Health & Safety

HEALTH & SAFETY

(GRI 403-103, 403-8, 403-9, 403-10)

At Hindustan Zinc Limited (HZL), safeguarding the health, safety, and wellbeing of our workforce, contractors, and host communities remains a core organizational value and a strategic business imperative. In alignment with the **International Council on Mining and Metals (ICMM)** Principle 5, we are committed to proactively managing occupational health and safety (OHS) risks to achieve our overarching goal of '**Zero Harm**'. Our approach integrates both **physical and psychological safety**, emphasizing prevention, care, and continuous improvement across all operations.

As per the **joint estimates by the WHO and ILO**, more than 3 million work-related fatalities occur globally each year (including both occupational diseases and injuries). HZL recognizes the far-reaching implications of workplace incidents—not just in human cost, but also in legal exposure, operational disruption, reputational damage, and financial losses. We firmly believe that all workplace injuries and occupational illnesses are **preventable**, and that robust safety systems are fundamental to sustainable business performance.

HZL operates complex and high-risk integrated mining and smelting assets involving activities such as underground mining with HEMM deployment, processing of hazardous chemicals etc. These operational hazards require structured and resilient safety management frameworks. To this end, we have institutionalized a top-down safety governance model, led by our CEO which is mandated to define strategy, review performance, and steer safety culture transformation.

Our **Health and Safety Management System** is designed in alignment with **ISO 45001:2018** and the **Vedanta Sustainability Framework (VSF)**. All sites across our value chain are certified under ISO 45001, reflecting our commitment to high safety standards, regulatory compliance, and continual improvement. These systems are developed in consultation with employees, contractors, and worker representatives to promote inclusiveness and foster ownership at all levels.

To operationalize our commitment, we have developed a structured suite of **health and safety policies, technical and operational standards**, and safe work procedures applicable to all employees and business partners under HZL's operational control. We also recognize the importance of **psychological safety and mental wellbeing** as part of our holistic health and safety approach. Programs focused on mental health awareness, fatigue management, and stress reduction have been launched to create a supportive and inclusive work environment.

Through these initiatives, Hindustan Zinc seeks to foster a **resilient safety culture**, one that is deeply embedded, leadership-driven, and continuously evolving—ensuring that every individual returns home safe and healthy, every day.

All these initiatives contribute towards enhancing our safety standards and processes to minimize health and safety risks in all our operations.

GOVERNANCE

At Hindustan Zinc Limited, Occupational Health and Safety (OHS) is governed by a robust and well-defined three-tiered governance structure that ensures alignment from the corporate boardroom to the shop floor. This framework is designed not only to institutionalize accountability but also to promote shared responsibility among leadership, workforce, and contract partners.

At the apex of this model is the Corporate Safety Council, chaired directly by the CEO, which serves as the strategic body responsible for setting the direction of safety performance across the organization. The Council reviews performance metrics, endorses policy updates, and evaluates organizational readiness in managing emerging safety risks. Its role extends to integrating safety priorities with business strategy, thereby reinforcing safety as a core business value.

Supporting this at the second tier are Corporate and Zonal Safety Committees. These include eight zonal and five corporate sub-committees that translate strategic objectives into actionable safety programs. Their responsibilities encompass resource planning, implementation of company-wide safety standards, review of compliance data, and cross-functional alignment on initiatives such as contractor safety upliftment and leadership safety visits.

At the operational level, Unit-Level Safety Committees are established at each site. These committees are instrumental in ensuring that policies are translated into on-ground actions. They monitor day-to-day compliance, identify localized risks, and ensure that frontline workers are engaged in safety dialogues. Notably, each tier of this governance structure includes equal representation from HZL management and contractors, ensuring inclusivity and promoting a culture of ownership and accountability at all levels.

HZL's strategic safety priorities are firmly rooted in the vision of achieving "Zero Harm." These include the elimination of fatalities, prevention of occupational health illnesses, improvement of hygiene standards, proactive management of critical risks, and institutionalization of a culture of continuous improvement through assurance. These objectives are operationalized through HZL's CRM (Critical Risk Management)-centric Safety Management System, which integrates international frameworks and company-specific standards.

Safety sub-committee		Function
1	**Safety Interaction**	Safety observation is a structured and planned pro-active two way safety conversation process with people at their work place to achieve positive change in people's behaviour towards safety through: • Recognizing and reinforcing positive safety behavior • Identifying and correcting behavior at risk • Engaging in conversation regarding safety concerns or issues This Stream helped organization to improve Safety culture
2	**Incident Management Committee**	To ensure the timely reporting and investigations of incidents and ensuring quality of incident investigation focusing on systemic causes and horizontal deployment of learning and prevent reoccurrence of incident
3	**Contractor Safety Management Committee**	Standardizes, implements, and improves Contractor Safety Management selection and management system
4	**Process Safety Management Committee**	Implements and maintains risk management systems and processes to eliminate process safety incident and injuries, and process critical equipment and parameter management
5	**Standards, Rules and Procedures Committee**	Ensures that adequate rules and procedures are available for all employees and contractors at Hindustan Zinc to work safely and effectively
6	**Critical Risk Management Committee**	Responsible for drafting and maintaining the organisation's core curriculum for induction, re-skilling, upskilling and development of its employee and contractual workforce.
7	**Training Management Committee**	Responsible for drafting and maintaining the organisation's core curriculum for induction, re-skilling, upskilling and development of its employee and contractual
8	**Occupational Health & Industrial Hygiene Committee**	To drive the occupational health and industrial hygiene programme at HZL

POLICIES AND STANDARDS

Our Health & Safety Policy aligns with the Vedanta Sustainability Framework, incorporating management principles for occupational health, safety, and wellbeing. It applies to all levels of the organization, including executives and business partners.

Our policies and standards are designed to promote an environment that empowers individuals to speak up, raise concerns, and contribute ideas without fear of blame or reprisal. To support this, we have implemented Management and Technical Standards across all locations, clearly outlining accountabilities, mandatory controls, and minimum requirements for managing health and safety risks, whether work-related, community, or psychological.

VISION

Our vision is to ensure zero harm by minimizing safety and health impacts of our operations by eliminating unsafe work conditions.

STRATEGY

Regarding health and safety, HZL's strategic priorities are the following:

- Zero Fatalities
- Zero Occupational Health Illnesses
- Improvement in Occupational Health and Hygiene
- Critical Risk Management
- Critical review and audit of safety and standard implementation

RISK ASSESSMENT FRAMEWORK

Risk assessment at HZL follows a multi-tiered methodology, combining qualitative, quantitative, and semi-quantitative tools to ensure comprehensive hazard identification and control implementation.

On the qualitative front, Hazard Identification and Risk Assessment (HIRA) forms the foundational layer of safety planning. HIRA is conducted for all operational tasks using a standardized 5x5 risk matrix, facilitating a consistent approach to evaluating the likelihood and severity of potential hazards. Following risk identification and prioritization, mitigation actions with clearly defined targets are deployed across our operations. These registers are not static—they are dynamically reviewed post-incident, following near-miss reports, or during operational changes such as the introduction of new processes or technologies to identify what could cause harm in the workplace

For high-risk or non-routine activities, Job Safety Analysis (JSA) is mandatory. Conducted in real time with operational teams, JSAs ensure that all workers involved understand the step-wise tasks and associated risks and are empowered to intervene if they detect unsafe conditions. Permit to Work (PTW) systems are tightly integrated with JSAs and supported

by Take-5 pre-task risk assessment tools, reinforcing layered risk verification before the commencement of work.

To complement these, HZL employs quantitative and semi-quantitative risk assessments for complex operations, particularly in smelting and chemical handling areas. Hazard and Operability Studies (HAZOP) are conducted by certified third-party experts for all new installations and major modifications. These studies are integral to ensuring that operability risks are accounted for during the engineering design stage itself. In parallel, Process Hazard Analyses (PHA) leverage methodologies such as "What-if" analyses, Failure Modes and Effects Analysis (FMEA), and Fault Tree Analysis (FTA) to assess systemic risks in metallurgical processes.

Before any new equipment or facility is brought online, Pre-Startup Safety Reviews (PSSR) are conducted to verify that all risk controls are functional, documented, and understood by the operating team. The outcomes of all assessments—whether qualitative or quantitative—are consolidated in centralized HIRA registers, and feed directly into SOP updates, training programs, and control action plans.

Risk prevention is systematically managed through the structured application of the **Hierarchy of Controls**, ensuring that the most effective and sustainable measures are prioritized to eliminate or reduce workplace hazards. Once risks are identified and evaluated, control measures are selected and implemented following the hierarchy—starting with elimination of the hazard wherever possible. For instance, if a hazardous chemical or unsafe process can be completely removed from the operation, this is given top priority. Where elimination is not feasible, **substitution** with a less hazardous alternative is explored.

The third level, **engineering controls**, involves redesigning equipment, automation, or physical barriers to isolate people from the hazard—such as installing interlocks, ventilation systems, or automated material handling. If risks persist, **administrative controls** are applied, including training, work procedures, scheduling to minimize exposure, or visual management systems. Finally, **Personal Protective Equipment (PPE)** is used as the last line of defense to protect workers from residual risk.

Once controls are implemented, **action plans are generated in the HIRA registers or incident investigation reports**, which are then tracked in HZL's digital platform, **ENABLON**. Each action is assigned with a clear owner and timeline. The system enables regular monitoring of status—pending, in-progress, or closed—and escalates delays through automated alerts.

Zero Occupational Health Illnesses:

Employees safety includes prevention of occupational diseases and facilitates a hygienic working environment as well. We involve hi-tech processes and provide lifestyle management trainings to workers while regularly monitoring and controlling exposure to hazardous substances. The company has established occupational health centres at all locations for regular health examination of both permanent and contract employees.

Improvement in Occupational Health and Hygiene:

Recognizing the intrinsic link between health and safety, HZL has developed a structured Occupational Health and Hygiene (OHH) program that combines medical surveillance, exposure control, and well-being initiatives. Each operating unit is equipped with an Occupational Health Centre staffed by full-time medical professionals and supported by a centralized digital health record system.

Key components of the OHH framework include pre-employment and periodic medical examinations, which help identify baseline health status and track occupational health indicators of our employees and business partners over time. HZL enforces compliance with Threshold Limit Values (TLVs) for chemical and physical agents and conducts routine exposure monitoring in high-risk areas such as smelters, underground mines, and laboratories.

Health surveillance is also embedded into contractor management practices, ie., OHS criteria is included in our contractual and procurement requirements All contract workers undergo health assessments and are evaluated for job-role fitness, ensuring equitable standards of care across the workforce. Moreover, HZL partners with global industrial hygiene consultants to conduct exposure control studies and recommend engineering or administrative interventions where required.

In addition to occupational health, lifestyle and fatigue management programs are run in collaboration with wellness professionals. These address issues such as mental health, sleep disorders, and nutritional imbalances, which may impact workforce performance and safety. All collected data is centrally analyzed to inform facility design, personal protective strategies, and behavioral safety campaigns.

Critical Risk Management:

HZL has embedded a robust Critical Risk Management (CRM) program across its operations, aligned with the International Council on Mining and Metals (ICMM) critical control requirements and enhanced with domain knowledge from DuPont's safety expertise. The CRM framework is focused on preventing high-consequence, low-frequency events that could result in fatalities or catastrophic incidents.

The CRM process begins with the identification of Material Unwanted Events (MUEs), such as high-voltage electrocution, fall from height, exposure to hazardous chemicals, and vehicle-pedestrian interactions. Each MUE is mapped to critical controls that are deemed essential to prevent or

mitigate the risk. These controls are further categorized as either 'must-exist' or 'must-perform', and their verification is prioritized based on real-time risk exposure.

A digital assurance mechanism supports the verification process, with control performance tracked through dashboards and escalated through structured workflows if deviations are observed. This proactive tracking allows leaders to engage in timely interventions and provides site teams with data-driven insights to act on emerging trends.

Additionally, high-risk controls linked to Material Unwanted Events (MUEs) under the Critical Risk Management program are subjected to periodic control assurance and field verification. This structured approach ensures that risk prevention at HZL is not reactive, but proactive, with continuous oversight, accountability, and measurable reduction in risk exposure across the organization.

EMERGENCY PREPAREDNESS

The emergency preparedness framework begins with a thorough Identification of Potential Emergency Scenarios through structured risk assessments and Hazard Identification and Risk Assessment (HIRA) exercises conducted periodically. These assessments consider operational processes, site conditions, seasonal risks like monsoons, and emerging threats to develop a comprehensive Emergency Response Plan (ERP) for each site. Each ERP clearly defines roles and responsibilities, activation procedures, resource deployment strategies, evacuation routes, communication protocols, and escalation matrices for different types of emergencies.

Integration of Preparedness Actions is achieved through systematic training and awareness programs for employees, contract workers, and business partners. Regular mock drills are conducted, including On-site and Off-site Emergency Drills as mandated by statutory authorities, to test the readiness of emergency response teams and validate the effectiveness of the ERPs.

INVESTIGATION PROCEDURE

At Hindustan Zinc Limited, a structured and methodical approach is essential for investigating incidents categorized as Fatalities and Critical High Potential Incidents (HIPOs).

The organization follows the globally recognized Incident Cause Analysis Method (ICAM), which ensures a comprehensive examination of the incident circumstances, contributing factors, and underlying causes. The investigation process is designed not only to establish facts but also to derive actionable learnings to prevent recurrence.

The process begins with Immediate Action and Incident Reporting. As soon as a fatality or critical HIPO incident occurs, the site team is mandated to secure the area and immediately inform designated authorities and the corporate safety leadership. Rapid and accurate reporting triggers the activation of the incident investigation protocol and allows for necessary emergency responses and stakeholder notifications.

Subsequent to reporting, the priority shifts to Site Preservation and Initial Evidence Collection. The incident scene must be isolated and preserved in its existing state to prevent disturbance of critical evidence. Photographs, videos, witness details, operational logs, and physical artifacts are secured to aid a factual and unbiased investigation. This initial step is crucial in reconstructing the incident sequence accurately.

Following site preservation, a Formal Investigation Team Formation takes place. The team typically comprises internal safety professionals, subject matter experts, process specialists. The composition of the team ensures technical expertise, process knowledge, and impartiality in the investigation process.

Before the team physically reaches the site, Investigation Planning is conducted. This involves reviewing preliminary incident reports, understanding site layouts, assigning specific data collection responsibilities, and preparing documentation tools. Planning ensures a structured and organized approach upon arrival, minimizing operational delays and maintaining investigation integrity.

The Data Collection phase adopts the internationally accepted PEEPO methodology—focusing on People, Equipment, Environment, Procedures, and Organization. This holistic data gathering ensures no potential contributing factor is overlooked. Interviews, document reviews, equipment inspections, and other assessments are systematically carried out, with meticulous recording of observations.

Once sufficient data is collected, it is Organized and Mapped into a Timeline to reconstruct the sequence of events. This step visually represents how the incident unfolded, highlighting the interdependencies of actions, decisions, and system failures leading up to the event. The timeline aids in identifying critical points where intervention could have altered the outcome.

The core of the investigation lies in Analyzing the Findings using the ICAM framework. The method distinguishes between immediate causes, contributing factors, and organizational deficiencies. . ICAM encourages investigators to look beyond blame and identify systemic weaknesses.

Based on these analyses, Recommendations and Key Learnings are Developed. These are focused on strengthening critical controls, improving processes, enhancing leadership oversight, and promoting behavioral safety. Recommendations are designed to be specific, actionable, and time-bound, with clearly assigned ownership.

The findings and recommendations are then compiled into a comprehensive Investigation Report. This document captures factual data, analysis outcomes, root causes,

systemic failures, and recommended actions, along with a clear implementation plan. The report undergoes senior leadership review before finalization.

The final and most important step is the Implementation of Learnings. Corrective and preventive actions derived from the investigation are cascaded across all operational sites where similar risks exist. Learnings are integrated into safety systems, training modules, standard operating procedures, and contractor management practices to institutionalize preventive mechanisms.

For other incidents falling outside the fatality or critical HIPO category, the investigation process focuses primarily on identifying failed Critical Controls, determining their root causes, and implementing corrective actions. The aim is to ensure that even lower-category incidents are leveraged for proactive risk management and continuous improvement, thereby sustaining a robust incident prevention culture across the organization.

DIGITAL SAFETY MANAGEMENT – ENABLON

To drive transparency, accountability, and data integrity across its safety operations, HZL has deployed ENABLON. This system serves as the central repository for safety data and operational risk metrics, and enables seamless integration of various safety management modules.

ENABLON supports real-time risk tracking, incident databases, and control assurance logs into a single interface. It also allows for the automated scheduling and closure of audits and inspections, ensuring that no gaps are left unattended. Incident investigation workflows—including Root Cause Analysis (RCA) and CAPA (Corrective and Preventive Action) tracking—are integrated into ENABLON, making it easier to manage timelines and assign accountability.

Furthermore, the platform provides visibility into critical control assurance dashboards, which are used at both operational and leadership levels to monitor CRM effectiveness. With these features, ENABLON enhances governance effectiveness, enables cross-site benchmarking, and serves as a critical tool for continuous feedback into HZL's safety management system.

SAFETY TRAINING

Hindustan Zinc Limited (HZL) has developed a comprehensive Occupational Health and Safety (OHS) training framework to proactively prevent incidents across its high-risk operations, including underground mining and smelting. These programs are strategically designed not just for compliance but to instill a safety-first mindset, enforce operational discipline, and enhance emergency preparedness among employees, contract workers, supervisors, and other stakeholders.

At its mining sites, the Mine Vocational Training Centre (VTC) Program—aligned with Directorate General of Mines Safety (DGMS) regulations—serves as the primary platform for inducting and continuously educating both permanent and contractual mine workers. Specialized safety modules are also provided for roles such as jumbo drill operators, explosive handlers, and underground supervisors, ensuring operational competence and hazard awareness.

In smelting operations, HZL mandates Level 1 and Level 2 Induction Programs for all personnel and visitors before granting access to plant areas, with written assessments required to validate understanding and authorize site entry. To reinforce learning and address emerging risks, HZL conducts regular refresher trainings, toolbox talks, critical risk control workshops, mock emergency drills, and high-risk activity audits.

These structured OHS interventions have led to measurable reductions in workplace incidents and contribute significantly to HZL's commitment to zero harm and sustained operational excellence across all business units.

ASSURANCE AND CONTINUOUS IMPROVEMENT

HZL maintains a culture of continuous improvement through a rigorous multi-tiered audit and assurance mechanism. This includes first-party audits (internal audit) conducted biannually by site teams, second-party audits (HZL corporate audit) led by corporate safety personnel annually, and third-party assessments conducted under the Vedanta Sustainability Assurance Programme (VSAP). These assessments are based on globally benchmarked sustainability and safety standards.

Audit findings are not treated as mere compliance checks; instead, they are fed into Corporate Safety Council reviews, where systemic gaps are analyzed and converted into improvement actions. Key trends—such as repeated non-conformances, control failures, or contractor safety gaps—are prioritized, and actions are integrated into annual risk registers, training needs analysis (TNA), and safety system maturity assessments.

This cyclical model of governance, risk assessment, control assurance, and performance monitoring enable HZL to evolve its safety practices in line with global best practices and emerging risk scenarios, furthering its commitment to zero harm.

HZL's occupational health and safety performance is built on global alignment, technological innovation, leadership engagement, and people-centric practices. By maintaining high standards of risk governance and striving toward Zero Harm, we are positioned to serve as a benchmark in safety excellence across the global mining and metals sector.