

## Workplace Health and Safety Queensland

## Manual task case study: Maintaining the internal lining of furnaces - Bradken

Bradken employs more than 2800 people in Australia and internationally to supply a range of products to the resources and freight rail industries.

### Background

In 2010, Bradken took part in a trial of a program to manage the risks of manual tasks. The Participative Ergonomics for Manual Tasks (PErforM) program helped teams of Bradken employees to identify, assess and control high risk manual tasks.

### Who was involved?

The cornerstone of the PErforM program is to encourage workers and management to work together to manage manual tasks risks. A range of Bradken employees contributed to the success of this trial:

- Workers used their knowledge of the job and task.
- Management provided high-level support for the process.
- A worker was trained to become a PErforM site champion and drove the process within Bradken.
- An ergonomics consultant was contracted to mentor the site champion.

### What was the hazardous task?

Bradken carried out a risk assessment that identified maintaining the internal lining of fettling furnaces as a potentially hazardous manual task.

Workers were manually removing large clumps of metal slag and brick (up to 30 kg) from the inside of several fettling furnaces, in high temperatures. To complete one furnace took two workers two days a week, using a jackhammer and shovel.

Four sprain and strain injuries had been attributed to this task within 12 months; two were lost time injuries.

### What were the risk factors?

The risk assessment identified that cleaning the fettling furnaces involved all five risk factors associated with sprain and strain injuries. These risk factors were: forceful exertions, awkward postures, vibration, duration and repetition.

### What was the solution?

Bradken work teams reviewed industry practices to identify how other companies were overcoming similar problems.

Bradken decided to control the risks by using a remote controlled mini excavator to clean the fettling furnaces. The excavator was transferred into the furnace with a jib crane.

After successful trials, the company purchased a mini excavator. Specialist training was provided to several workers.

## Health and safety benefits

Minimised worker exposure to all previously identified manual task risk factors associated with performing this task.

## Additional benefits

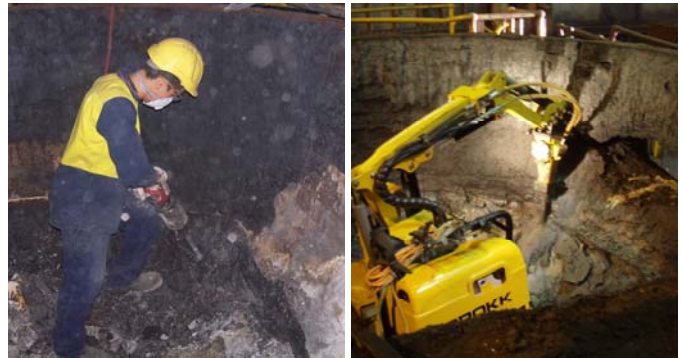
- The mini excavator completes this task in around two hours, providing significant productivity benefits.
- Bradken have identified other high risk manual tasks that can be controlled by using the mini excavator, including removing slag from ladles, cleaning pigs, and potentially cleaning skulls.

## Cost benefits

**Direct intervention costs:** \$117,950 (including purchasing the mini excavator and providing training).

**Post-intervention benefits:** \$89,230 (annual plant, labour and maintenance savings).

**Cost recovery period:** 16 months



BEFORE: Worker using a jackhammer to break up slag inside furnace

AFTER: Mini excavator completes task in a quarter of the time, eliminating five risk

## More information

While this case study is from the manufacturing industry, the PERforM program has been used successfully in a wide range of industries and can be applied to most types of hazardous manual tasks.

For more information about the PERforM program and additional manual task case studies visit the Workplace Health and Safety Queensland website [www.worksafe.qld.gov.au](http://www.worksafe.qld.gov.au) or call the WHS Infoline on 1300 369 915.

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