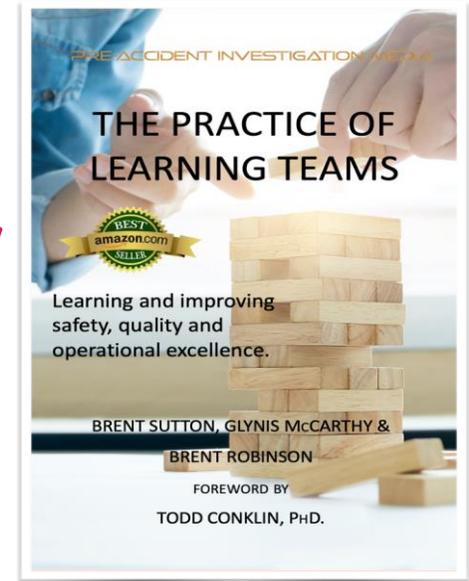
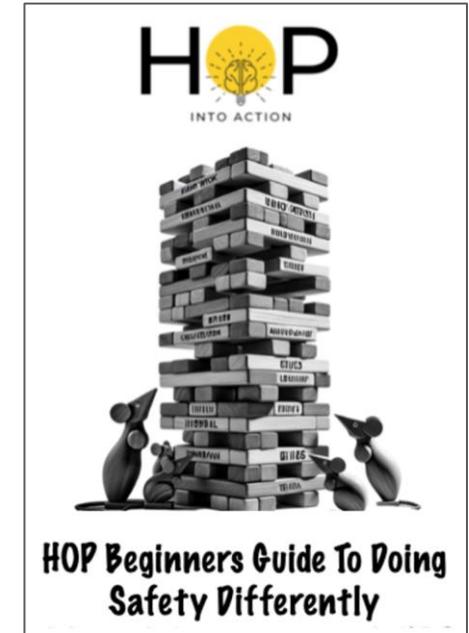
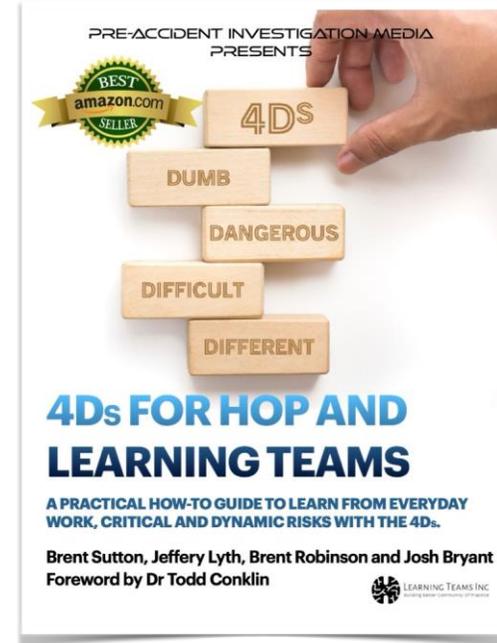


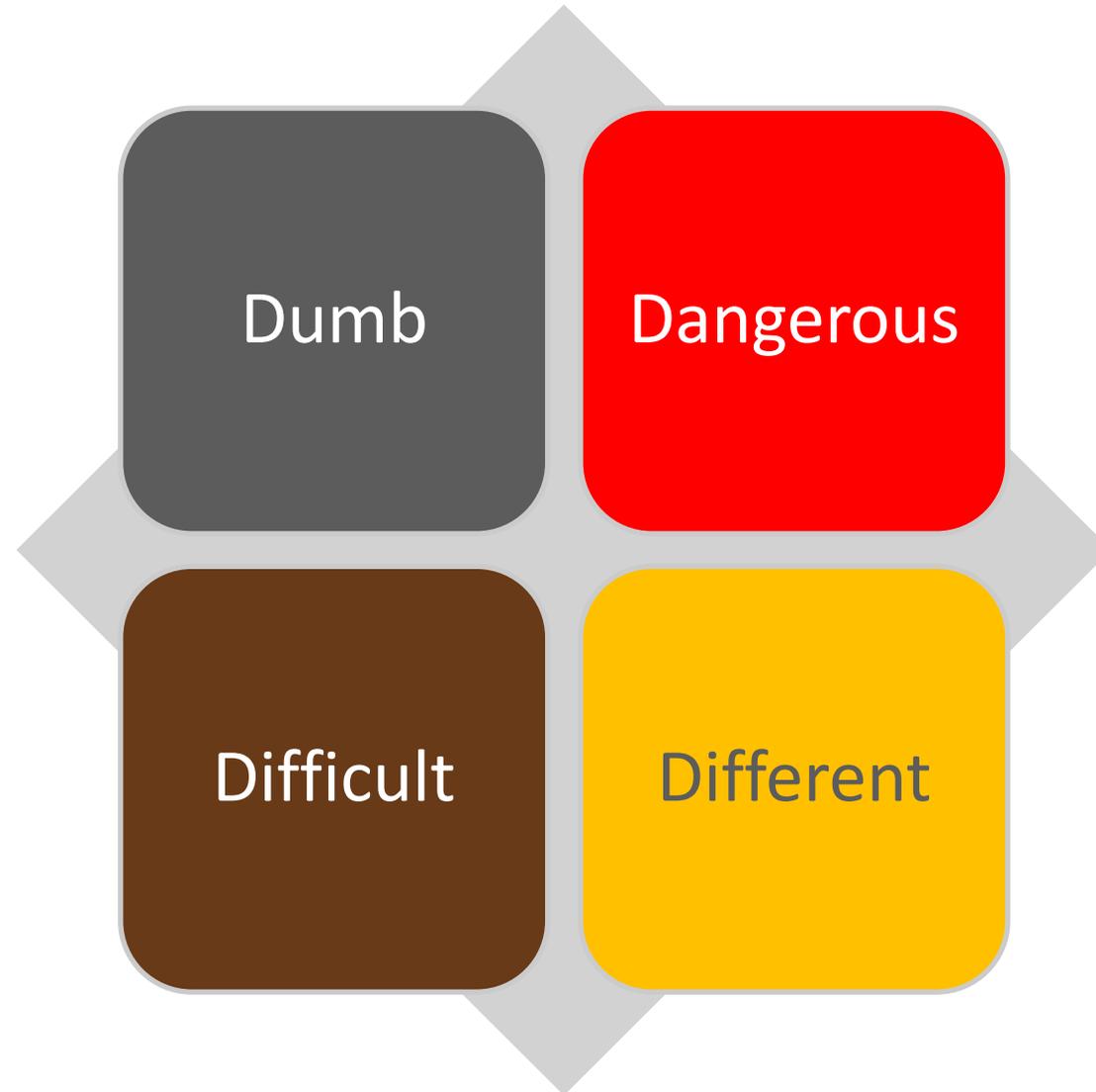
# HOP<sup>TM</sup>

INTO ACTION

Putting the Human and Organizational Performance Principles into Practice



# THE 4D'S – LEARNING FROM EVERYDAY WORK





*The 4D's  
makes visible  
the work risks;*

*Physical*

*Health*

*Psychosocial*

*Situation, task or process that doesn't make sense.*

Dumb

Dangerous

*Risky or challenging task, process, situation or hazard.*

*Unusual, difficult or demanding task, process or situation.*

Difficult

Different

*Changing or changed situation, activity or task.*

# Putting Critical Risk Management and HOP into Practice Energy Safety Canada 2024



**Mitchell**  
SERVICES

Josh Bryant  
General Manager – People, Risk and Sustainability



ASX: MSV

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## Mitchell Services – Australia’s most diverse drilling company

- Our Vision – ***‘Finding a better way to unlock resources for our customers, for the benefit of our shareholders, our people and the community’.***
- ~ 900 employees
- >35 projects with 25 different clients.
- Work in a wide range of high-risk environments including remote exploration, near mine surface drilling, underground coal, underground minerals, in pit,
- > 50 years of operations - industry recognition for our work programs and applied safety philosophy.
- “HSE Team of the Year” at the 2023 Australian Institute of Health and Safety Awards (AIHS)



# 01. First we changed our lens

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# “Human and Organisational Performance” – Principals, not a Program

While individuals are prone to mistakes, these instances also provide valuable opportunities for growth, success, and creative problem-solving.

Understand degradation of controls, ease of use, and critical steps to ensure success and the ability to fail safely.

Learning from everyday work, setbacks and success leads to improved work design and operational performance.



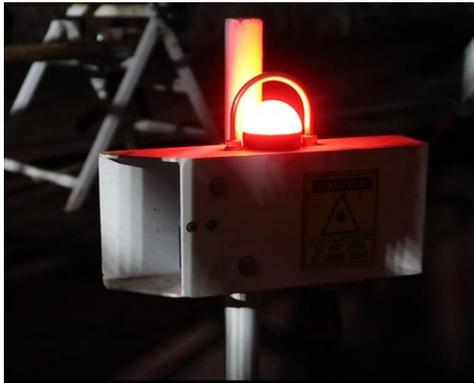
Blame impedes growth and leads to conflict, without contributing to solutions or progress.

Problems and incidents highlight that context and conditions, not just individual actions, shapes outcomes.

Is failure seen a reason to blame and punish, or an opportunity to learn and improve?

Conklin – 5 Principals of Human Performance 2019

# Can't prevent all errors – so how do we 'fail safely'



## Can the event be described without a ‘counterfactual?’

- The person *‘should have’*
- The person *‘failed to’*
- The person *‘was supposed to but didn’t’*
  
- We are describing what we wished had happened, not what actually happened.
  - this means we don’t have enough information to understand ‘local rationale’ and we are using hindsight bias.
  
- **Blame stops improvement.**



## Language Matters - 'Event Debrief' (replaces 'Statement')

- Whenever we have an event, we ask our people to fill out a 'statement' – this can make some feel like they are a criminal – they are not.
- Using Investigations Differently's 'Event Learning' questions, we added them to our Event Debrief form:
  - **What surprised you about the event?**
  - **Could things have gone worse? And why did that not happen?**
  - **When this task works well, what must go right?**
  - **Is there anything that frustrates you with this task?**
  - **What could management better understand about this task?**
  - **How can we improve the way we do this?**
- Straight away, this lets our people know that we are interested in learning.

	EVENT DEBRIEF
	<small>HSE-FM-31</small>
What surprised you about the event?:	
Could things have gone worse? And why did that not happen?:	
When this task works well, what must go right?	
Is there anything that frustrates you with this task?	
What could management better understand about this task?	
How can we improve the way we do this?	

# 02. Critical Risk Management

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## Critical Control Management (as a contractor)



*“There is no one right way of implementing critical control management. It needs to be tailored to suit individual companies and sites. What is important is having people with the right skills, experience and resources to implement it to a high standard”.*

*ICMM Guide 2023*

# Be crystal clear on what a ‘Critical Control’ is and is not

## What is a critical control?

*A specific act, object or technological system which of itself will prevent or mitigate an incident. Further, these ‘things’ are specifiable, measurable and auditable – and their absence would significantly increase the potential for an unwanted incident to occur or have a much more significant outcome.*

## What is NOT a critical control?

*Any procedure, Training, Licenses, Permits*

A critical control may be described in a procedure, but it is the specific act, object, mechanism or technological system itself that is the critical control.

## What is a Critical Step?

*Any human action that triggers immediate, irreversible, and intolerable harm to something important if that action or a preceding action is performed improperly.*

# Reference Booklets created by frontline workers

### WHAT IS A CRITICAL CONTROL?

- A control that is crucial to preventing the fatal risk event or mitigating the consequences of the fatal risk event. The absence or failure of a critical control would significantly increase the risk despite the existence of the other controls. In addition, a control that prevents more than one fatal event or mitigates more than one consequence is normally classified as critical.
- There may be more than one critical control for a Fatal Risk.
- Critical Controls must always be effectively implemented across site.
- When Critical Controls are found to be ineffective, the task should not start or all operations should cease immediately until this is actioned and the risk effectively controlled.

### CRUSH/STRUCK BY FIXED PLANT OR TOOLING

**At Risk Scenarios:**

- Workers are exposed to an unguarded or unidentified crush point during normal drilling operations (i.e., Mast being lowered, moved or collapsed)
- Workers performing maintenance on equipment that is not properly isolated
- Workers conducting adding/removing rods struck by rod handler
- Workers winching stabiliser into position, struck by stabiliser (Large Diameter Rig)
- Workers on rig floor struck by roughneck due to being inside the slew radius (Large Diameter Rig)

### CRUSH/STRUCK BY FIXED PLANT OR TOOLING

**Critical Controls:**

- Guarding on pinch points to prevent access
- Isolation point and test for dead prior to commencing maintenance work
- Laser tripping of rod handler

**Other Controls:**

- Signage in place to identify location of pinch/crush points
- Exclusion zones demarcated
- Personnel move out of line of fire of rod handler
- Articulation Locking Arm
- Use of loader and tagline to control movement of equipment being lifted by winch
- Exclusion zone when roughneck is being used to make/break (not demarcated, verbal only)

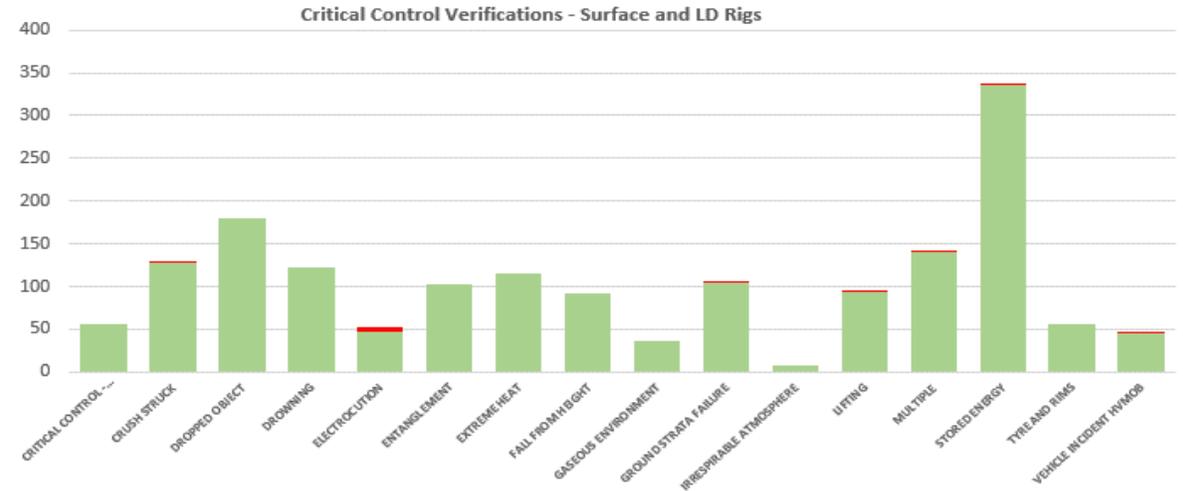
# Making Critical Control Verification about 'Work', not 'Risk'



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# Critical Control Management

- Built with direct input from the workforce and therefore they have ownership.
- Completed by all levels of the business.
- We focus on improving critical controls, and not a count of verifications or fails.
- Transparent communication of ‘Fails’ and ‘Opportunities for improvement’ from the Board to the Frontline – *‘Embrace the Red’*
- “Critical Control Effectiveness Reviews” are carried out by the HSE team in consultation with operations.
- Configurable system managed by HSE so that it’s agile to changes and improvements.



Critical Risk	Critical Control	Observation
 GROUND STRATA FAILURE	Inspect, Barricade and Restrict areas of poor ground conditions	Site flooded - nil action.
 GROUND STRATA FAILURE	Inspect, Barricade and Restrict areas of poor ground conditions	Soft area under rig base. Crew sourced additional bog mats.
 GROUND STRATA FAILURE	Inspect, Barricade and Restrict areas of poor ground conditions	Traction mats used for subsided ground.
 GROUND STRATA FAILURE	Inspect, Barricade and Restrict areas of poor ground conditions	Traction mats placed on goafed ground.
 LIFTING	Lifting equipment has current tags and in good condition	One sling missing tag (Not in use) - has been tagged out of service.
 LIFTING	Demarcated lift/drop zone	Lack of demarcation at the back of the freedom loader for the transfer of equipment from the freedom loader to the second slew. Rectified issue by placing down <i>witches hats</i> .
 MULTIPLE	Laser barricading	Failed test. Not working. Removed from service and replaced with a hard barricade, secured in place.
 VEHICLE INCIDENT HVMOB	Ensure heavy vehicle/mobile plant is parked fundamentally stable	No wheel chocks placed for both heavy vehicles on the drill pad as per site requirements.

# 03.

## Learning from everyday work and how people adapt

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“

*When it comes to field leadership, visible felt leadership or time in field initiatives or programs, a key question that I ask management is:*

*“What are the top 5 sustainable improvements to work that you know of that this program has done?”*



Rob Fisher 2023  
Fisher Improvement Technologies

## 4D's Workplace Insights – a focus on systems/work design/conditions

It's a simple and easy conversation to have, but the act of asking the questions (and then making improvements based on the information received) has led to greater engagement, better worker perceptions of leadership (supervisors/leadership team), and numerous opportunities to “Find a Better Way” to improve operations and normal work.

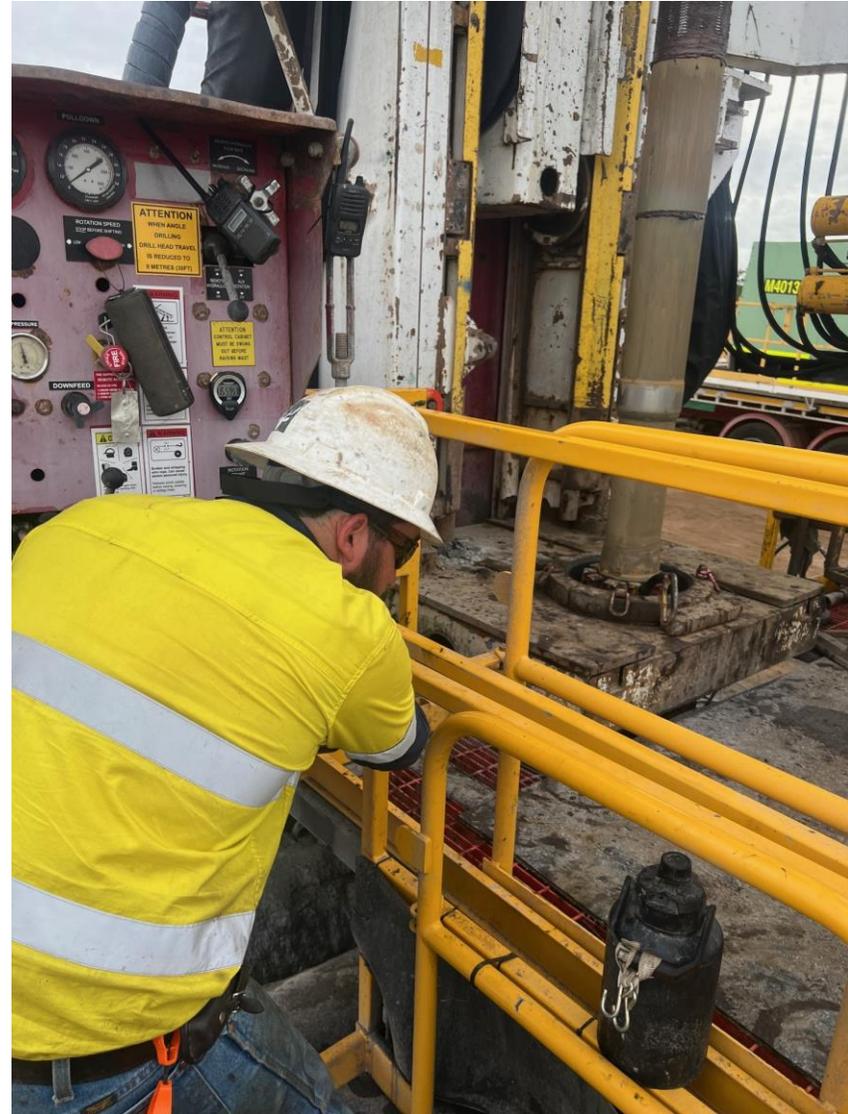
- **“Dumb”** (Sensemaking)
  - Situations, tasks or processes that don't make sense to the worker
- **“Difficult”** (Challenge)
  - Unusual or difficult tasks or processes for the worker
- **“Different”** (Change)
  - Changing or changed situations, tasks or activities
- **“Dangerous”** (Risk)
  - Risky tasks, processes, situations or hazards



## 4D's Example - Improvement in Underground Lighting

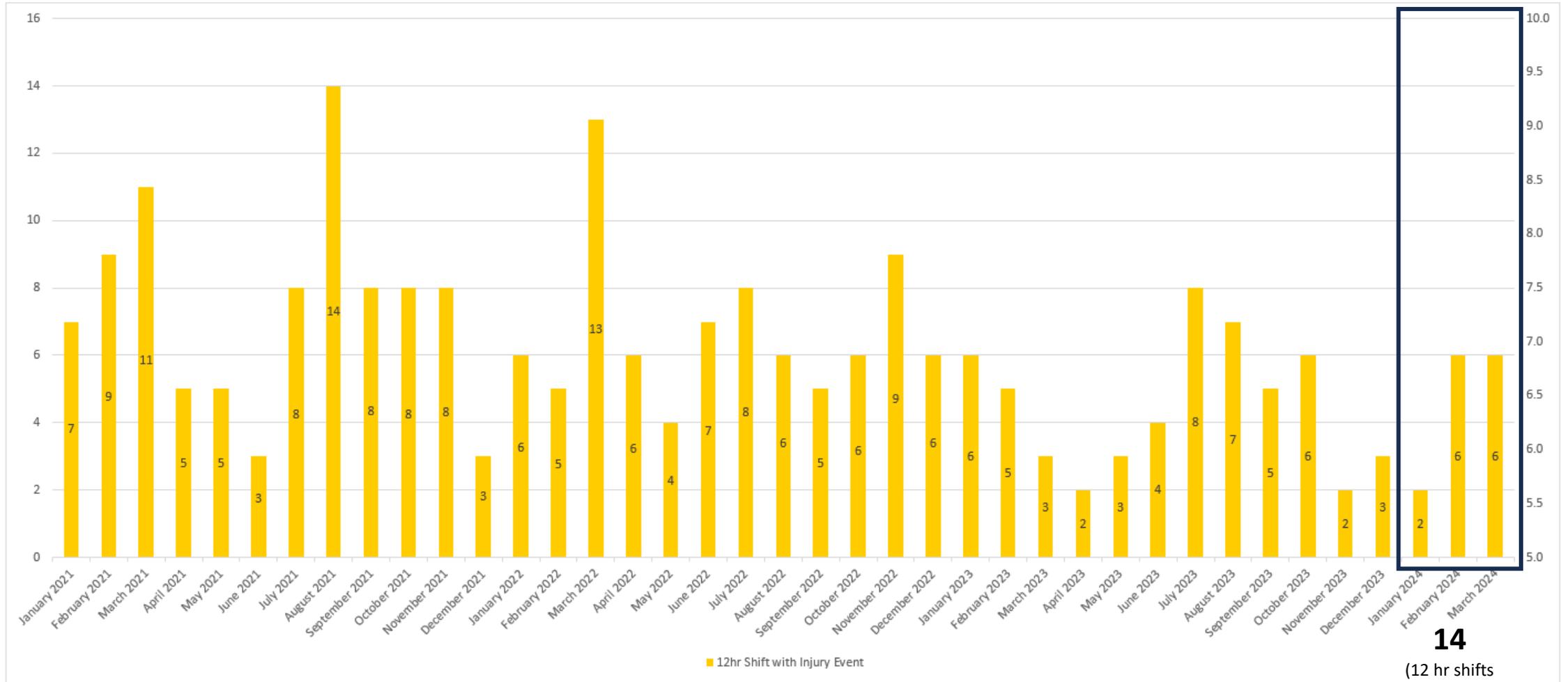
- **“Dumb”** (Sensemaking)
  - Situations, tasks or processes that don't make sense to the worker
  - *“Poor lighting with the ability to have better lighting”*
- **“Difficult”** (Challenge)
  - Unusual or difficult tasks or processes for the worker
  - *“Maintenance personnel have issues with lighting and rely on a cap lamp to perform tasks”*
- **“Different”** (Change)
  - *“New site so opportunity to improve lighting conditions – have seen other operational sites with LED lighting – potential solution?”*
- **“Dangerous”** (Risk)
  - Risky tasks, processes, situations or hazards
  - *“Poor visibility with potential trip hazards, current lighting creates shadows, dull lighting leads to fatigue due to eye strains”*





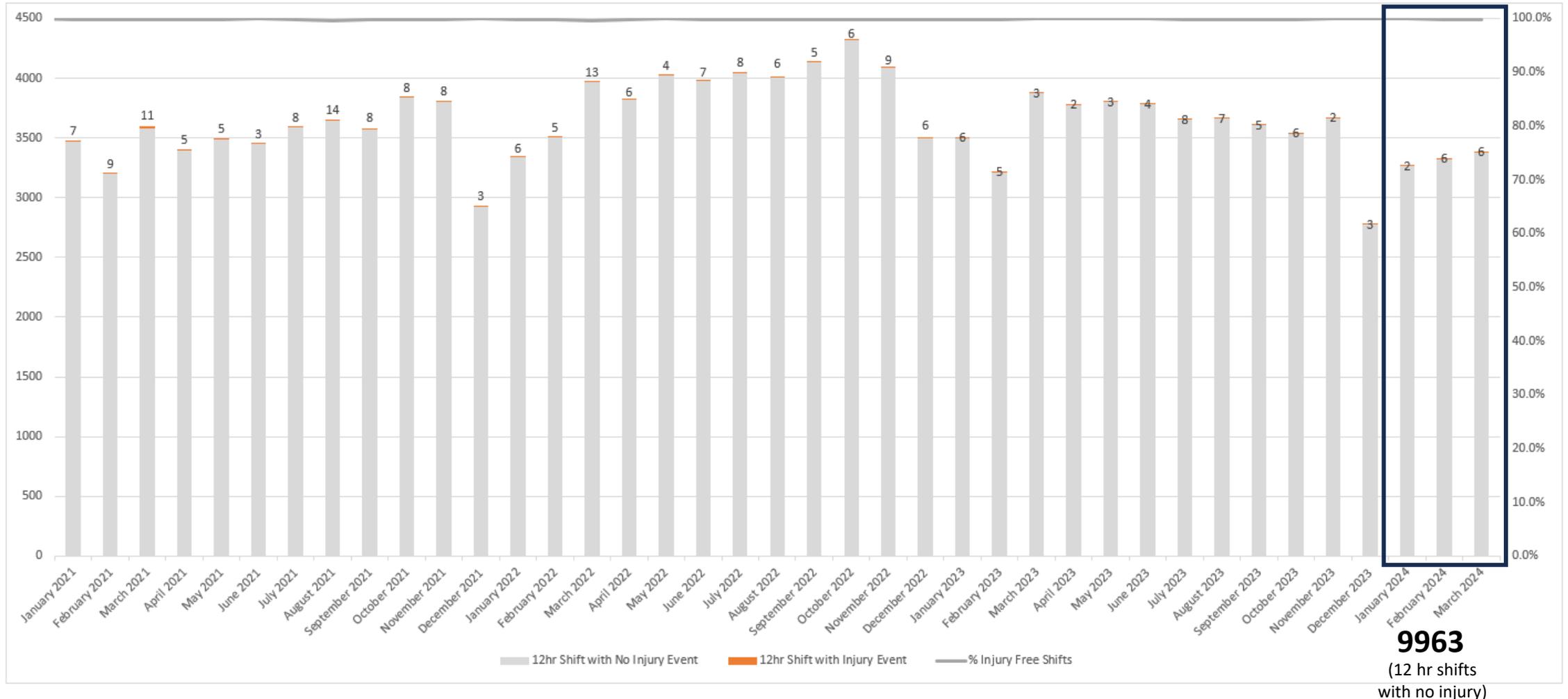
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# Not waiting for failure to learn



**14**  
(12 hr shifts with an injury)

# Be curious about 'non-events'? Are we good or are we just lucky?



## What 99.98% safe looks like – learn about the ‘rubs’ and how your people adapt

- Walking 8m back and forth up/downstairs after re-sets to reposition the tubes with the loader.
- Inaccurate core orientations.
- Lack of secure tube positioning during loader movements.
- Pinch and crush points while using two sets of stilsons.
- Absence of a vice, posing a risk of injury to personnel.
- Flatbed trucks experiencing issues with diff lock engagement.
- Spinning drive tires, causing the truck to become stuck.
- Shovelling, using bog mats, or towing required to free the truck.
- Sloop motor exhaust directed towards jackleg.
- Hydraulic tank directly above the sloop motor
- Difficult access for refuelling the sloop motor.
- Foot clamp lever not in an ideal location, affecting ergonomics.
- Challenges in keeping the levers activated, especially in cold mornings.
- Limited visibility to the foot clamp area when using the levers.
- Confusion caused by having multiple areas and folders associated with a single contract.
- Presence of unused folders, potentially leading to the loss of important documents
- Not having adjustable trestles to change the height of pumping
- Insufficient time to flush and drain a hole, resulting in flooding
- Loadsafe work platform doesn't provide access to Loadsafe tray from either side
- The size and weight of the unit due to operational needs
- Fitting being too big for the housing
- Placing dummy bolts to keep the rod handler in place for attaching extension
- Manual operation of lifting equipment (chain blocks and lever blocks)
- Need for a longer dolly for driving splitties full length
- Moving truck and dog trailer between sites
- Using only one wrench with both hands for a task
- Container lock position doesn't allow for securing bollards in the required position
- Setting up mud pump too close to the rig due to cord too short
- Task not thought through and not run through by management
- Safely isolating a truck trailer without a prime mover underneath
- Laser signage on one side of the laser switch gear stand not visible on approach
- Rear edge protection Ps can be completely removed
- Burst hoses regularly work themselves down, exposing the hose to the worker
- Not having secure access to complete a task
- Inadequate dunnage space when dumping down, risking crushing the diverter
- Location of core tube slide isolator valves at the back of the mast
- Foot clamp guard can be removed
- Different configurations of safety chains between rigs
- Lack of shade or cool areas for rest breaks
- Clients' inability to organize adequate vehicles and equipment
- Lifting the freedom loader over the rod slew up rights
- Fuel/water truck availability and distance between rigs
- Difficulty fitting 150mm PVC due to air wipe and centraliser assembly
- Exposed wireline during operation and lack of stopping mechanism
- Pinch points in panel setup and equipment movement
- Inaccessible storage cage and potential trip hazards
- Inadequate rig nappy grip and handling
- Inappropriate fire fighter pumps being used for water transfer
- Improper mixing and pumping of drill muds with mine-owned assets
- Insufficient lighting and visibility for tube insertion
- Lack of waterproof first aid kits for underground spaces
- Limitations of rotation guarding and small drill deck size
- Trip hazard due to gap between step and drill floor

## 4D's Workplace Insights – a focus on systems/work design/conditions

- Conversations are less transactional
- Data is captured in a simple form
- Discovery of system weaknesses by management
- Considers risk as being dynamic in our **normal work** – (that not all hazards are static, and we can't prevent everything) - how do we maintain the ability to “**fail safely/fail gently**”, and **respond and recover** in a resilient manner
- Proactive feedback loop to the frontline
- Drives standardisation and operational performance
- We've done it transparency, not anonymity



“

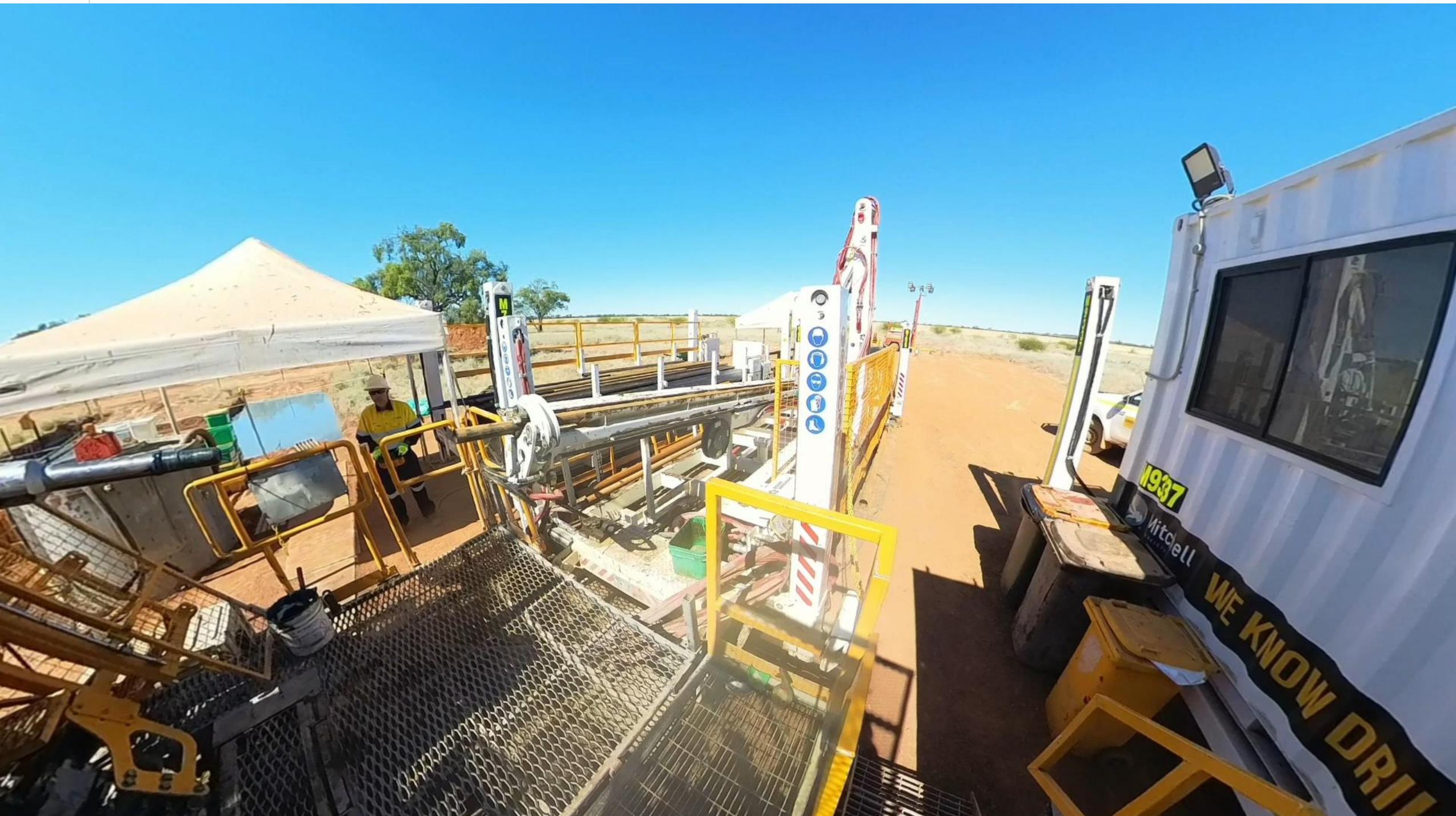
*Be more connected to ‘work’ and improving the ‘Safety of Work’.*

*Safety as a function needs to become more relevant to operations improvement and adding operational value.*

*Have a bias for understanding the work.*



David Provan  
Forge Works  
Punk Rock Safety 2024

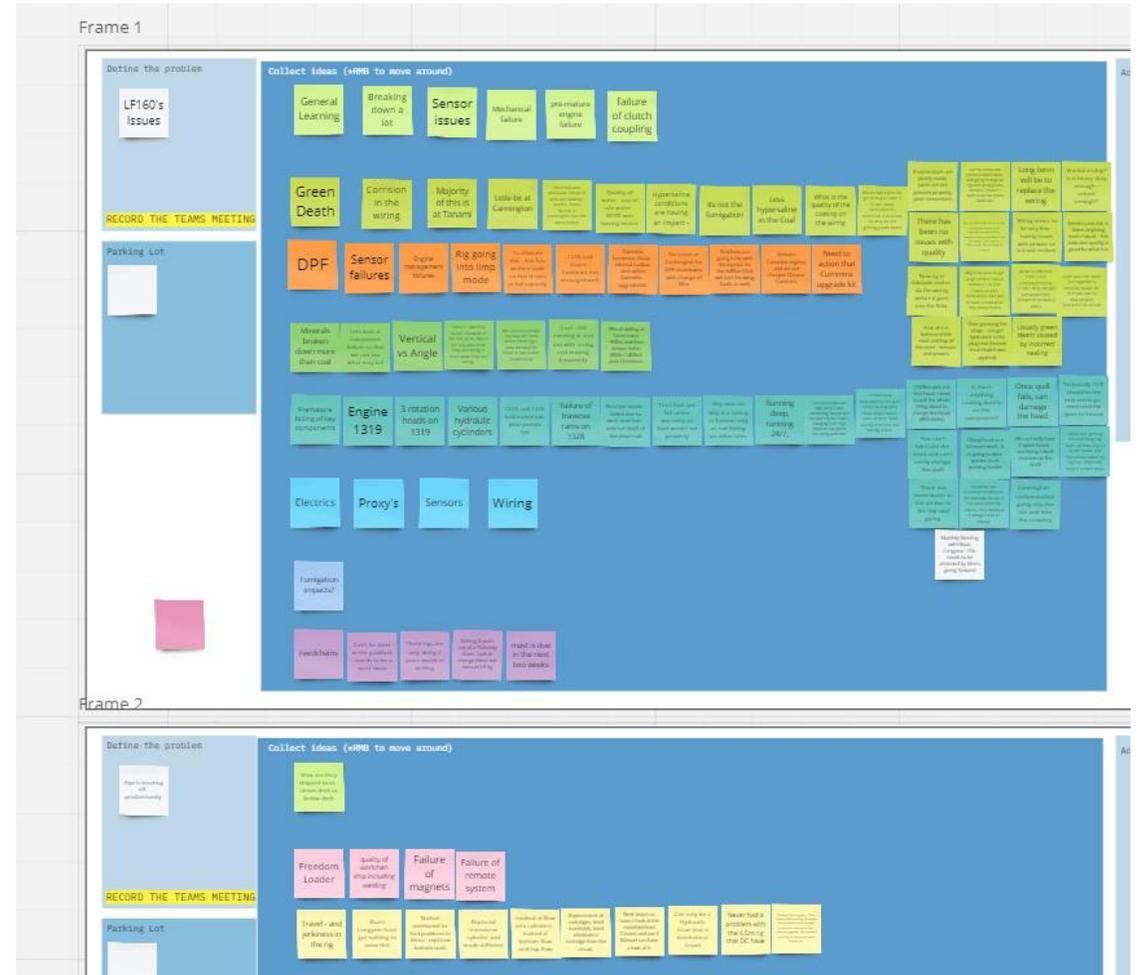


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Mitcell

WE KNOW DRILL

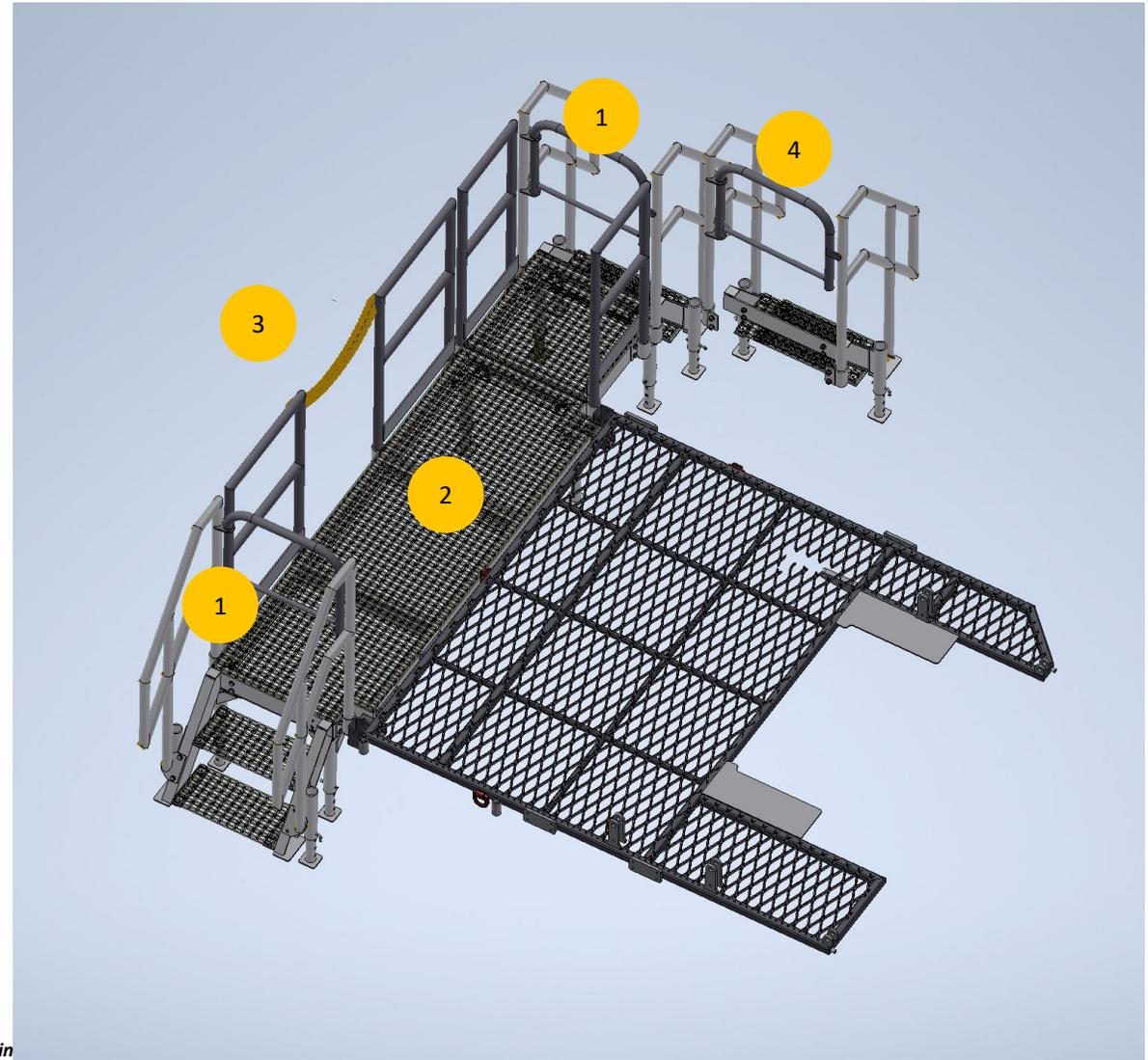
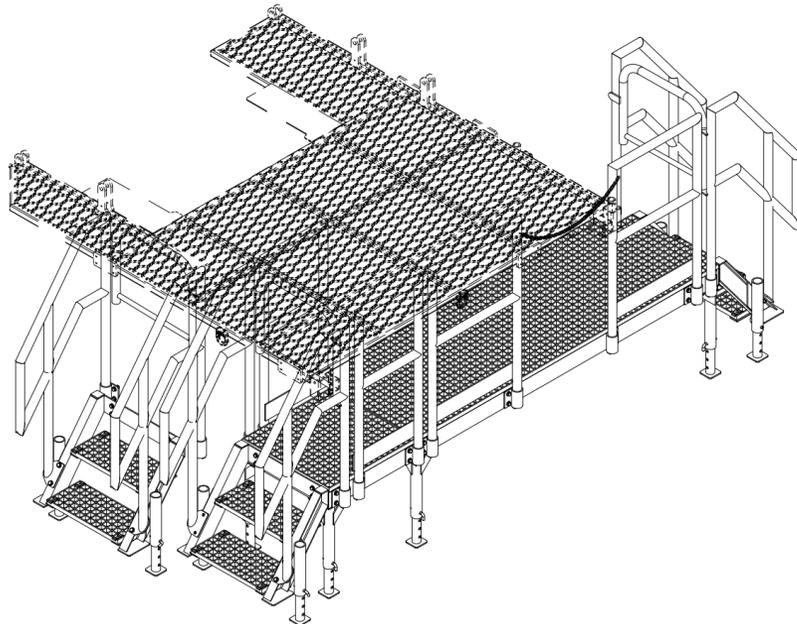
# Learning Teams – can be used across the business



# Live Work Elimination – Rig Deck Upgrades

## Live Work Interaction Review & Upgrades

1. Proxy sensor interlocks on deck entry points that cut mechanical function to the rod loading system and drill rig.
2. Expanded deck work zone area to further distance personnel from 'drop zone' and 'rotating equipment'
3. Back of deck guarding installed to remove risk of interaction with rod loading system or risk of falling in between equipment.
4. Purpose built driller console deck entry and exit point that removes slips, trips and falls.



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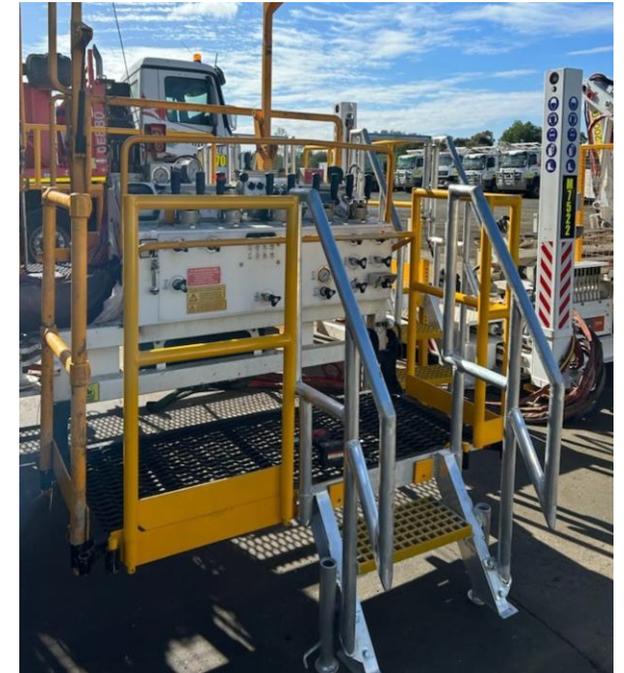
# Live Work Elimination – Rig Deck Upgrades

**Mitchell Services Operations & Engineering Team Developed  
a Safer Rig Deck Zone that Eliminates Live Work**

Proxy Sensor Interlocks (green circled zone) cuts all mechanical function to live work when personnel enter the drill rig floor.

Rear of deck guarding upgrades eliminate fall zones on either side of the pipe loading system

Driller console deck entry and exit point designed to reduce risk of slips, trips and falls.



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# 04.

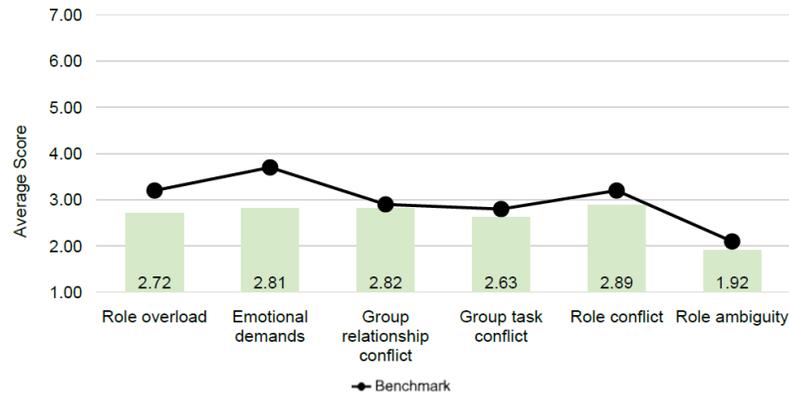
## A Changed Business

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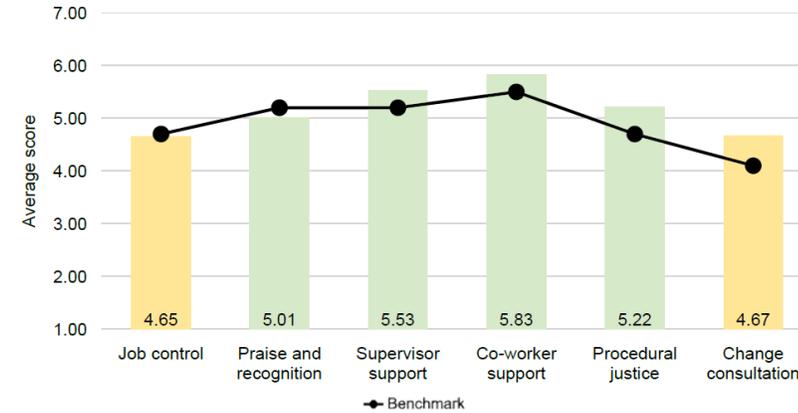
# Understanding Psychosocial Risk

### Job Demands



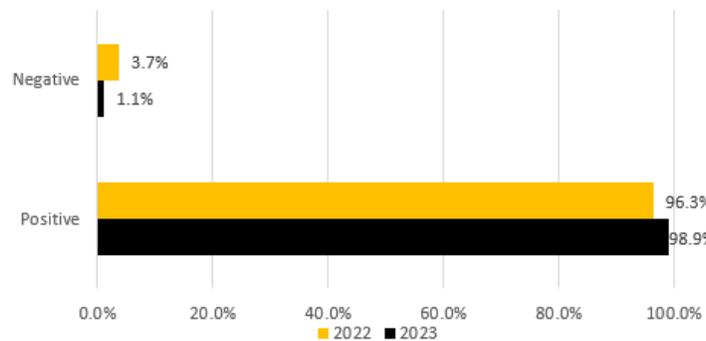
Score interpretation ↓ Lower is preferable			
Range	Low	Moderate	High
Scale values	1.00 - 3.00	3.01 - 4.99	5.00 - 7.00
Action	Good but monitor	Could be improved	Immediate action required

### Job Resources

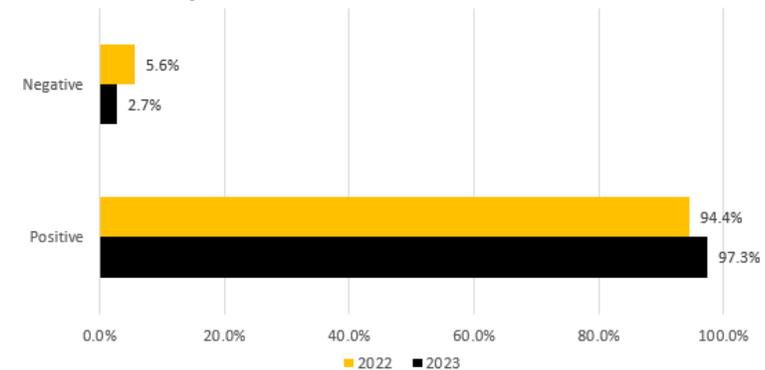


Score interpretation ↑ Higher is preferable			
Range	Low	Moderate	High
Scale values	1.00 - 3.00	3.01 - 4.99	5.00 - 7.00
Action	Immediate action required	Could be improved	Good but monitor

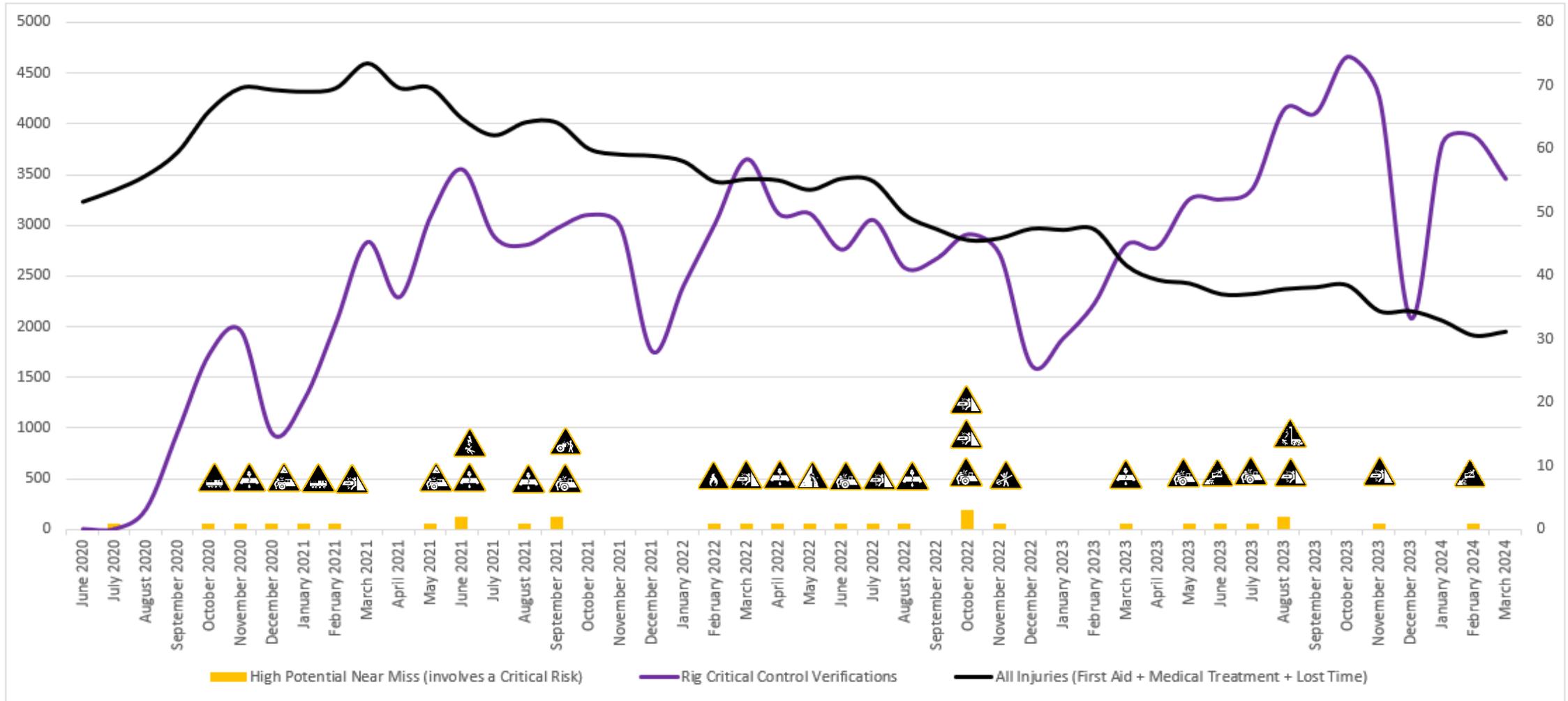
### I feel that Mitchell Services is a 'safe' place to work?



### I am proud to work for Mitchell Services?



# A focus on Critical Controls and Work Design (including hands free)



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“

*As Leaders, the first thing that we need to do is to change our definition of ‘Safety’.*

*Safety is not the absence of accidents.  
Safety is the presence of controls and  
the capacity for our people to adapt and  
to fail safely.*



Dr Todd Conklin  
Senior Advisor  
Los Alamos National Advisory

Thank you



**Mitchell**  
SERVICES



**Josh Bryant**  
**General Manager**  
**People, Risk and Sustainability**  
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