# DRAGLINE TUB MAINTENANCE CAPSULE

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Ensham RESOURCES

QUEENSLAND MINING INDUSTRY HEALTH & SAFETY CONFERENCE 2014

# Ensham Resources

Joint venture

- 85% Idemitsu Australia Resources Pty Ltd and Bligh Coal Ltd
- 15% LG International (Australia) Pty Ltd

Thermal coal producer located near Emerald in the Bowen Basin

Open Cut established in 1993 & Underground established in 2011

525 employees & contractors producing around 4.2Mt in 2014

# The Problem

Inspections identified a number of tub floor plates failing due to wear on Dragline 1.

Full tub replacement was cost prohibitive (approx $5M).

Repairs would need to be undertaken over a number of small shutdowns to minimize production delays.

Risks of "on bench" maintenance days rather than major shutdowns such as ground preparation, time and access constraints.

*Image of damage to tub plates*

# Safety Risks

Potential for trench wall collapse in unstable strata areas.

Manual handling of replacement plates ~440kg

Uneven ground conditions

Risks associated with temporary shoring:

- Injury during installation
- Damage to shoring during dragline positioning

*Image showing trench relative to the size/position of the dragline.*

# Improving Health & Safety in Challenging Times

The Open Cut operation is under significant financial pressure due to the current market conditions and increasing strip ratios.

Ensham has a proud history of facing and overcoming challenging times with resilience, teamwork and innovation.

## The Solution

# Dragline Tub Maintenance Capsule

**Protects workers from cave in when working in a trench under a dragline.**

**Provides solid walls and floor to improve the work environment and reduce manual handling.**

**Recycles redundant materials to eliminate risk and improve efficiency at low cost.**

# Modified Dragline Bucket


## Dragline preparing trench

# Positioning capsule


# Dragline Positioning

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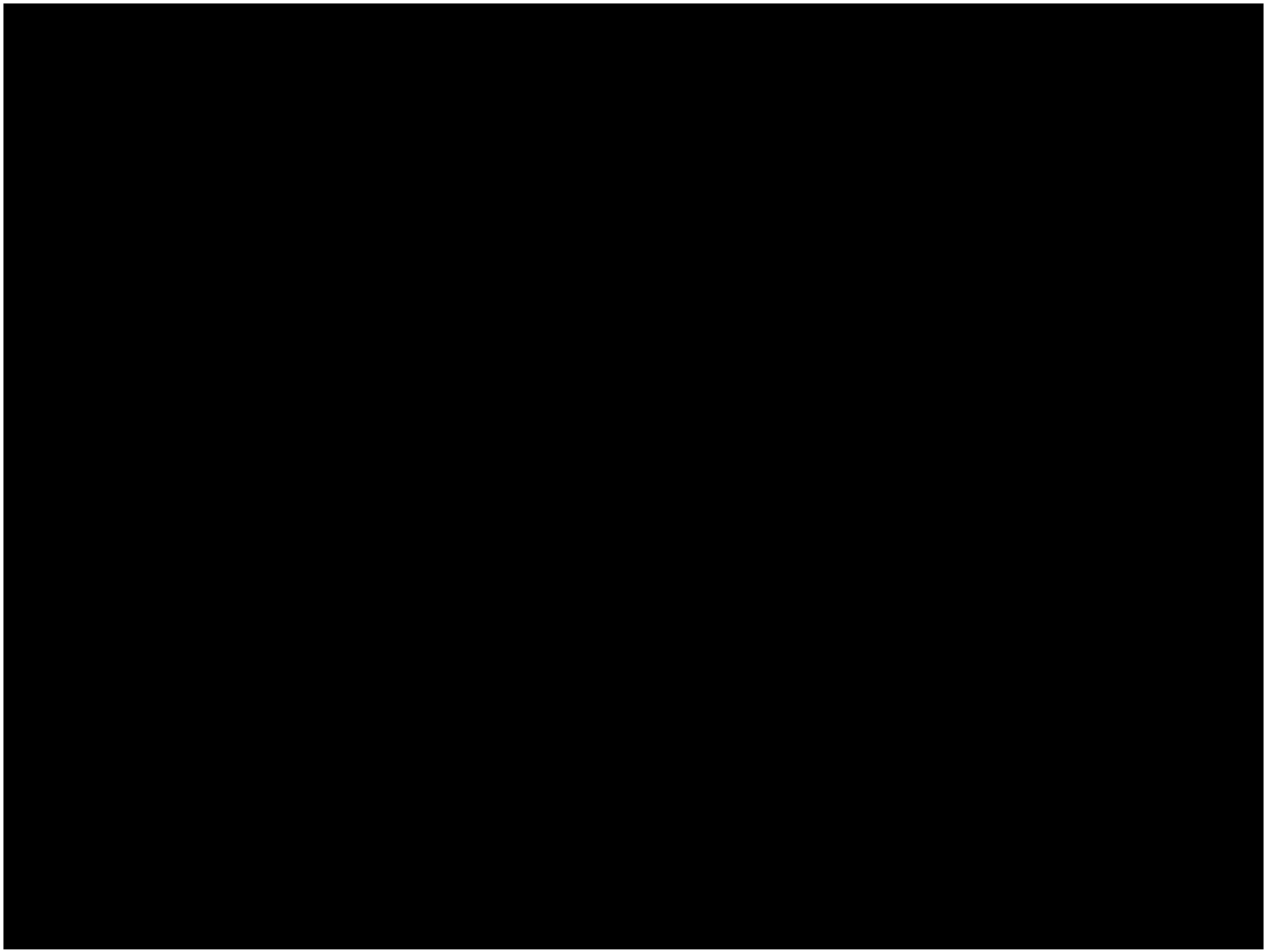
'Improving health and safety in challenging times'



## Capsule in Use

*Capsule in place with mechanical aids*

## *In position protecting workers*

## Completed repairs

## *Dragline walking off after repairs*
### *(note ground compression)*

# Tried and Tested

Highly collaborative development across departments, promoting innovation in the workplace

Workers have used the capsule more than 30 times, with no safety incidents

No bucket deterioration

Regularly receives positive feedback from workers using the capsule, particularly contractors who work across multiple sites.

*Image of maintenance day in progress. Capsule in position.*

# Transferability

Any redundant bucket

At any mine

For any dragline

*Image of capsule in place under dragline during set up*

# Cost & Efficiency

**Cost:**

•Modifications to bucket: $41,000 (materials, labour & engineering)

**Savings:**

- $5M total tub replacement
- Approx. $450,000 to date ($15,000 each maintenance day for traditional trench shoring)
- Reduced production delays due to speed of setup.

*Image of capsule after works completed and dragline has walked off.*

The DRAGLINE TUB MAINTENANCE CAPSULE is an innovative, re-useable solution to protect coal mine workers whilst minimising downtime and reducing operating costs.

Well done to the Ensham Open Cut Maintenance Team!