

# Leading Safe Work Program

## CASE STUDY



# Executive Summary

The purpose of this case study is to summarise the Leading Safe Work Program (**Program**) implemented by Boral Cement Limited (**Boral**) under its Enforceable Undertaking with SafeWork NSW dated 22 July 2019 (**EU**).

The Leading Safe Work Program was developed to increase awareness of change management, Boral's Safe Systems of Work Process (**Process**), hazard identification and control through safety psychology and improve safety ownership at a site level.

This case study will go into detail about how the Program was developed: the principles, theories and expertise that were involved and the elements that made up the Program. It will provide information about how workers were trained in the Program and how the Process was revised and implemented.

The rollout of the Program has been associated with improved safety outcomes in Boral's Australian cement business (**Business**).

Initial implementation of the Program has been completed and recommended areas for improvement have been identified, which include improving written work methods and on-the-job assessment and discussion.

Boral is pleased with the results of the Program and intends to roll it out across other Boral businesses throughout 2021-2022.



# Introduction and background



This case study summarises the Program implemented by Boral as part of its EU.

As background, in January 2016, a contractor fitter working at Boral's Maldon Cement Works received crush injuries to both lower legs and feet after a 1.3 tonne bearing housing fell, pinning him to the ground. The work formed part of the specialist overhaul of a cement mill gearbox drive system. The bearing housing fell while the injured contractor and two other contractors were in the process of removing the bottom split bearing backing plate in order to apply sealant and loctite to the plate and the bolts securing it to the housing. As a result of this incident Boral entered into the EU and agreed to undertake the Program.

The remainder of this case study is structured as follows:

- development of the Program;
- implementation of the Program;
- evaluation of the Program; and
- conclusion.

# Development of the Program

The Program was developed by (1) reference to underlying principles, (2) applying relevant theory; and (3) engaging relevant internal and external expertise.

## 1. Principles

The principles of the Program were to provide safer outcomes for workers, increase knowledge for frontline leaders, review the Process and development of training.

### Provide safer outcomes

The Program aimed to provide safer outcomes for workers through the following:

- sharpening workers' focus on the **serious harm potential** of all work;
- educating employees around relevant brain science so as to embed **safe ways of thinking**; and
- improving the Process so as to minimise flaws and **bridge the gap between planning and execution**.

### Frontline Leadership development

The Program was designed with a clear intent and to change the way safety is perceived by our workers and management.

The Program strove to develop workers who are in management/supervisory type roles such as site managers, supervisors and leading hands (**Frontline Leaders**) so that they:

- have the right tools to perform work;
- understand how and when to use such tools; and
- can coach others regarding the safe usage of tools.

## Review of the Process

Boral's Process includes all the things we do to **keep our people safe** (see figure 1).

The Process includes work permits, authority to work, Safe Work Method Statements (**SWMS**), Standard Operating Procedures (**SOP**), Take 5's and other procedures that keep our workers safe in the planning, communication and execution of work.



Figure 1 the Safe Systems of Work includes all the things to keep people safe.

Analysis was undertaken to determine the opportunities for improvement in the existing Process. As a result, a number of key changes included the following:

- Work planning now commencing with the Frontline Leader determining what category of work the task fits into (rather than the worker using a Take 5 to determine this).
- The addition of a mandatory on-the-job meeting (On-The-Job Assessment and Discussion) prior to works commencing to ensure everyone knows what needs to be completed, by when, by who and the risks and controls associated with the job, along with identifying any additional hazards.
- The inclusion of a targeted 'Critical Control Gemba'. A gemba refers to the place where the work is done and is specifically designed and focused on the **critical controls that keep people safe**. It uses a coaching model so as to increase our workers' knowledge, awareness and self-reliance.

## Training method

### Frontline Leaders

The Program used a facilitation method. The facilitator was supported by worker-based “master coaches” (usually Frontline Leaders) who would provide operational context and immerse themselves in how to facilitate and lead this change.

The main target group of the Program was Frontline Leaders. Senior leaders within the Business also went through a “light” version of the Program to ensure they have the knowledge to set expectations, check and reinforce the outcomes required from the Program.

Training consisted of two key elements (Figure 2) (as expanded on below in the ‘Modules’ section):

- ‘Coaching Safe Work’; and
- ‘Safe Work Process’.

Coaching Safe Work included techniques for getting to know people and building trust; an overview of the Process; how habituation works; coaching tools; the power of questions; and the Critical Control Gemba.

‘Safe Work Process’ was an in depth look at the Process flow focusing on work types, work methods, job packs and the on-the-job assessment and discussion.

The 70-20-10 model of learning (as explained on the next page) has been adopted and as such, each training element follows the same sequence:

- an e-module
- an in-person work module
- a take home pack to encourage each worker to practice and refine the skills learnt by applying them on the job.

### Workers

Workers were provided with the e-module of Leading Safe Work to gain an understanding of the improvements to the Process (as detailed in the ‘Review of the Process’ section above).



## Modules

Training modules consisted of online e-modules 1 & 2 and face to face modules 1 coaching (Critical Control Gembas) and 2 process (Safe Systems of Work). Employees were assigned a category for training and allocated the related training. Face to face training was impacted in early 2020 by COVID-19, whereby the Business converted the Face to face modules to facilitated delivered online learning to ensure the training was achieved within the designated timeframe.

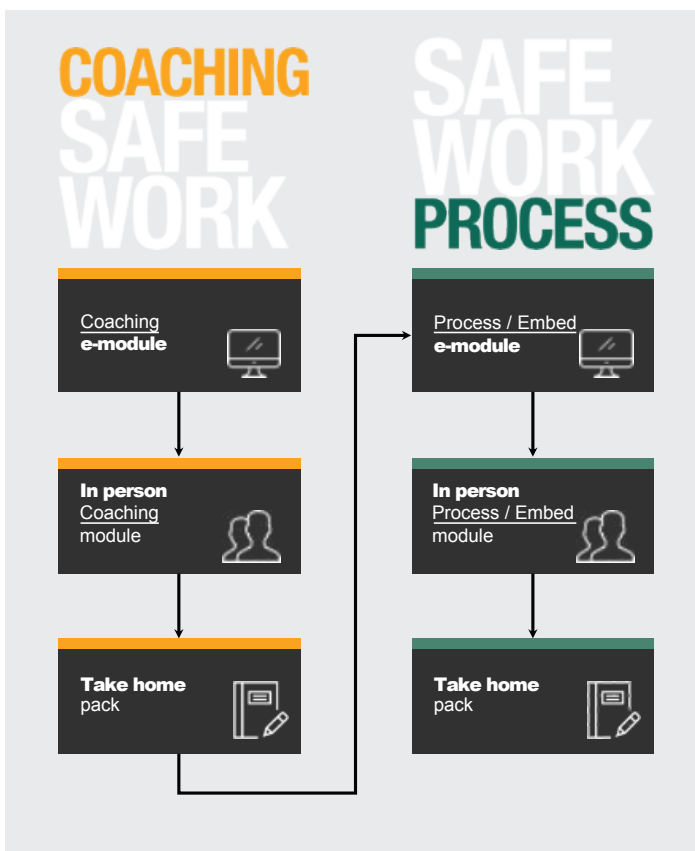


Figure 2 the 2 key elements of the Leading Safe Work program

Training categories and module requirements were as follows:

TRAINING CATEGORY	TRAINING MODULES
Non operational	Employees holding administrative type roles and not required to complete the training.
Senior Leaders	e Modules 1 & 2 Face to face 1 coaching
Frontline Leader	e Modules 1 & 2 Face to face 1 coaching 2 process
On-the-job	e Module 2

455 people were trained across the Business as per Figure 3.

## Training Type Breakup

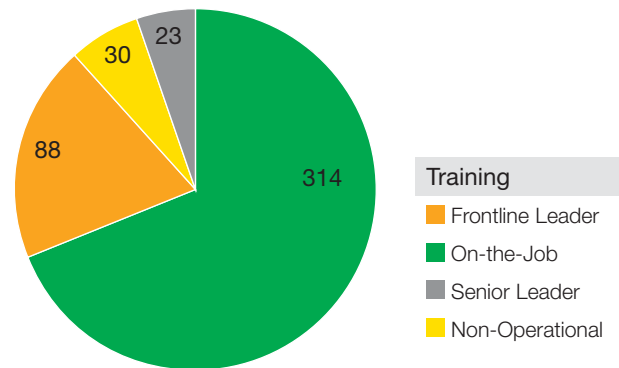


Figure 3 break up of employee training categories for Leading Safe Work

## 2. Theory

Several theoretical influences underpinned the design of the Program.

### 70-20-10 model

A 70-20-10 training model (see figure 4) was a key focus for the Program. It is a learning and development theory that recognises that the majority of learning takes place on the job. Learning through experiences, interacting with others, or through training are at the core of this approach.

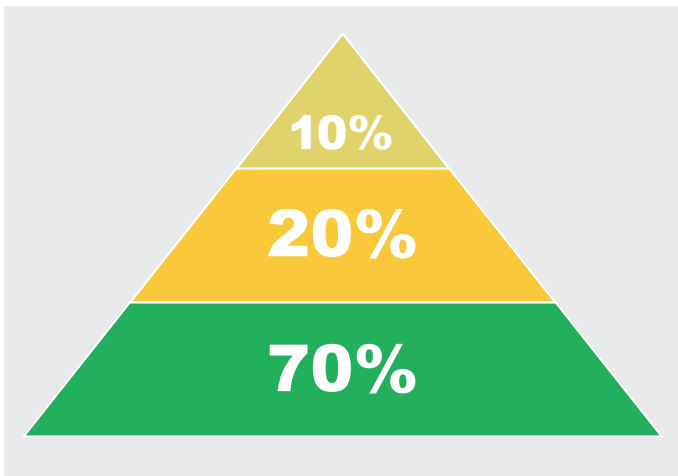


Figure 4 70-20-10 training model

### 70-20-10 breakdown

10% of learning happens in person or in a classroom.

20% of learning is peer based through interactions with others

70% of learning comes from on-the-job experience. Take back packs for participants were provided so they could take the learning back into the field and practice what they had learnt by following the Process by (i) identifying types of work; (ii) choosing appropriate work methods; (iii) collating job packs; and performing on-the-job assessment and discussion.

### Other theoretical influences

Other theoretical influences that underpinned the design of the Program were as follows:

- teaching influencing and facilitation skills to upskilling 'master coaches' (or Frontline Leaders) so as to improve their ability to deliver training and meetings in the future as well as influencing the people around them in terms of their attitudes and behaviours; and
- shifting away from safety conversations to safety coaching. Coaching programs encourage employees to take greater responsibility for their actions and approach tasks with more depth of thinking. This assists with hazard identification and management by employees particularly in the absence of management and supervision.





### 3. Expertise

**Internal and external expertise was called on to design the Program.**

#### Psychologist

Dr Ali Dale, Masters and PhD in Clinical and Health Psychology, is an owner of D3 Alliance, an Australian owned and operated organisation delivering world-class health and wellbeing, safety and consulting services. Dr Dale was engaged by Boral as a psychology consultant to develop the learning design of program activities, program structure and participant engagement. This included the brain science around training packages, review of the Process to better incorporate brain science principles and lead facilitation in the face-to-face training programs.

#### Internal project management

An internal program manager from Boral's HSEQ team was appointed to build the Program and liaise with other experts on program content. They connected with Boral's leadership team with respect to the development and implementation of the Program.

Boral's learning and development team provided a key facilitator to oversee the scheduling and training of the Program for Frontline Leaders.

The Business assigned a member from Boral's workplace health and safety team to oversee the training and implementation of the project.

An internal survey was conducted to identify what improvements should be made to the Process. There were over 600 responses to this survey, with the overwhelming theme being that the Process needed some refining.

#### Facilitators & master coaches

Facilitators were chosen based on their technical facilitation skills, safety knowledge, experience and passion for delivering safety messages.

A key facilitator in the face-to-face modules was Dr Ali Dale.

Master coaches (being Frontline Leaders) were integral to the Program, in being able to influence workers at the ground level.



# Implementation of the Program

A plan was developed for the implementation of the revised Process across the Business. It was then broken down into sites for ownership of the implementation at the ground level.

Implementation included (1) training of employees; (2) updating of the management system; (3) implementation plan creation; and (4) site self-assessment.

## 1. Training

Training workers in the Program and revised Process, commenced in the Business in July 2019 and concluded for the target audience in June 2020. Training of other Boral businesses commenced in late 2020 and is ongoing.

Employees were assigned a training category and were allocated the module requirements within Boral's 'Learning Management System'. This progress of training was regularly checked, updated and followed up to ensure completion within the designated timeframe.

An individual within the Business was trained as a facilitator to complement the resources available from Boral's learning and development team to and drive the training completion.

'Frequently asked questions' together with additional training and toolbox talks were developed to assist in the implementation of new systems and documents at a site level.

## 2. Updated management system documentation

The SWMS template and Take 5 documentation were updated to align with the new requirements of the Process. The SWMS template was distributed to sites and uploaded into the programmed maintenance system to be available for all work orders created. Take 5 books were printed and circulated to be available for the start of the implementation process.

## 3. Implementation plan

Boral Cement's leadership team was presented with and endorsed the overall implementation plan. Following this endorsement, each site was provided with a basic template to provide guidance on how to implement the revised Process and make the roll out fit to the different types of work conducted at the site level.

## 4. Site implementation self-assessment

A self-assessment tool was developed as part of the management system update so sites could assess their implementation progress against the elements of the revised Process. This was completed by sites to create a gap analysis to identify where they could improve implementing the revised Process. This tool is available across the Business and can be used at any time as a check on the level of implementation.

# Evaluation of the Program

These criteria used to evaluate the Program were (1) increase of knowledge and awareness; (2) improvement to safety culture; and (3) managing risks associated with high-risk work.

## 1. Increase of knowledge and awareness

### Awareness

Surveys were developed to gauge the level of awareness of workers about the revised Process, obtain their views on the effectiveness of training and the impact on their behaviour. This was done after training courses and after initial site implementation of the process. The respondent rate for the survey conducted almost six months after the completion of formal training (figure 5) was only 25%. Among the limited number of respondents, there was an awareness level of 100% for operation staff.

### How aware are you of the Safe Systems of Work Process/Leading Safe Work?

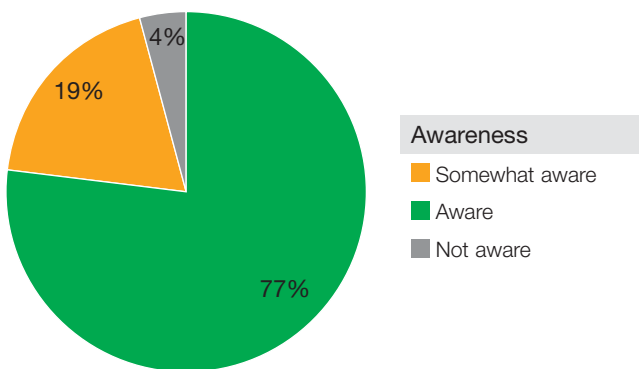


Figure 5 results from the Safe Systems of Work survey conducted in December 2020

An independent auditor provider was engaged by the Business and nine site audits were completed over a 3-week period. The audit criteria was based on the self-assessment tool and also looked at training effectiveness and competency of workers. Audit results were analysed and recommended areas for improvement were identified and endorsed.

Of the 9 sites audited, there were a total of 25 work activities identified. The break up of work type was 9 Permit, 11 Routine and 5 Non-Routine (figure 6) with an overall compliance rate of 82%.

### Overall Compliance Percentage by Work Type

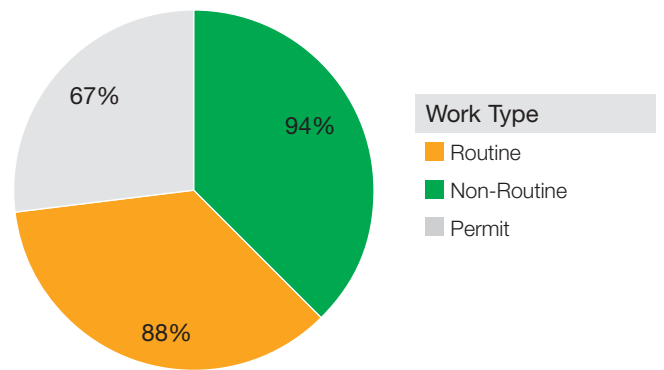


Figure 6 implementation audit compliance by type of work

## Management of change

On-the-job assessment and discussion processes at various times throughout the work encouraged workers to look for changes and hazards arising from the change in the Process. We note that there has been nearly a 50% reduction in reported potential serious harm near misses between 2019 and 2020 (figure 7).

### Potential Serious Harm Near Misses

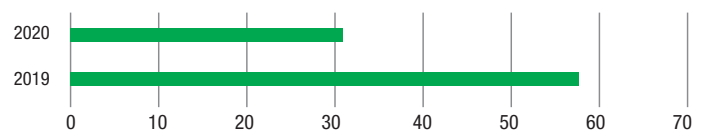


Figure 7 implementation audit compliance by type of work

## Safety Psychology

### On-the-job assessment and discussions

How the brain works has been embedded into the Process so at the critical times the workers' brains are engaged and the workers are more aware of their work, surroundings and hazards to **avoid the natural position of habituation**. On-the-job assessment and discussion (figure 8) involves among other things, everyone pausing and doing a verbal rehearsal of the task ahead. By getting members of the workgroup actively involved in this process, it engages their brains to be focused on the task and to be out of auto pilot.

**During the OTJ assessment & discussion, questions...**

- Switch on the brain
- Mental rehearsal
- Create ownership
- Pool brain resources to identify hazards and changes
- Maintain engagement & active participation
- Use the group as an influence tool

Figure 8 brain science behind the on-the-job assessment and discussion

By checking for changes of location, task and environment, the cycle of habituation that occurs for a repetitive task can be broken.

### Critical Control Gemba

The Critical Control Gemba is a tool which is used as a coaching opportunity during the completion of the work, whereby a person not performing the work has a discussion with the work team. This again engages the workers to focus on the task, making it easier to identify change and hazards, and the Frontline Leader can do a check of their awareness and provide coaching on areas where they need upskilling. There has been more than a 100% increase in Critical Control Gembas between 2019 and 2020 (figure 9).

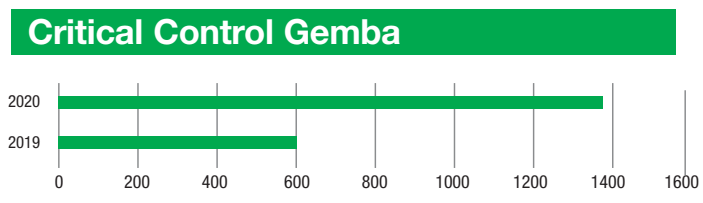


Figure 8 critical control gembas completed in 2019 compared to 2020





## 2. Improvement to safety culture

There has been a change in people’s awareness after the training and implementation of the Program. This has led to a change around managing changes in their work. This has been demonstrated through the increase in Critical Control Gambas being completed as shown in figure 9 and the increase in serious harm hazard reporting as shown in figure 10.

### Serious Harm Hazard Reporting

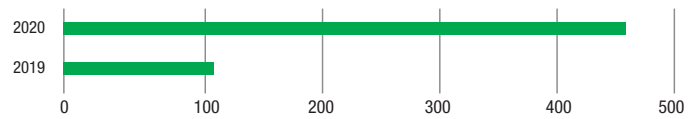


Figure 10 serious harm hazard reporting in 2019 compared to 2020

## 3. Managing risks associated with high risk work

Since the implementation of the revised Process there has been a reduction of injuries from high risk activities as shown in figure 11.

### Recordable High Risk Injuries by Type

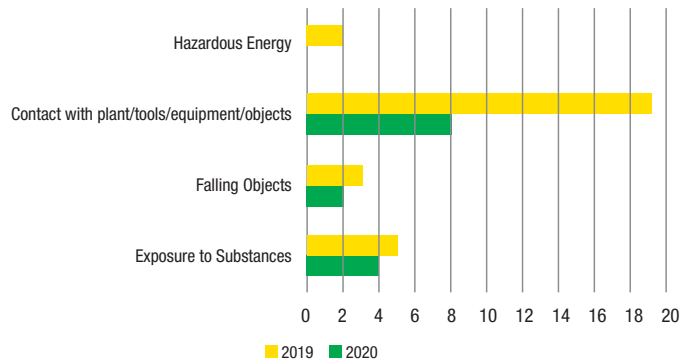


Figure 11 reduction in recordable injuries by high risk category 2019 v 2020

Additionally, there has been nearly a 50% reduction of injury type from high risk activities, as shown in figure 12.

### High Risk Injuries Reduction

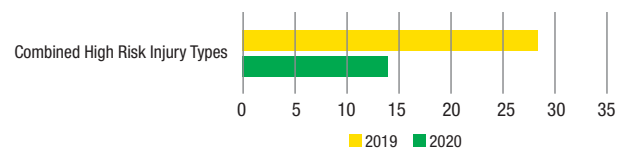


Figure 12 overall reduction of high risk injuries 2019 v 2020

While there was an increase in the overall number of injuries reported in 2020 (65) compared to 2019 (62), there was nonetheless a reduction in high-risk injuries.

# Conclusion

The Program was developed to increase awareness of change management, revise Boral's Process, increase hazard identification and control through safety psychology and to improve safety ownership at a site level.

The rollout of the Program has (largely) been associated with improved safety outcomes in the Business. Comparing results from 2019 and 2020, we note that (i) while the number of recordable injuries has increased, the number of injuries from high risk activities have fallen by 50%; (ii) the number serious harm hazard identified increased four-fold; (iii) a 44% reduction in potential serious-harm near misses; and (iv) the coaching of workers onsite through Critical Control Gembas more than doubled. The independent audit revealed an 82% awareness rate of the revised Process.

Initial implementation of the Program has been completed and recommended areas for improvement have been identified, which include improving written work methods and on-the-job assessment and discussion.

Boral is pleased with the results of the Program and has already commenced to roll it out across other Boral businesses.

