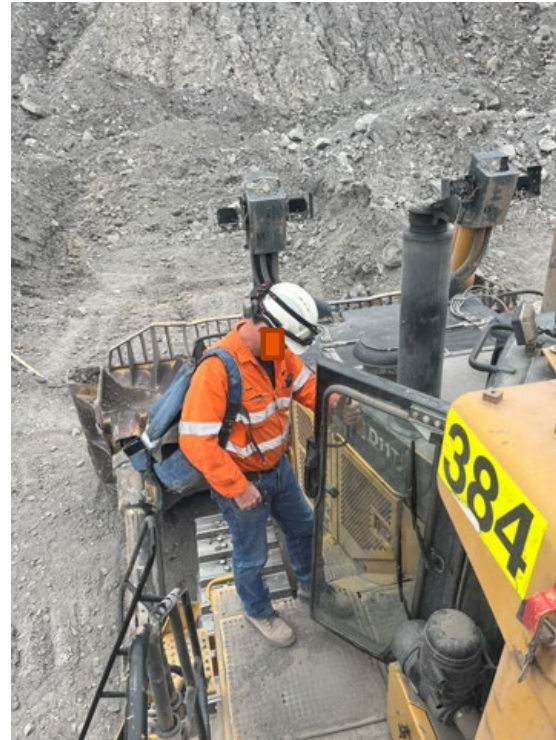


BHP

Investigation Summary - Operator falls from dozer

Event - 1000493316



Event Timeline - Summary

Operator of TRD384 parked up dozer in the darkness as lighting plant was facing the other direction - towards the dump.

Operator of TRD384 stated it was "pitch black", they did not utilise the access lighting / no cap lamp

Operator of TRD384 moved backwards to exit the cab

Operator of TRD384 stepped backwards on the deck rotating in a clockwise position

Operator of TRD384 fell from TRD384 deck.

Operator of TRD384 turned dozer off

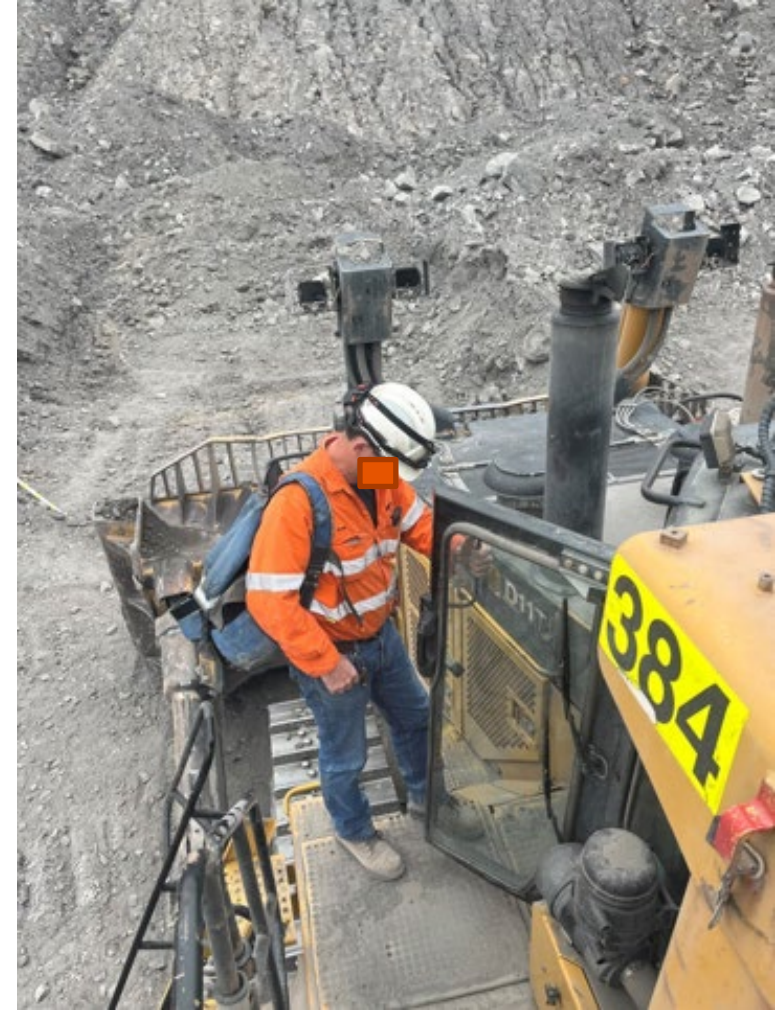
Operator of TRD384 retrieved crib bag from behind dozer seat and placed the bag on the seat

Operator of TRD384 placed crib bag over left shoulder whilst exiting the cab, he placed the crib bag over shoulder (in that motion).

Operator of TRD384 right foot slipped / missed the small "L shaped" part of deck

AL2/
PL4

Photos



Investigation Summary - Operator fall from dozer

Contributing Factors / Key Learnings

Contributing Factors:

- There was no barrier in place to prevent the fall from the platform. It is currently within appetite to wait for the implementation of fatal risk controls via the PCR / major equipment rebuild schedule.
- The absence of lighting on the night may have contributed to the workers awareness of the limits of the dozer platform in relation to their foot placement. The operator did not have a cap light, the dozer access lighting was not turned on by the operator.

KEY Learnings:

1. The importance of assessing and treating hazards relating to legacy equipment, especially the identification of hazards relating to fatal risks. Legacy equipment is normally deemed safe to use due to a history of safe operation with additional controls incorporated into new machines seen as an improvement to the current standard.

Photos



Investigation Summary - Operator fall from dozer

BHP

Investigation Summary - T913 Contacts Windrow OP1 Road

Event - 1000521330



Event & Investigation Overview

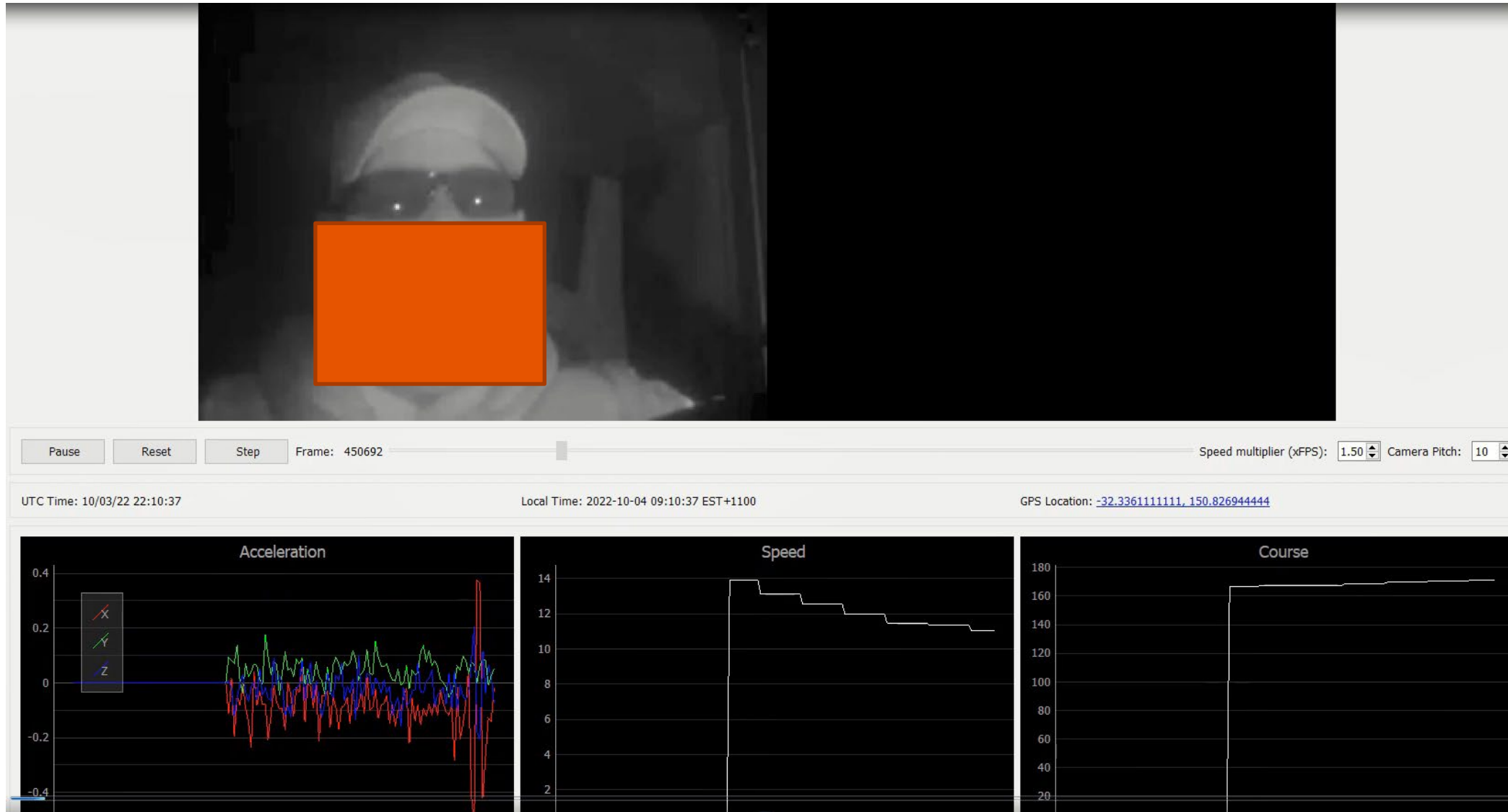
Event

- CMW operating T913, a Liebherr T282, from start of day shift (~2 hours). It is a clear sunny day.
- T913 has a DSS system installed as a mitigating control for fatigue events, the system is functioning as designed
- Safety glasses obtained from the site PPE vending machine are worn by the operator
- The operator begins to experience microsleeps events
- The DSS system fails to detect the eye closure events and does not alert the operator
- The operator experiences multiple microsleep events over the 6 minutes of footage recovered from the DSS system
- Throughout this time period, the operator passes other vehicles on the haul road and travels through intersections
- During a microsleep event, T913 veers off the haul road and into a windrow, coming to rest at 90 degrees to the road
- The operator is not injured and the truck was not significantly damaged

Photos



Short video of one of the microsleeep events.
Note dark glasses and IR reflection on lenses



Contributing Factors / Key Learnings

Contributing Factors:

- A safety alert issued to site by the OEM did not trigger a risk review or appropriate action to address the risk, this coupled with the OEM failing to appropriately address the issue lead to the routine use of incompatible glasses rendering the DSS system ineffective.
- Patterns of fatigue events with an individual operator did not trigger intervention, allowing that operator to continue duties with an increased risk of fatigue

Key Learnings:

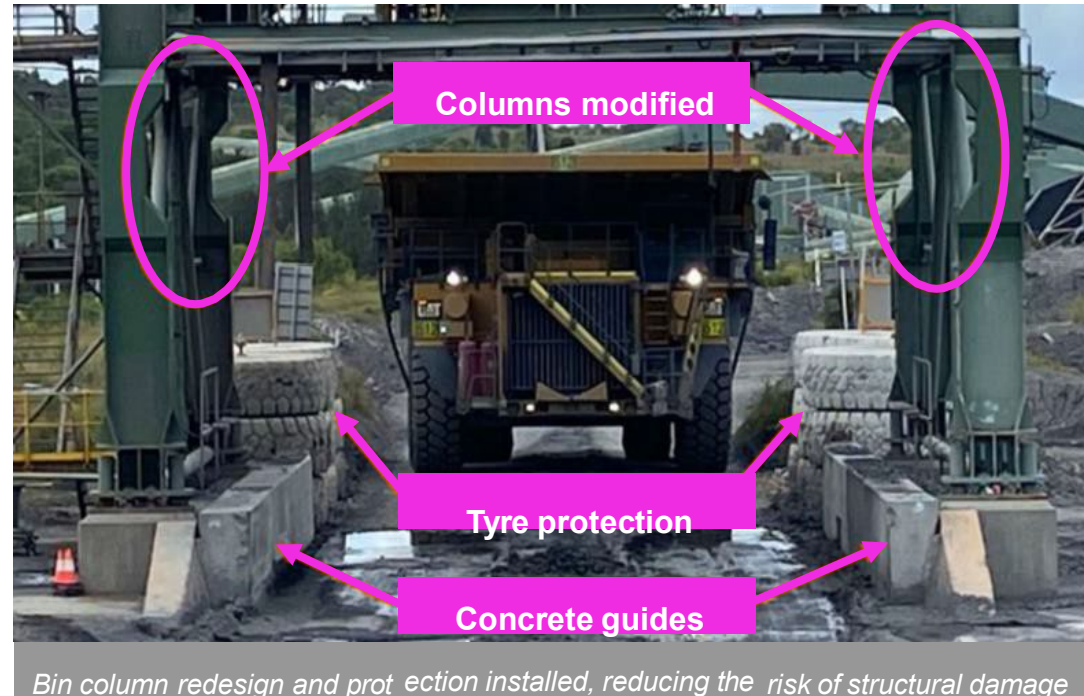
- Appropriate review of industry and OEM safety alerts is required to trigger risk reviews when new or emerging risks are identified
- Chronic fatigue can be more difficult than acute fatigue to identify, additional tools may be required to assist in identifying chronic fatigue

BRIGHT SPOT : NSWEC Engineering modifies reject bin columns, installs protection to reduce structural integrity risk



What was the problem or opportunity and how was it solved / captured?

- There have been incidents where Caterpillar 789 haul trucks collided with the reject bin columns in the reject circuit at NSWEC, resulting in damage to the structure with potential to jeopardise the integrity of the reject bin and put haul truck operators at risk. The team had previously modified the reject circuit, within the NSWEC footprint constraint, to make it easier for operators to line up for the reject bin within the NSWEC footprint constraint, however incidents continued to occur.
- The Projects Engineering team were engaged to identify ways to protect the reject bin. The team identified and completed three key changes to reduce the risk of structural damage, without completely redesigning the bin structure:
 - Modified the bin columns to increase clearance between the truck tray and bin structure
 - Stacked concrete filled tyres either side of the bin entry to protect the front bin columns
 - Installed precast concrete guides to narrow the path when trucks are passing under the bin.



What is the value for us?

Safety: Reduced structural integrity risk

How are we locking in value?

- MOCNSWEC000218, MOCNSWEC000189 (Reject bin structural protection)

How and where can we replicate?

- **Plan-Do-Check-Act:** continue problem solving where the first solution does not fully prevent recurrence
- **Explore hard control options to reduce material risk exposure**