



Safety and Health
Excellence Recognition
2023

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

More details on the recognitions included in this publication and the submissions received for the 2023 Safety and Health Excellence Recognition Programme are available on the worldsteel extranet.

The World Steel Association (worldsteel) is one of the largest and most dynamic industry associations in the world, with members in every major steel-producing country. worldsteel represents steel producers, national and regional steel industry associations, and steel research institutes. Members represent around 85% of global steel production.

Foreword

I am proud to recognise the commitment and effort of our members towards the wellbeing of their workforce and contractor community.

Within these pages, you will discover practices that redefine safety and health within the steel industry, leaders and organisations that have gone above and beyond.

As you explore this brochure, you will witness the innovation and dedication that drives steelmakers to redefine safety and health standards. The stories shared here are more than just examples; they highlight the remarkable progress made in safeguarding lives and promoting and preserving health. This has been achieved through transformational leadership, understanding how people really behave and a focus on minimising and eliminating risk.

Join us in celebrating the outstanding efforts of our worldsteel members as they redefine excellence in the steel industry.



Andrew Purvis
Director, Sustainable
Manufacturing
World Steel Association

Four categories and six recognised companies:



**Safety culture
and leadership**



**Occupational
safety
management**



**Occupational
health
management**



**Process safety
management**





Safety culture and leadership

Two recognitions

BlueScope Steel Limited | Integrating HOP into foundational HSE processes | Global

In 2019, BlueScope started its global HOP (Human and Organisational Performance) journey by proactively piloting HOP-based Leadership Workshops as top management was curious about evolved safety thinking.



The stories being told to Directors and Executives of what they could learn and improve by applying HOP led to more than 1,500 of the Board of Directors, Executives, Senior Leaders, Managers and Supervisors globally undertaking training sessions with industry experts over a two-year period, and practically applying the HOP philosophies into their everyday work. Since then, HOP has been accepted and applied across the organisation.

5 HOP principles - a culture of learning versus blame:

1. **Error is normal**
We all make mistakes
2. **Blame fixes nothing**
Accountability is the willingness to accept responsibility
3. **Learning is vital**
Learning is deliberate
4. **Context drivers behaviour**
Systems drive outcome
5. **How we respond matters**
How leaders act and respond counts

BlueScope is at the stage of systems and processes being simplified and updated to embed the HOP philosophy into everything it does so that the practice is sustained. Countless smart solutions have already been implemented to eliminate or reduce exposure to hazards.

In 2022, the NS BlueScope team made significant contributions:

>500

people participated in Learning Teams, small discussion groups aimed at finding smart solutions.

>100

actions and 20 major projects were completed as a result of ideas from frontline teams.

>50%

people involved in risk reduction projects as a result of Learning Teams and the Better Questions, Stronger Solutions enquiry system.

Liberty Steel | Transforming safety culture and performance through human performance principles | Australia

In 2019, a decision was made to initiate a transformative journey to reshape the safety culture across the organisation. To drive this transformation, a comprehensive roadmap was developed, known as 'The WRIB [We are InfraBuild] Safe Way.' Underpinning this, are four strategic pillars, with the overarching goal of creating a world-class safety culture and safety performance.

1. Enabling performance

Providing the tools to standardise and self-manage the leading and lagging indicators using digitisation.

2. Critical incident prevention

Focusing on monitoring and continually verifying the effectiveness of the critical controls for low-likelihood and high-consequence events.

3. Interdependent safety culture

Implementing a behavioural programme, Safety Connect, based on human performance factors to develop a collective belief that we all must look after each other and that human error can be predicted and prevented if we recognise the signs of error-likely situations.

4. Fit for work and fit for life

Creating a strong focus to position mental health and wellbeing as the foundation of a safe workplace by providing tools to support and educate employees, including Mental Health First Aiders and the Employee Assistance Program.



63%

improvement in total recordable injury frequency rate (TRIFR) since 2019.

30%

reduction in critical (life-threatening) incidents since 2021.

90%

of the workforce have participated in Safety Connect, our behavioural safety programme.

30%

of the workforce have seen a work colleague at risk, intervened and reported it.

Over 700 critical-risk inspections were conducted to verify the effectiveness of critical controls since 2021.



Occupational safety management

Two recognitions

ACERINOX S.A. | Innovative roll cover solution enhances safety and operational efficiency in hot mill operations | South Africa

In February 2022, a critical challenge arose at Columbus Stainless hot strip mill when a finishing mill backup roll (BUR) suffered a catastrophic failure, posing a risk to personnel and equipment.

The subsequent investigation revealed the likelihood of internal stresses in spalled rolls causing spontaneous breakage. To address this, a cross-functional team embarked on a mission to create a preventive solution that prioritised safety without compromising operational efficiency.

The team swiftly devised a unique concept: a roll cover made from repurposed conveyor belts. This cost-effective design, engineered to absorb impact and contain shattered roll pieces, eliminates the need for personnel to be in proximity during installation and removal. In just three months, the concept evolved from idea to reality, resulting in a functional prototype.

The impact has been transformative:

- 1. Safety:** Personnel safety is vastly improved, as the risk of injury from spontaneous roll breakage is mitigated.
- 2. Adaptability:** The cover's adaptability to different roll sizes, types, and mills ensures broad applicability.
- 3. Cost-effectiveness:** Beyond safety enhancements, the project boasts remarkable cost-effectiveness, with negligible material costs and efficient deployment.

This innovative solution not only safeguards employee wellbeing but also epitomises the fusion of creativity and practicality in addressing unforeseen challenges.



Positioning of roll cover

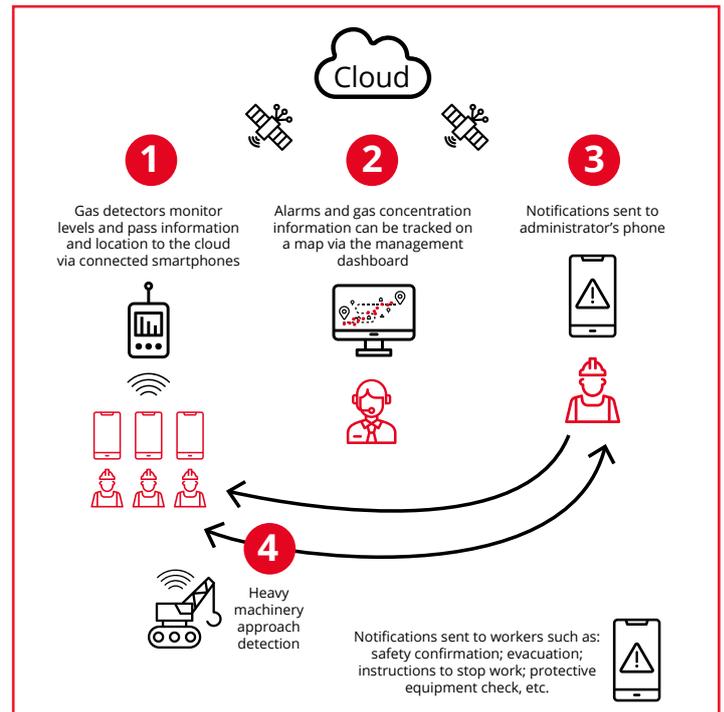


JFE Steel Corporation | Safe work support using safety monitoring system | Japan

Based on the basic principle that "safety is the highest priority," JFE Steel conducts concerted, company-wide safety activities with the goal of creating an organisation that can achieve zero occupational accidents.

With the rapid advancement of Information Technology (IT) and the Internet of Things (IoT), the number of applications in manufacturing sites has increased. At JFE Steel, the latest information and communications technology (ICT), artificial intelligence (AI) and data science technologies are being used to develop and commercialise more new technologies to ensure the safety of workers at manufacturing sites.

In this newly developed system, in addition to communication functions such as audio and video sharing within the group, information such as the location of workers, other dynamic data, proximity with heavy equipment detection, and working environment information such as gas concentration levels are shared to ensure the safety of workers. This information is communicated to the company administrators via the smartphone cloud.



2019
3 fatalities and 3 restricted work cases.

2020
2 restricted work cases.

2021
1 restricted work cases.

2022
0 cases.

Industrial accidents caused by carbon monoxide (CO) poisoning have also been reduced.



Occupational health management

One recognition

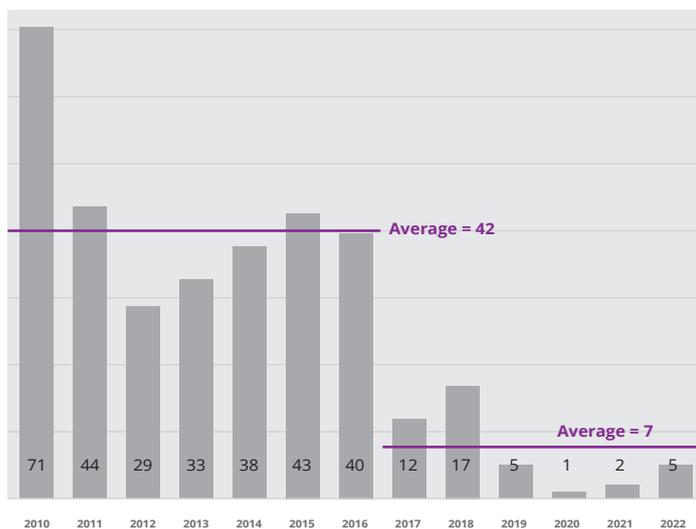
Tenaris | Ergonomics programme | Brazil

Confab, Tenaris' production centre in Brazil, started evaluating the ergonomic conditions in its pipe manufacturing mills back in 2016. Before implementing its ergonomics programme, the production centre reported an average of 42 employees per year with work restrictions due to injuries associated with poor ergonomics. Upon launch, an initial assessment covered 178 risk activities registered by the HumanTech programme.

Following this assessment, a three-year ergonomics programme was introduced, including an annual review and evaluations by a cross-functional team to establish investment priorities. Two methods were applied: engineering solutions and improvements guided by the corresponding work areas. Employee engagement was key in promoting an ergonomic culture, which led to a reduction in ergonomic risks.

As the ergonomic culture developed, the project's scope grew, driven by employee engagement and the expertise of specialists. By 2022, the number of activities reviewed since the programme launch reached 716. The programme established a robust ergonomic culture and led to a considerable reduction in ergonomic injuries, which decreased from an average of 42 to 7 cases annually. Compared to the 178 initial activities assessed in 2016, high-risk tasks decreased from 35% to 17%.

Number of work restrictions due to ergonomics injuries

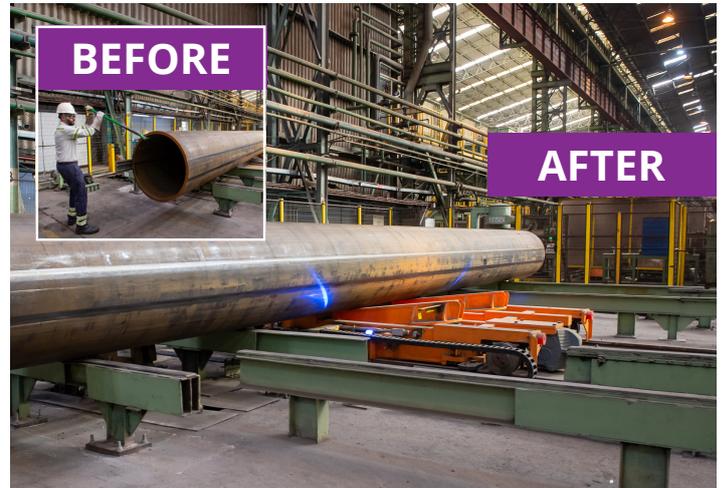


To note: There was an increase in the quantity of worked hours: 1.3 million hours in 2020; 1.9 million hours in 2021; 2.5 million hours in 2022.

Between 2016 and 2022:

High risk ergonomic injuries decreased from: 42 to 7

High risk tasks decreased from: 35% to 17 %



Manual pipe handling ➤ Autonomous handling



Manual transportation with lifting by two operators. ➤ Hoist-assisted transportation with suction system.



Manual brush exit, starting from the lifting of the object by the operator. ➤ Lifting and transportation of the brush adjusted with hoist transportation.



Process safety management

One recognition

Tata Steel | Real-time visualisation of risk movement | India

All high-potential safety risk scenarios were identified at Tata Steel by implementing a Process Safety Management framework. To prevent and mitigate high-potential scenarios, a number of safety barriers were identified. Audits were conducted once a year to assess the soundness of the barriers. However, in some instances, there was a fair probability of some early failure indications going unnoticed, which could cause the failure of barriers, leading to high potential incidents.

Consequently, Tata Steel felt that tracking the health of the barriers on a real-time basis was needed. The company's innovative approach to real-time visualisation of risk movement aims to provide real-time insights and alerts on the level of risk by enabling the operators to be aware of the health of the barriers.

Unique features of the technology:

1. Dashboard

A tableau-based online monitoring dashboard design connects three different databases: Level 1 & 2 automation systems, SAP plant maintenance system and a web-based safety management system.

2. Intelligence

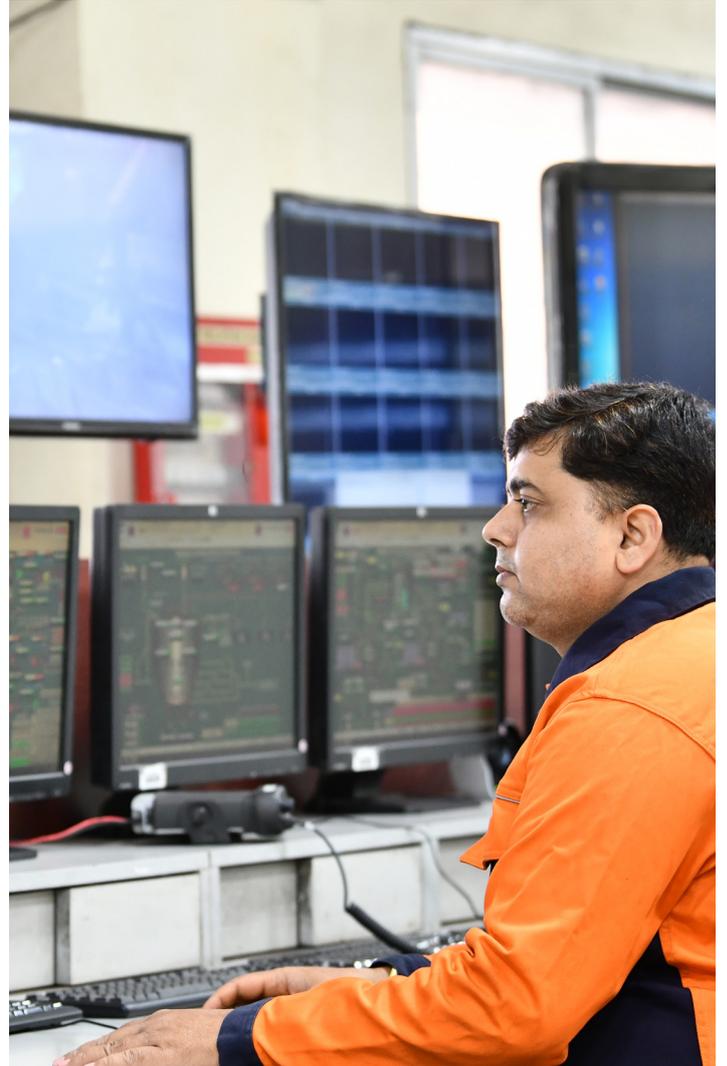
Different logics were developed to know the health of the barriers in the system, including the conditions for preventing false alarms.

3. Real-time technology

Barrier health colour coding is available for real-time status.

4. Alerts

A real-time alert is generated based on the health of barriers to operation and maintenance employees for prompt action.



ZERO
High-potential
risk incidents

60 Million
INR
savings through
prevention of high-
potential incidents

141
Barrier components
health status
monitored in
real time

100%
Corrections of
all abnormal
notifications
generated for
process safety
critical equipment

World Steel Association

Avenue de Tervueren 270
1150 Brussels
Belgium

T: +32 (0) 2 702 89 00
F: +32 (0) 2 702 88 99
E: steel@worldsteel.org

C413 Office Building
Beijing Lufthansa Center
50 Liangmaqiao Road
Chaoyang District
Beijing 100125
China

T : +86 10 6464 6733
F : +86 10 6468 0728
E : china@worldsteel.org

worldsteel.org



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