

A worker wearing a high-visibility vest, hard hat, and face mask is operating a UniCarriers forklift in a warehouse. The forklift is carrying a pallet of red-wrapped materials. The warehouse has high ceilings with steel beams and industrial lighting. The forklift has 'UNICARRIERS' written on the mast and 'servimsa' and 'CAP. DE CARGA 7,030 KG' on the side.

Safety and Health Excellence Recognition 2021

A showcase of excellence
in safety and health
management practices
from around the world

Foreword

The World Steel Association's (worldsteel) members continue to push the envelope when it comes to safety and health management. Our Excellence Recognition programme aims to identify and highlight the most innovative and impactful practices.

It is pleasing to see the application of engineering controls and digital solutions reflected in so many of the submissions received; this reflects the increasing maturity of safety management in our industry.

The examples shown here demonstrate the application of contemporary safety science in the steel industry, including examples of:

- Approaching the prevention of serious injuries while accepting humans make mistakes by building resilience
- Creating a sense of individual responsibility to prevent potential hazardous exposures to oneself and others.
- Reducing risk around the transportation of steel products
- Reducing the occurrence of events with severe potential consequences due to forklift operations
- Facing COVID-19 using digital controls
- Addressing key process safety controls through the use of a digital, distributed and centrally monitoring gas monitoring network

I would like to congratulate the successful companies and to thank them, and all the participants in this programme, for their leadership and support.

Four categories



Safety culture and leadership

- BlueScope | Global
- Qatar Steel Company | Qatar



Occupational safety management

- Tata Steel Europe | Europe and USA
- Ternium | Mexico



Occupational health management

- Tata Steel Ltd. | India



Process safety management

- Gerdau | Brazil



Andrew Purvis

Director | Safety, Environment and Technology
World Steel Association

Six companies recognised







BlueScope | HSE Evolution - Our human-centred approach | Global

Partnering with industry experts, BlueScope is evolving its mindset and approach to health, safety and environment (HSE), building on its risk management foundations and seeking contemporary ways to continue to learn and improve. After piloting a human-centred approach across a number of business units, in 2021 BlueScope adopted its evolved approach across its global business.

This means:

- Learning from the people who make and handle products to understand what is working and what can be improved
- Focusing on the presence of capacity in systems and processes, rather than the absence of incidents
- Empowering people to be problem solvers to help identify better ways to work
- Recognising human error is inevitable, and the importance of strengthening HSE controls to be more tolerant to error and resilient to recover when things go wrong

Global leadership workshops to increase cultural maturity

BlueScope designed an HSE risk management programme with industry expert and thought leader in industrial safety, Dr Todd Conklin, which aligns with contemporary safety and leadership philosophies and relies on practical immersion.

>1000
leaders participated
in expert-led
workshops

100%
participation of the
Board and Executive
Team

Learning from people to strengthen controls

BlueScope has adopted Learning Teams, an inclusive learning method to engage with its people, learn from incidents and solve complex issues prior to incidents occurring.

HSE risk control improvement projects

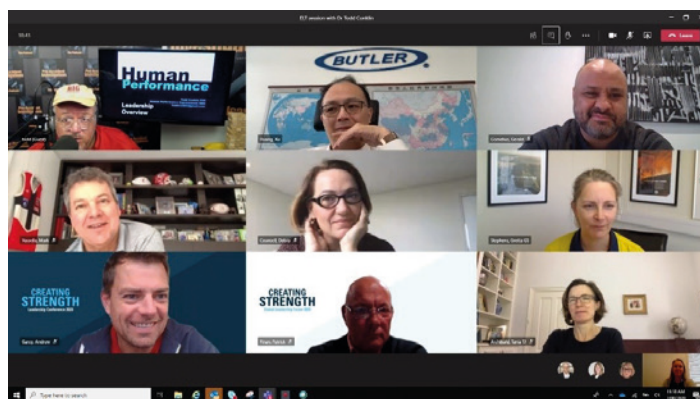
BlueScope aims to build capacity to manage risk, strongly emphasising improvement projects to strengthen effectiveness and implement higher-level controls for critical risks. 130 Learning Teams facilitators were trained and more than 100 Learning Teams were conducted.

>400
HSE risk control
improvement
projects completed

99%
completed
on time

Better Questions, Stronger Solutions

“Better Questions, Stronger Solutions” was launched as a new approach to building effective questioning into existing processes such as audits, toolbox meetings and general conversations.



Results

In one year, BlueScope has seen a significant improvement in its cultural survey results. The long-term goal continues to be to reduce the frequency and severity of harm to its people. This year, the injury profile has improved, with less than one per cent of injuries having the potential to be permanently life changing.

2021
<1 per cent of injuries
had the potential to be
permanently life changing.



Qatar Steel Company | SEE it, OWN it & SHARE it | Qatar

The safety observation and feedback programme ‘SEE it, OWN it and SHARE it’ was initiated in 2018 to transform Qatar Steel Company’s workplace safety culture from a reactive, compliance-based culture to an interdependent culture in which people look out for each other’s safety and wellbeing. With the concept of ‘Care for People’ at its core, this programme integrates principles of behavioural safety interactions and visible felt leadership by line management to achieve a step change in safety culture and performance.

Key elements of the programme

- Employees are encouraged to proactively look for (SEE), intervene (OWN), and report (SHARE) at-risk behaviours and workplace conditions, thereby creating a sense of individual responsibility for preventing potential hazardous exposures to self and others.
- Workers perform peer-to-peer safety interactions at the frontline with their colleagues and provide specific feedback regarding observed at-risk behaviours and their potential HSE consequences.
- Leaders utilise safety interactions and scheduled safety walks to clarify HSE expectations in a more personal manner with their teams, using coaching methods.
- IT-enabled reporting and data management platform, which supports effective reporting, task allocations and scheduling; automated notifications, reviews and approvals.
- Highly interactive dashboards allowing leaders to drill-down and investigate specific issues, to keep themselves abreast with improvement action plans and to adopt a data-driven approach to decision making.
- Trend analysis of observation data carried out to monitor the programme’s healthiness and provide actionable insights.



Impact on performance and culture

The introduction of the Behavior-Based Safety Interactions and Visible Felt Leadership programme provided real impetus to the organisation’s cultural transformational efforts by positively influencing employee behaviours and attitudes.



Also, the real-time availability of HSE insights based on frontline safety interactions brought about a paradigm shift in the way the leaders manage HSE performance and culture within their respective teams.



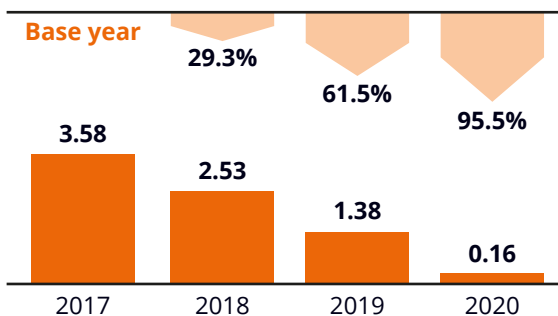
~54,600 observations recorded and resolved by end of 2020

95.5% reduction in Total Recordable Injury Frequency Rates

10 million man-hours without any Lost Time Injury



Total Recordable Injury Frequency Rates (TRIFR): By year





Tata Steel Europe | Zero Harm Logistics | Europe, USA

Steel travels around the world using a variety of modes of transport and if it is not packaged correctly, handled safely, stored safely and moved safely, then many people are exposed to danger. A dedicated resource was established to develop engineered solutions and to provide guidance for application across the entire logistics network. The initial focus was road haulage safety, **but the programme was expanded significantly to cover steel product banding and product storage;** and other transport modalities.

Understanding the science and engineering of steel logistics safety

Mathematical models were developed for load security, steel product banding and product storage. Assumptions made in the engineering analysis were validated by physical testing to international standards.

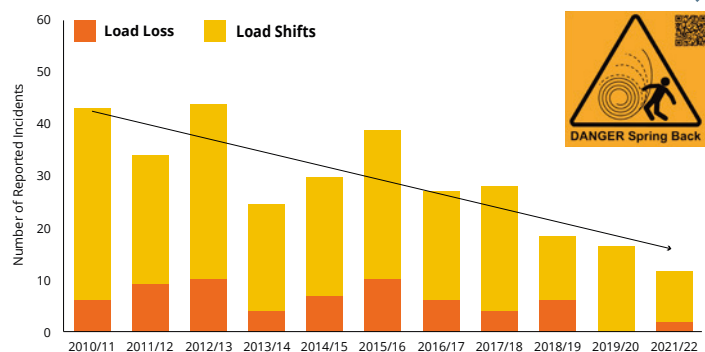
Impact on metrics

Every incident of a steel load shifting or actually falling from a truck is thoroughly investigated. Zero Harm Logistics has delivered significant improvements, but the supply chains are still not incident-free and constant vigilance is essential to achieve the ultimate goal of zero incidents.



Load restraint incidents

2010/2011 **43 reported incidents** | 2020/2021 **12 reported incidents**



Spring back energy in high-risk coils

Perhaps the most technically demanding of the subjects tackled was that of coil banding to contain the 'spring back' energy of a steel coil. The stored energy in a steel coil depends on several critical factors. Mathematical models were developed and testing undertaken to produce a detailed code of practice specifying banding requirements to ensure product safety from mill to customer.

Sharing learnings

Education is vital to success. Face-to-face courses, hands-on training sessions and international webinars have been used to reach over 1,000 managers / operators and over 1,000 truck drivers across Europe and the USA. This work continues.

Conclusion

This programme was started in collaboration with several other worldsteel members and it has continued to be a team effort across all Tata Steel Europe sites and our logistics providers. Education has been key to success, and although the programme has delivered some ground-breaking improvements, there is still much work to do - this work can never end...

Education is key to success

1000
managers
/ operators
trained

1000
truck drivers
trained

across Europe and USA.



Ternium | Safe Forklift | Mexico

Ternium's Safe Forklift project aims to reduce events with potentially severe consequences due to forklift operation, and to standardise safe practices for employees and contractors alike.

Ternium set up a multi-disciplinary committee of operators, supervisors, safety technicians, managers and directors and ran workshops to identify the common causes of forklift operation incidents. Once the causes were established, Ternium implemented strategies for solutions revolving around three vectors:

- 1. Operational practices:** In the management line, the multi-disciplinary group analysed procedures, person-machinery interactions, situations where operators had to improvise and circumstances in which management was tolerant of unsafe practices.
- 2. Human resources:** A task force involving the corporate training department reviewed the competencies and current training programme and developed a new Heavy Vehicles Operators Certification programme, with a particular focus on forklift operators. The objective of the certification is to have the same requirements and training to operate the equipment in all regions.
- 3. Technology:** The purpose of the technology action line was to define, implement and standardise the equipment and technology devices required to mitigate the risks in the operation of forklifts in addition to the operator's expertise.

Impact on metrics

In 2019, there were 36 reported incidents involving forklifts compared to 12 in 2020.

The metrics show a considerable improvement in the number of forklift events with severe potential consequences, reducing the incidents per metric tonne dispatched by 65%.

Conclusion

Ternium's Safe Forklift project is innovative for taking an integral, multifocal approach, in close relationship with employees and contractors and using high technology engineering controls to minimise human dependence.

The initiatives included in this project are people-driven, focusing on reaching the operators directly. Most of the improvements require a low budget and can have a significant impact on safety performance. Technological solutions can be implemented according to each company's resources while maintaining other controls in place.



Three key focus areas

Operational practices
Management

Human resources
Behaviour

Technology
Conditions

01

- Procedures
- Interaction
- Improvisation
- Tolerance

02

- Competence
- Concentration
- Tiredness

03

- Controls
- Substandard conditions



Tata Steel Ltd. | Mitigating COVID-19 risks | India

Ensuring workforce safety and business continuity by mitigating COVID-19 risk

Unprecedented disruptions imposed by COVID-19 challenged business continuity globally, particularly for manufacturing industries.

Two innovative interventions, the **POD concept** and **Digital Covid Safety Tracks**, rapidly implemented via the COVID Impact Centre, were the tipping point in Tata Steel's response to COVID-19. These interventions established several eliminations, substitution, engineering, administrative and PPE controls, reducing the risk to an acceptable level (ALARP level).

The **POD concept** introduced self-sufficient groups comprising operations and maintenance personnel, including contractors, with self-contained skill-sets to perform specific jobs. The concept is built on a foundation of protocols, namely Entry-Exit norms, Shift Operating norms and POD Breach norms, which constitute the key guiding principles.

Digital Covid Safety Tracks successfully contained the spread of COVID-19 via real-time monitoring and compliance to standard operating guidelines. The tracks are broadly classified under three areas, Risk Mitigation, Risk Intelligence and Compliance. Three of the 14 digital tracks, namely COVID-19 Declaration, Risk Profiling and Risk Detection at Gate collectively mitigated the risk of a high-risk person entering the company's gates. A Proximity Analysis track was developed to identify high-risk cases at the workplace.

Impact on business

The direct positive impact on workforce safety and health metrics ensured delayed and minimal business impact of COVID-19 across company sites with no closure of manufacturing units or loss in production.

The POD concept also effectively restricted the transmission of the virus from one POD to another. Both initiatives, implemented for the first time in Tata Steel, were also a first for the manufacturing industry.



Impact of programmes

Safe employees

0

closures of
manufacturing units

0

tonnes of
production lost





Gerdau | Online gas monitoring | Brazil

Monitoring employees' exposure to gases in the workplace is crucial to prevent serious injuries and fatalities (SIF). As a preventative measure, Gerdau developed an innovative online monitoring system for fixed and portable gas meters.

The monitoring system covers the entirety of the connectivity infrastructure. It centrally tracks portable, mobile and fixed gas meters 24 hours a day, sending an alert email or SMS to designated people according to the type of exposure. The Values are measured in real-time in the main operating rooms and the Emergency Response Centre, with a standardised response routine for every kind of situation.

The system produces reports/dashboards from stored data, enabling Gerdau to take preventative action on both processes and behaviour.

Benefits:

- Identify employees at risk and take immediate action before the exposure can cause any harm.
- In case of exposure above the limits established, trigger immediate response actions (help chain) to remove the employee from exposure.
- Identify areas where gas leaks are more frequent (heatmap) and eliminate the causes of these leaks.
- Detect and assess trends in leaks and hazardous atmospheres in the processes to solve problems before the risks become uncontrollable or someone is exposed.

The online monitoring process increases employee awareness and operational discipline and reinforces safety when performing critical gas-related tasks.



Overview of the online gas monitoring system

~300
portable and mobile
online gas meters

~150
fixed online
gas meters

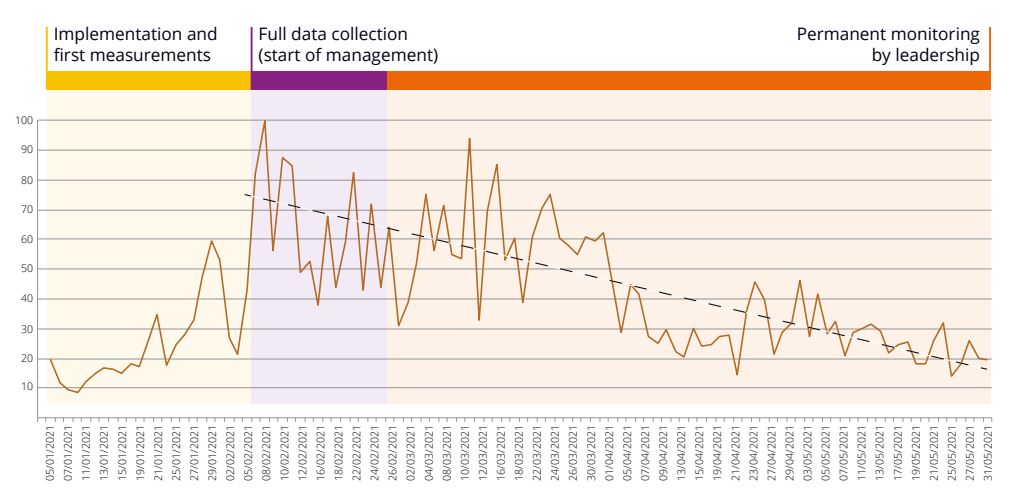
Multiple connectivity solutions, including redundancies and measurements

Dedicated software for portable and mobile gas meters (external supplier)

In-house software for fixed online gas meters

Defined alarm management

Reduction of gas leaks using mobile gas meters*



* Percentage reduction considering the peak value occurred on February 5, 2021, one month after the beginning of the implementation of online monitoring of portable individual gas meters

