

# Pin Stopper for PC1100 Boom Arm Pins

Rio Tinto Aluminium Weipa

*Matt Anderson*

Heavy Equipment Maintenance Workshop crew leader

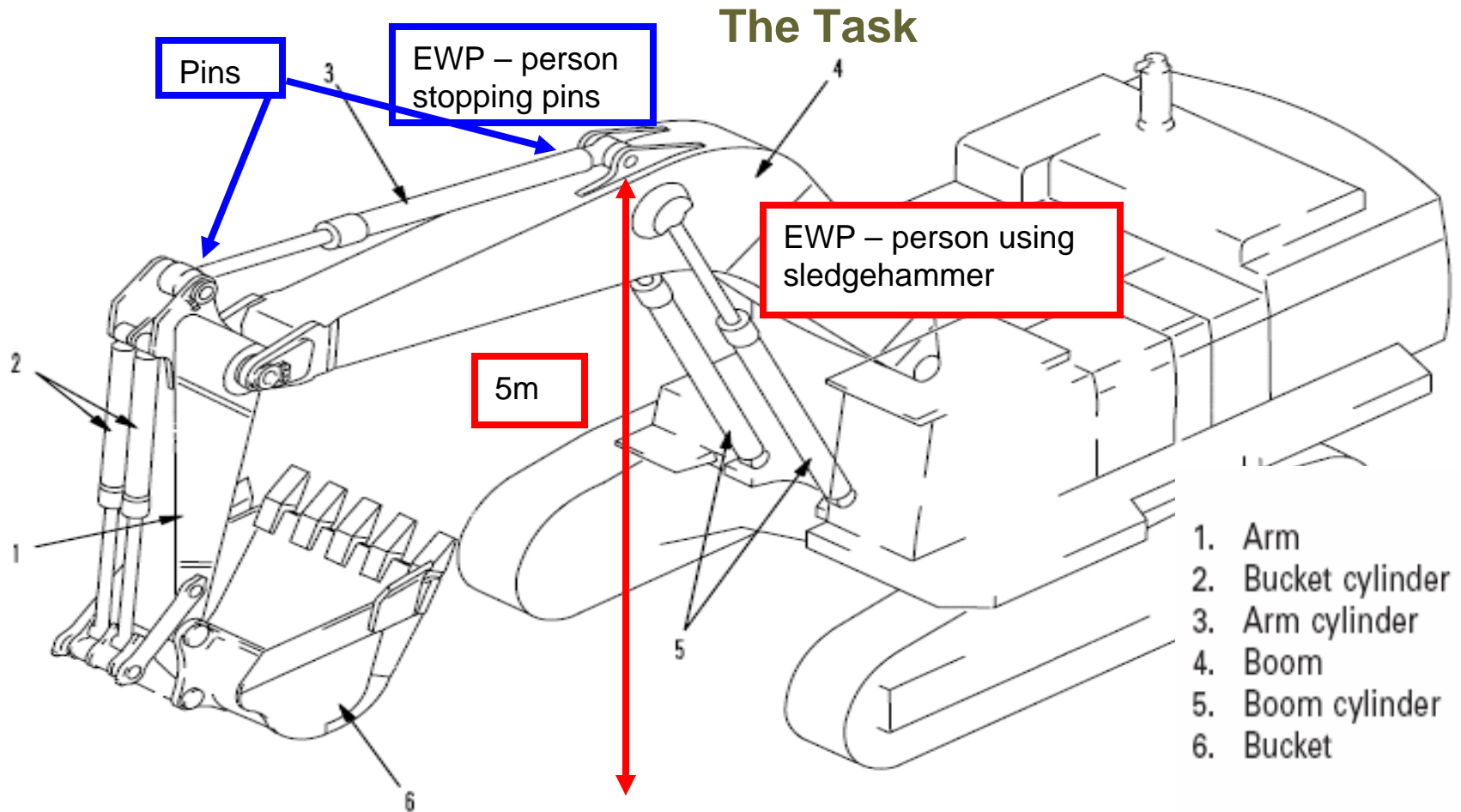
Queensland Mining Industry Health and Safety Conference

## Outline

- The Task
- The Problem
- Finding a Solution
- Benefits and Effects
- Transferability Across Industry
- Key Learning

## The Task

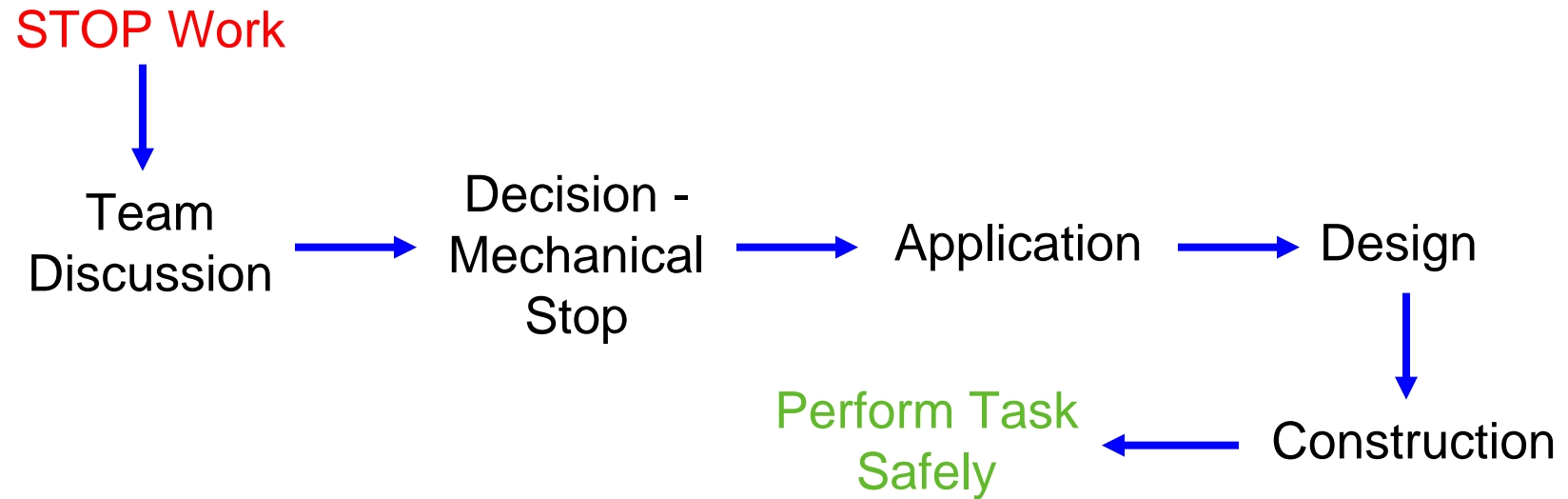
- A diesel fitter was asked to remove an arm cylinder from the boom of an excavator
- Prior to removing the cylinder, two 98kg pins holding the cylinder in place needed to be removed
- The task usually required two people working on separate elevated work platforms on either side of the boom:
  - An employee would use a sledgehammer to dislodge the pins whilst another would be positioned on the opposite side of the boom to stop the pin's movement
- Two overhead cranes were required



## The Problem

- The 98kg pins could very easily shoot out of the boom, either landing in the elevated work platform, fall five metres to the ground or strike the second worker involved.
- The amount of grease on the pin could cause it to easily slip from the sling whilst suspended by the overhead crane.
- Person stopping the pin from falling was in a *red/danger zone*. This worker had restricted movement in the EWP.
- The size and distance the pins could fall, would generate large amounts of force resulting in injury to a person and damage to the floor or anything it contacted.

## Finding a Solution



## The Solution

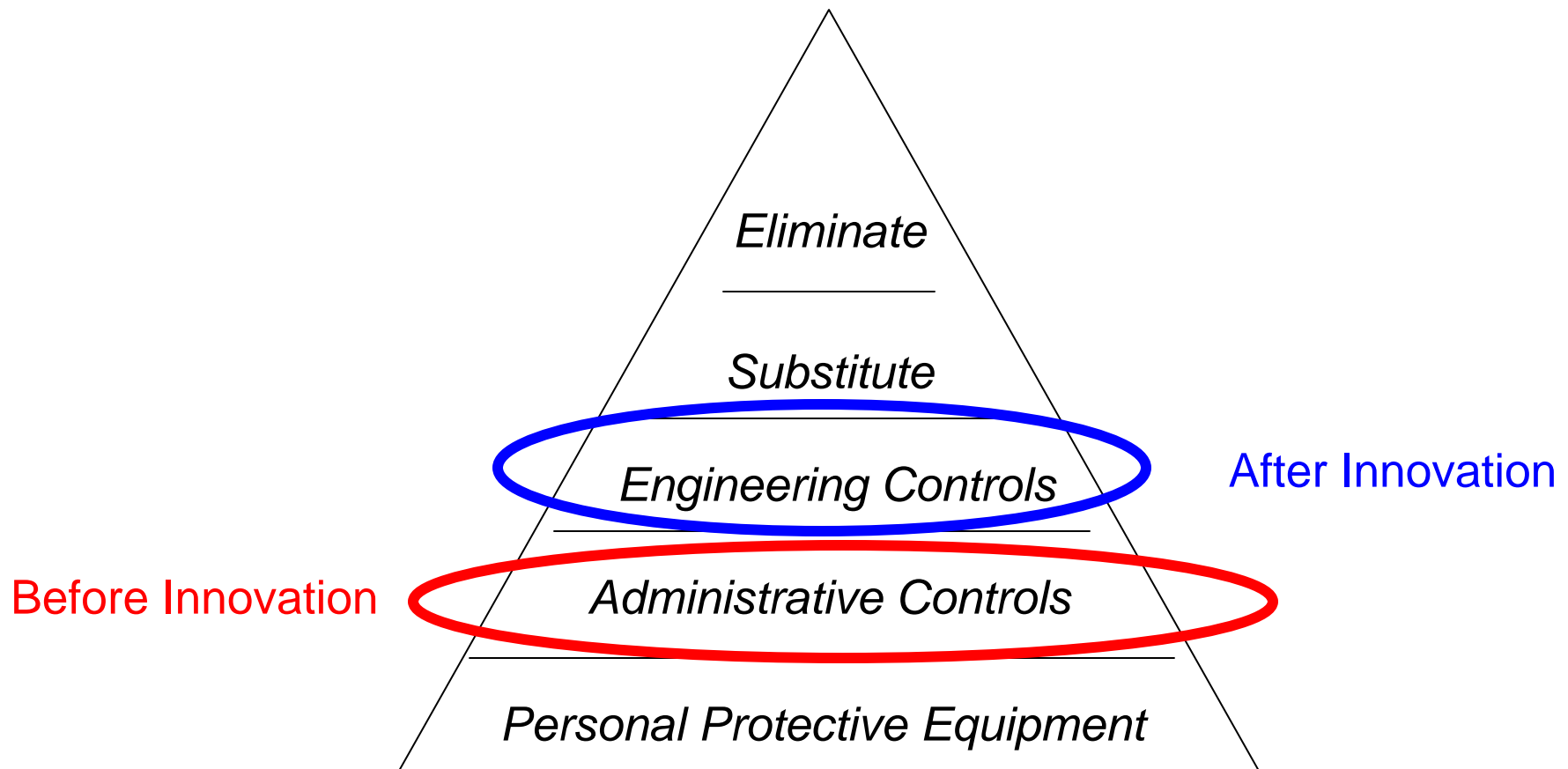


## Benefits and Effects

- ✓ Eliminates risk of pins falling
- ✓ Eliminates damage to equipment
- ✓ Reduces risk of injury
- ✓ Removes worker from 'Red/Danger Zone'
- ✓ Eliminates need for second overhead crane
- ✓ Production Benefits
  - Decreased downtime by four hours
  - One person job
- ✓ Uses existing structure
- ✓ Low cost of design and implementation (\$500)



## Hierarchy of Control



## Risk Assessment

	<b><i>Consequence</i></b>	<b><i>Likelihood</i></b>	<b><i>Risk Rating</i></b>
<b><i>Before Implementation of Innovation</i></b>	Major	Moderate	H18
<b><i>After Implementation of Innovation</i></b>	Minor	Unlikely	L5
<b><i>Level of Risk Reduction (Before - After)</i></b>	13		
<b><i>Percentage Risk Reduction</i></b>	72.2 per cent		

## Transferability Across Industry

- Innovation could be adapted to suit any pin of similar design eg. Komatsu WA900 loaders
- Concept could be applied across any industry to make working at heights safer and reduce the risk of equipment falling whilst working at heights

## Learning from Innovation

- An employee had the confidence to STOP work due to unsafe work conditions
- Maintenance team can reduce risks and achieve a safe work environment
- More safety consideration put on working at heights tasks
- Site goal 'zero injuries/illness/incidents' is possible

Thank you for your attention.

THE GOAL IS  
**ZERO** 