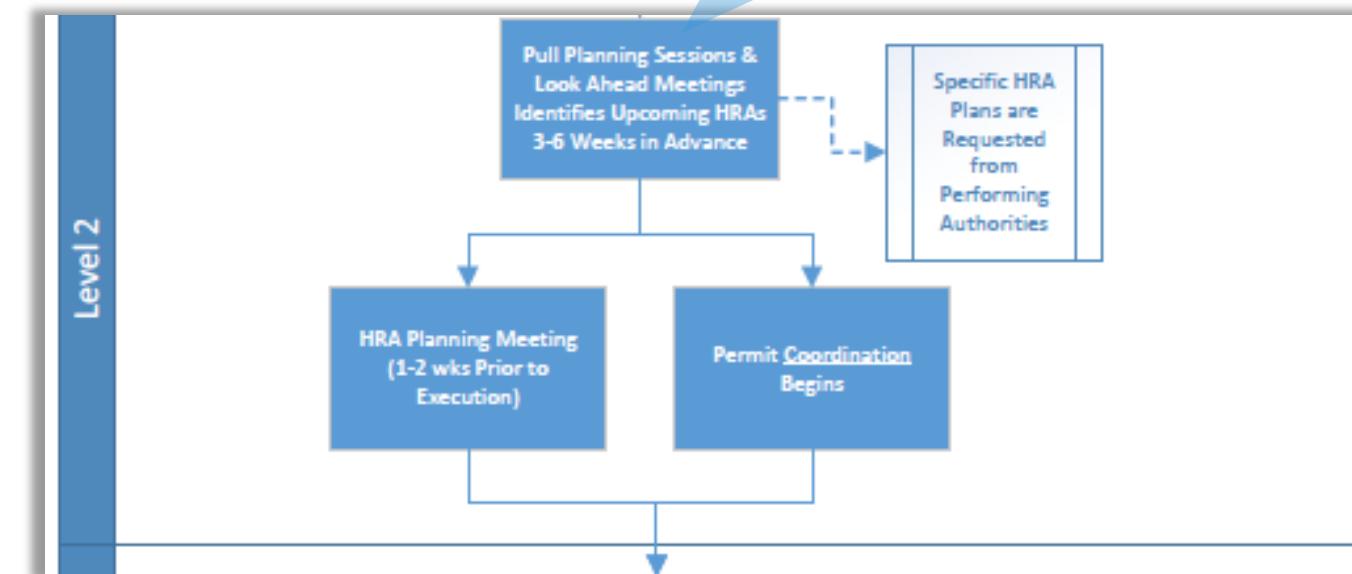
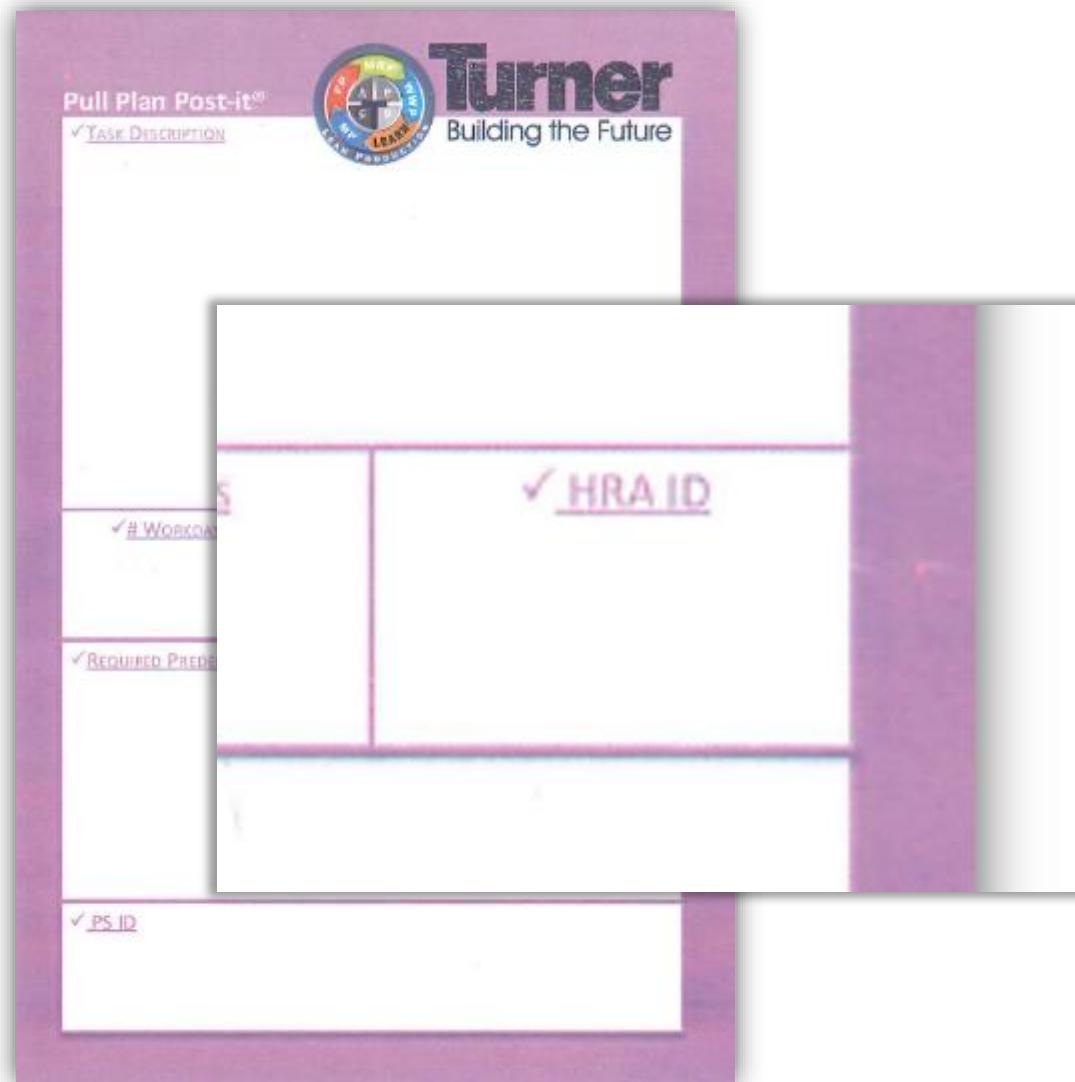


P-L

S-MH

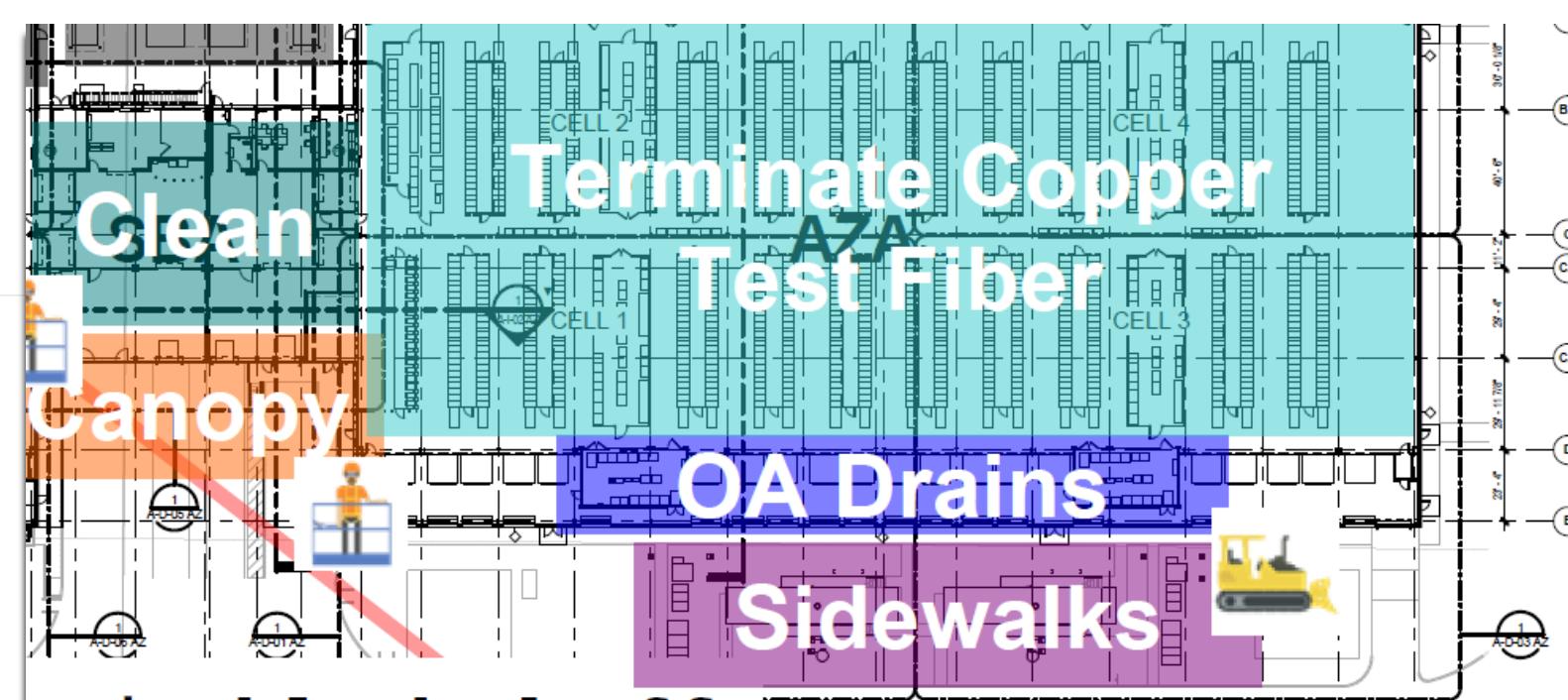
Pull Planning Sessions & Look Ahead Meetings Identifies Upcoming HRAs 3-6 Weeks in Advanced

High Risk Activity Identified In Pull Plans

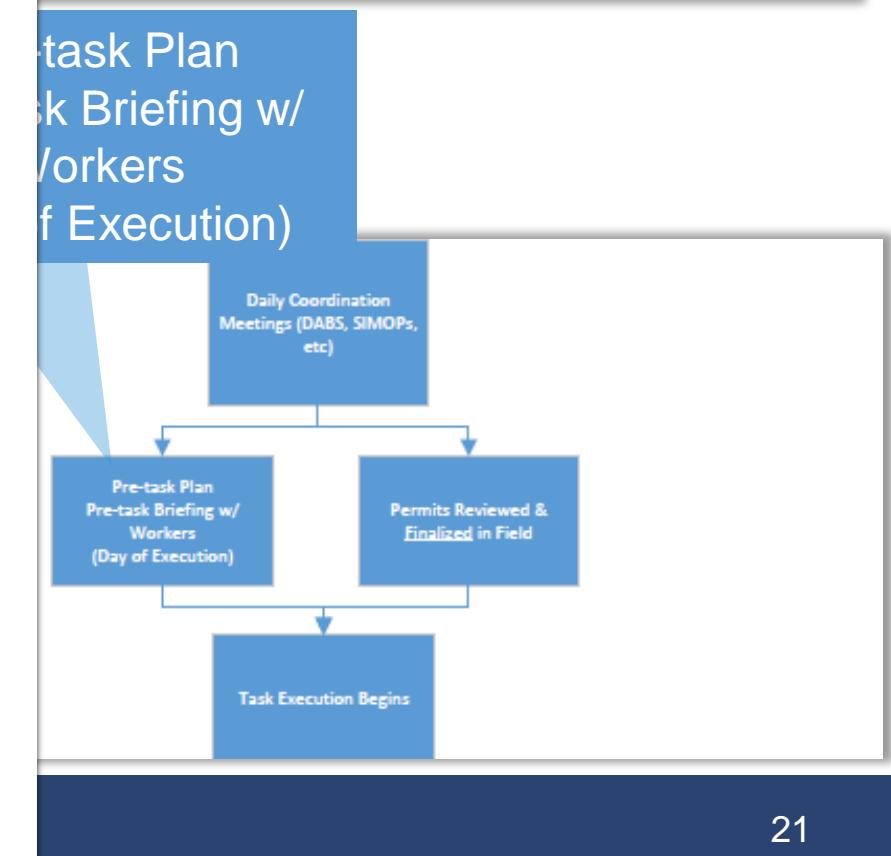
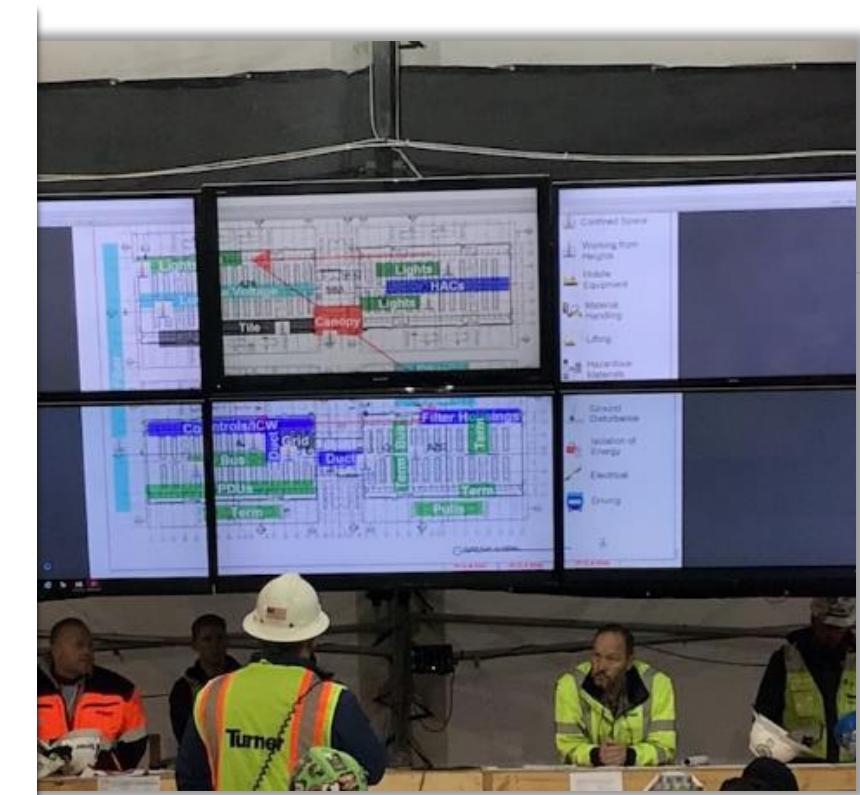
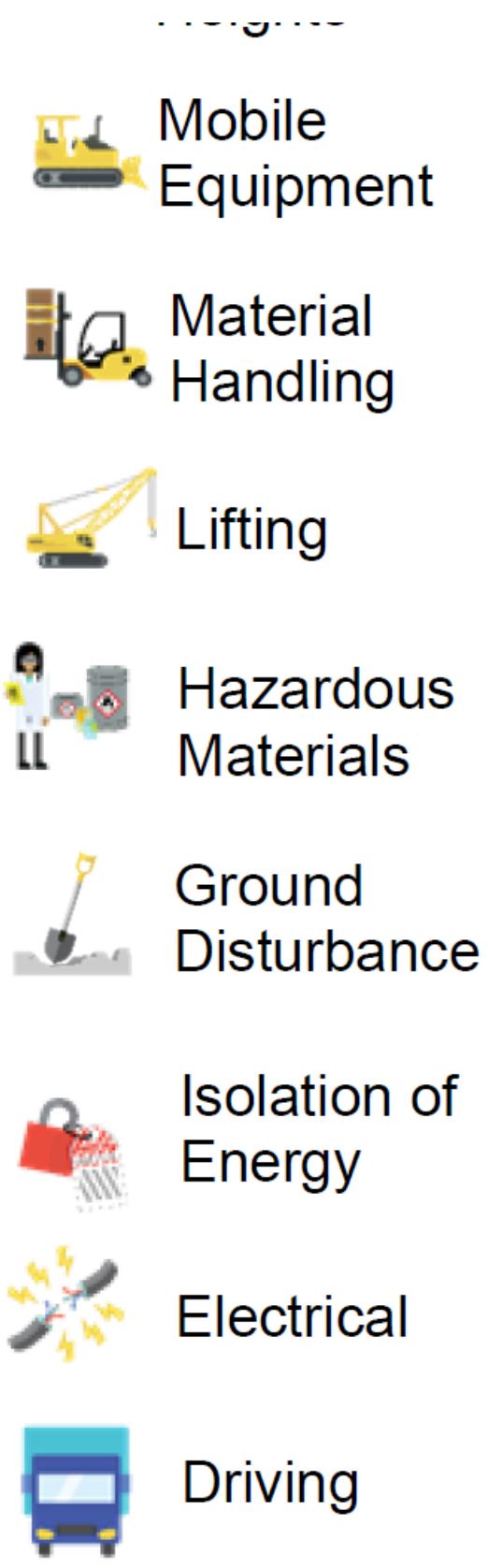
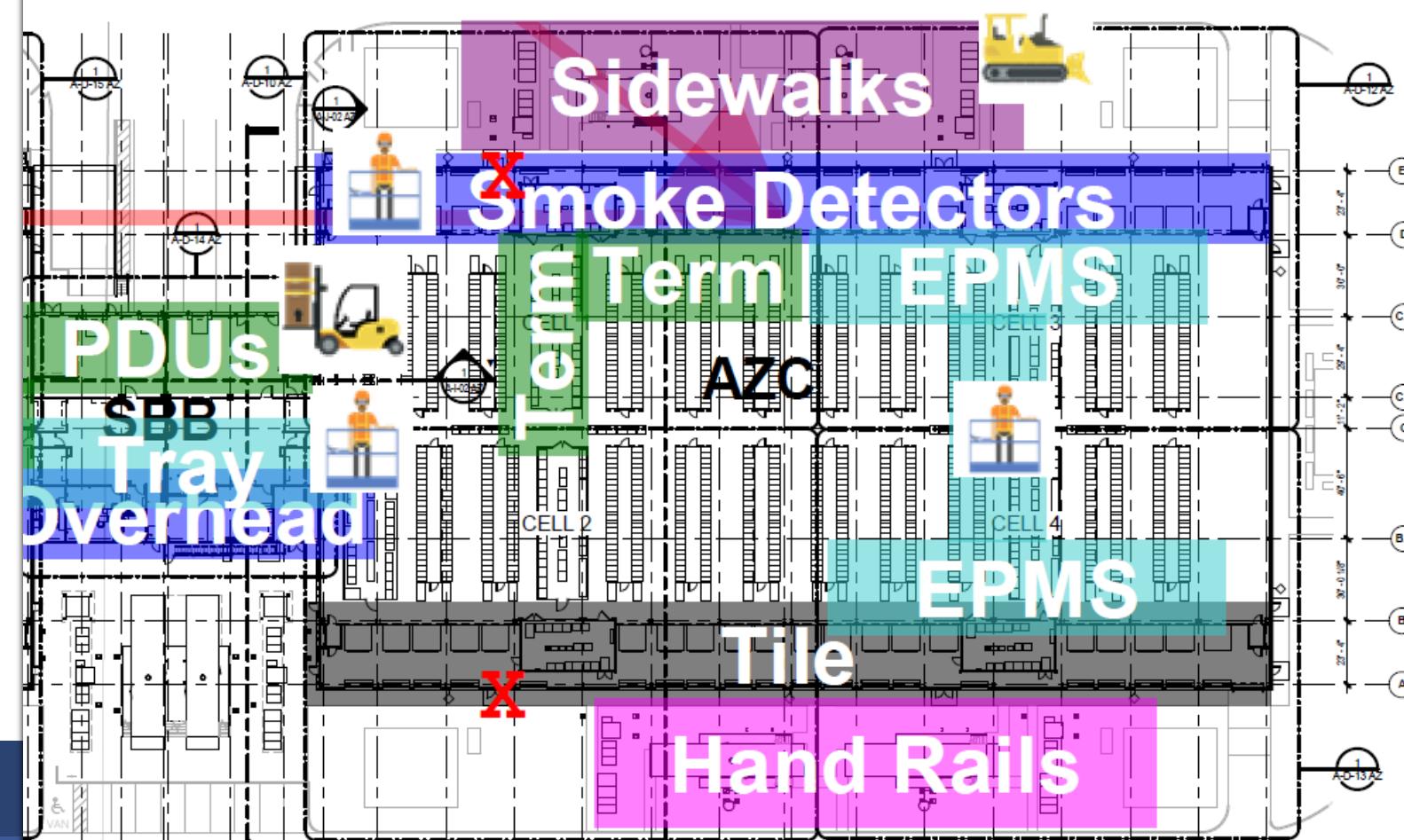


Pull Planning Sessions &
Look Ahead Meetings
Identifies Upcoming HRAs
3-6 Weeks in Advance

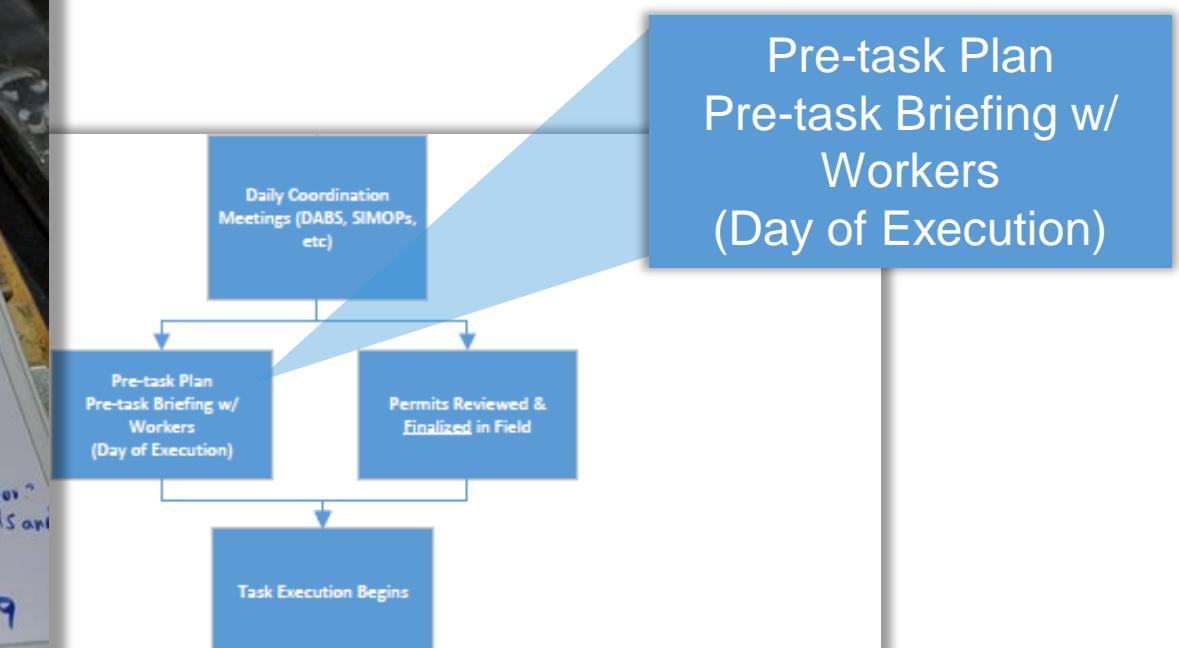
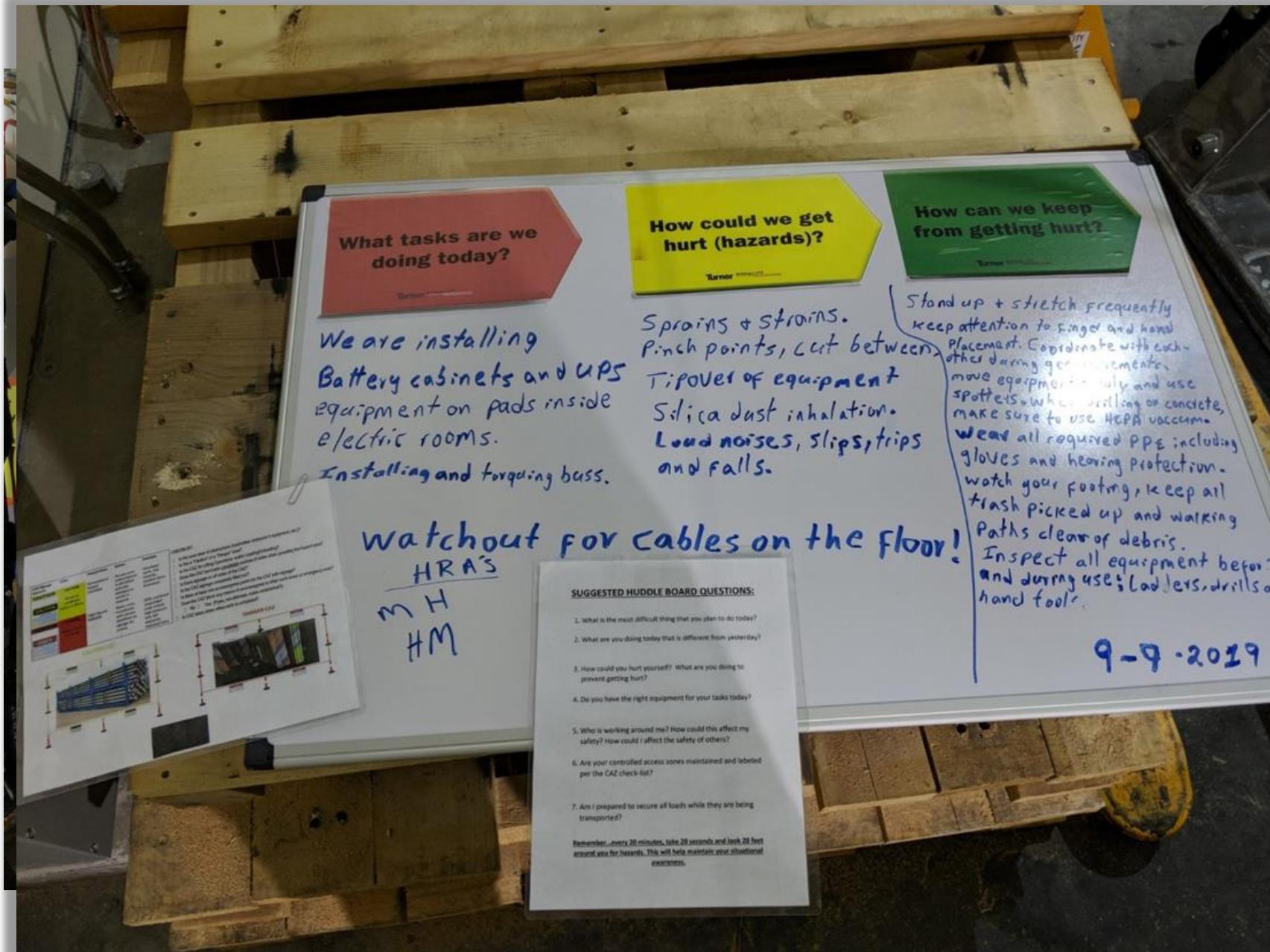
High Risk Activity Identified In Weekly Work Plans



r is blocked off



High Risk Activities in Pre-Task Plans (PTP)



High Risk Activities in Pre-Task Plans (PTP)

Turner

Building L.I.F.E.
Living Injury Free Everyday

PRE-TASK PLAN

Date: _____ Company: _____
Description of Activity: _____
Supervisor: _____ Location of Task: _____

Pre-task Plan
Pre-task Briefing w/
Workers
(Day of Execution)

High Risk Activities (HRAs)

 Working from Heights (WH)

 Hazardous Materials (HM)

 Energy Isolation (EI)

 Lifting Operations (L)

 Material Handling (MH)

 Mobile Equipment (ME)

 Confined Space (CS)

 Electrical (E)

 Ground Disturbance (GD)

 Driving (D)

 Noise Exposure (N)

 Temperature Extremes (T)

Turner Building L.I.F.



(EI)

(ME)

(GD)

(T)

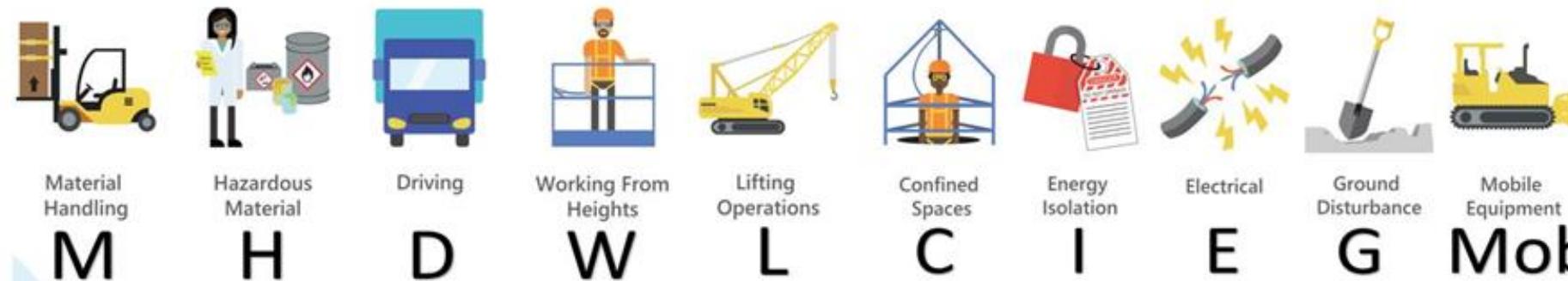


High Risk Activities in Change Management

R. BOND	1.00%	\$ -	\$ -	\$ -	\$ -
S. GRAND TOTAL [Q+R]		0.00	\$ -	\$ -	\$ -
		TOTAL COST FOR PCO # 001 : \$ -			

U. List all the HRA's associated with this change.

Comments: None



etc.? If no, any damage that is caused as a result of this change will be back charged to the subcontractors included in this proposal. If yes, please describe the work / area affected by each subcontractor's scope of work and attach a document showing what in place work will be impacted.

Yes/No

Initial :

V. DURATION

W. All costs to maintain the project schedule have been included in this proposal

Comments: None

Initial :

Page 2

Keys to Success

- Leadership Buy-In
- Supervisor Buy-In
- Craft Worker Training, Understanding
- Risk Evaluation During Change Management



Summary



- Focused Strategy beyond traditional management to prevent SIFs
- The Last Planner System™ is the ideal tool to deliver integrated HRA and production planning
- Proven value across global portfolio

Contact Us

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Acronym Glossary

- SIF: Serious Injuries and Fatalities
- WWP: Weekly Work Plan
- WPS: Worst Potential Severity
- HRA: High Risk Activity
- PTP: Pre-Task Plan



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