

PNR-000070, Rev.: 10 – 27/12/2024

Department: Health, Safety and Environment

Technical Responsible: Lorena Figueiredo - Mat. 01496376

Target Audience: All areas of Vale

Training Need: ( ) YES (X) NO

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## EXPECTED RESULTS

Ensure that all adverse events related to the health and safety of employees, the environment, community members, company assets or production processes are communicated, reported, and that appropriate efforts are directed to their analysis, so that corrective and preventive actions are implemented, providing organizational learning for the company, aligned with elements 5 - Health, safety and environment (HSE), 11 - Sustainability and 16 of the VPS - Problem Solving and Continuous Improvement, seeking to achieve a culture of excellence in favor of safety.

## 1. OBJETIVES

the guidelines, criteria and general principles associated with the Health, Safety, Environment, Community and Process Safety Event Management and Analysis process at Vale.

## 2. APPLICATIONS

This normative standard was developed to add value to Vale's activities.

## 3. REFERENCES

### 3.1. Internal References:

- POL-0019-G: Sustainability Policy
- POL-0009-G: Risk Management Policy
- NOR-0003-G: Risk Management Standard
- NFN-0001: Planning, Development and Management Standard
- NFN-0009: Sustainability Standard
- PNR-000005: Reliability – Failure Analysis and Loss Profile
- PNR-000067: Health, Safety and Environmental Management for Vale's Contractors
- PNR-000079: Vale's Social Action Guide
- PNR-000033: HIRA – Hazard Identification and Risk Analysis for Undesired Material Events
- PNR-000028: Problem Solving and Continuous Improvement
- PNR-000182: Survey of Environmental Aspects and Impacts
- PNR-000101: Change Management
- PNR-000181: Environmental Liability Management
- PNR-000267: HSE Conduct Management
- PNR-000078: Integrated Risk Management
- PNR-000261: Crisis Communication Manual
- PGS-005486: Non-conformity Management.
- PGS-004109: Guidelines for Managing Legal and Other HSE Requirements
- PGS-005229: Integrated Community Safety Plans
- PGS-005912: General Guidelines for Emergency Assistance of Victims and Families in Events with Social Loss
- PGS-006347: VPS Integrated Assessment
- PGS-006686: HSE Alert Guidelines
- PNR-000008: Guidelines for VPS Element 8 – Maintenance
- PGS-006605: Reliability – Failure Analysis and Loss Profile.
- PRO-027476: Preliminary Risk Assessment and Identification and Assessment of Aspects and Impacts

### 3.2. External References:

- AMA (American Medical Association): Guides to the Evaluation of Permanent Impairment by American Medical Association

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- ISO 14001: 2015 – Environmental Management Systems
- ISO 45001: 2018 – Occupational Health and Safety Management Systems
- OSHA: (Occupational Safety and Health Administration) – U.S. Department of Labor
- API 754: Instituto Americano de Petroleo – Process Safety Performance Indicators for the Refining and Petrochemical Industries – 3ed
- ICMM (Conselho Internacional de Mineração e Metais): Health and Safety Performance Indicators ed.2021 [https://www.icmm.com/website/publications/pdfs/health-and-safety/2021/guidance\\_health-and-safety-indicators.pdf?cb=60005](https://www.icmm.com/website/publications/pdfs/health-and-safety/2021/guidance_health-and-safety-indicators.pdf?cb=60005)
- ABNT NBR14280: 2023 – Occupational accident registration – Procedure and classification.
- IBRAM: Brazilian Mining Institute – Critical risks of mining in BrazilCCPS: Indicadores de Segurança de Processo – Versão 4.1 [https://www.aiche.org/sites/default/files/docs/pages/ccps\\_process\\_safety\\_metrics\\_-\\_v4.1.pdf](https://www.aiche.org/sites/default/files/docs/pages/ccps_process_safety_metrics_-_v4.1.pdf)
- CCPS: Process Safety Indicators – Version 4.1 [https://www.aiche.org/sites/default/files/docs/pages/ccps\\_process\\_safety\\_metrics\\_-\\_v4.1.pdf](https://www.aiche.org/sites/default/files/docs/pages/ccps_process_safety_metrics_-_v4.1.pdf)

## 4 DEFINITIONS:

### 4.1. Terms:

**Corrective Actions:** Action to eliminate the root cause of an identified loss or event, deviation or other undesirable situation, in order to prevent its recurrence. There may be more than one cause for the same event (event, deviation or loss)

**Applicability Actions:** Actions that aim to eliminate or reduce the risk of a similar event in another area of Vale.

**Corporate Strategy Actions:** Actions that impact the company's global strategy and will need to be evaluated by corporate/regulatory teams (Health, Safety, Environment, Engineering, Procurement, Human Resources, etc.). These actions should be treated as applicability actions, without the need to be triggered via SAP IM.

**Frontline Actions:** Technical actions: Engineering controls, replacement or elimination.

**Management System Actions:** Controls that will act to address opportunities in the management system.

**Immediate Actions:** Action taken immediately after the event, to contain or minimize the effect of an identified event, loss or deviation. It is not intended to eliminate the cause of the problem or prevent recurrence.

**Preventive Actions:** Action to eliminate the cause of a potential event (deviation, losses, with loss and with no loss event) or other potentially undesirable situation, in order to avoid its occurrence.

**High Potential:** Characterization of the maximum fatal consequence, among the most probable, that could be generated by the event analyzed, in slightly different circumstances in terms of time, position, and interaction between person, equipment and environment.

**Complete structured analysis:** Means the application of recognized Vale method based on root cause tree (MAC).

**Simplified analysis:** Means that it is not necessary to apply a structured method to establish the action plan (5 Whys).

**Coverage area:** Geographical delimitation in which activities/processes occur under Vale's direct responsibility.

**Controlled Area:** Areas in which Vale has the formal right and responsibility to ensure that its health, safety and environmental (HSE) requirements are implemented and met. (according to PNR 000067).

**Monitored Area:** Areas in which Vale does not have the formal right and responsibility to ensure that its health, safety and environmental (HSE) requirements are implemented and complied with (according to PNR 000067).

**Secondary Containment:** Equipment or assets designed to contain hazardous materials and/or energies released in primary containment. Secondary containment systems include, but are not limited to, tank dikes, barriers around process equipment, drainage collection or oil collection systems, etc.

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**Control:** An act, object (engineering) or system (combination of act and object) intended to prevent or mitigate an undesirable event.

**Critical control:** A control that is crucial to preventing the event or mitigating the consequences of the event. The absence or failure of a critical control would significantly increase the risk, despite the existence of the other controls. In addition, a control that prevents more than one undesirable event or mitigates more than one consequence is typically classified as critical.

**Root Cause:** The most basic cause that can be reasonably identified, that Vale has control to correct and, when corrected, will prevent (or significantly reduce the likelihood of) the problem from recurring. We may have more than one root cause for the same event analysis.

**Connect Data:** Strategic HSE data management solutions initiative, being an exclusive provider of strategic Health, Safety and Environment data. <https://app.powerbi.com/groups/me/apps/bf210fcf-e901-498c-bb4c-06c4b34ecb4d/reports/ba9dff80-94f0-4038-bb9c-a8f765c8c324/ReportSection?ctid=7893571b-6c2c-4cef-b4da-7d4b266a0626&experience=power-bi>

**Total Cost:** Comprises the sum of the direct cost (cost of repairs or replacement of the asset, cleaning, disposal of material, environmental remediation and emergency response) and the indirect cost (loss of production and fines resulting from the event).

**Disease:** Abnormal condition or disorder of body functions or systems caused by acute or chronic exposure to agents, toxins, pathogens, or other factors.

**Event Owner:** The event owner is defined as the area responsible for the activity in which the event occurred or responsible for the physical location where the event occurred. The analysis of the event will contribute to ratifying or rectifying the initial definition of the event owner. In case of doubts, 2LD Specialized Services and/or Corporate Sustainability should be consulted for final validation.

**Hazardous Energy:** Chemical, mechanical, hydraulic, pneumatic, electrical, thermal, kinetic, sound and radiation energy with the potential to cause harm to people, the environment, property, production processes or communities. These energies must be associated with controls that prevent their unplanned or uncontrolled release.

**Event:** Any occurrence or adverse condition that resulted, or could result, in loss, damage or impact, regardless of whether there was a release of energy. It can be classified as:

- **Event with loss/impact:** Events that result in injury and/or disease to Vale employees and/or contractors and/or injury to members of communities (neighboring or otherwise), and/or adverse impact on the environment, and/or material loss and/or operational loss.

**Note:** Events resulting in disease of community members are not reportable under this procedure and, where applicable, should be addressed in specific local programs.

- **Event with no loss/impact:** Events that did not result in injury or disease to Vale employees or contractors, injury to members of communities (neighboring or otherwise), adverse impact on the environment, material loss, operational loss, but which may be precursors to such or which, under slightly different circumstances, could have resulted in a loss event.

**Operational Process Safety Events:** Events that generate an unplanned or uncontrolled release of hazardous energy or material (loss of primary containment) or that under slightly different conditions or circumstances could generate such events. They involve the actuation or absence of controls on equipment or operating assets, within a pre-established scope area intended for mining, beneficiation, processing, production and transfer/transportation of products, materials and people.

**Environmental Events with origins external to Vale:** Non-exhaustive examples - Forest fires, intervention in watercourses, deforestation, illegal mining that are demonstrably caused by an origin external to Vale (neighbors, passers-by, invaders), but that cause an impact on Vale areas.

**Tire burst/explosion:** Event caused by the rupture of the tire structure, causing the instantaneous movement of a large mass of gas and consequently the rapid release of energy.

**Note:** Punctures/cuts in tires where the loss of gas is gradual (not instantaneous) will not be considered a blowout.

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**Contributing Factor:** These are causes that alone would not cause the event, but that during the analysis were identified as factors that contributed to the occurrence. It is important that actions are taken for the identified contributing factors.

**Environmental Impact:** Any change in the physical, chemical and biological properties of the environment, caused by any form of matter or energy resulting from human activities that, directly or indirectly, affect the health, safety and well-being of the population, social and economic activities, biota, the aesthetic and sanitary conditions of the environment, and the quality of environmental resources.

**Note:** The definition of Environmental Impact used for application within the scope of this procedure is an adaptation of CONAMA Resolution No. 001, of January 23, 1986, and is used in other Vale corporate procedures.

**Facilities and Areas of Interest:** Is an inclusive term for Vale; it generally applies to all types of operating units, business units, corporate departments, locations and operated affiliates/subsidiaries.

**Injury:** Temporary or permanent damage to tissue, muscle or bone, typically caused by an identifiable event. For more details, see SIF (Serious Injuries and Fatalities) concept.

**Energy release:** Occurs when the energy that was being used, stored or contained gets out of control in an unexpected way (explosion, fall, burst, rupture, collision, movement, etc.).

**MAC (Cause Tree Methodology):** Structured and complete event analysis methodology based on a cause tree;

**Hazardous Material:** Substance with the potential to cause harm due to its chemical (flammability, toxicity, corrosiveness, reactivity, asphyxiant) or physical (pressure, temperature) properties. Including non-toxic and non-flammable materials (steam, hot water, nitrogen, CO<sub>2</sub>, compressed air).

**Community Member:** A person who does not have an employment relationship with Vale or its contractors, regardless of whether they are part of local communities directly impacted by Vale's activities. Employees of Vale or its contractors who work outside of their working hours or are not engaged in professional activities linked to the company are considered "community members".

**Loss of Primary Containment:** Unplanned or uncontrolled release of hazardous energy or material.

**Material Loss:** Any damage, destruction, or deterioration of physical or tangible assets. These assets may include property, equipment, vehicles, facilities, or any other physical item that has economic value.

**Operational Loss:** Loss related to the time that the process was unable to operate within the planned capacity due to the event.

**Social Loss:** Fatal or non-fatal injury (regardless of severity) to a member of the community.

**Exposed Person (In SAP-IM it is shown as a person almost hit):** Vale employee or contractor exposed to risk at the time of the event.

**Severity:** Consult parameters for classification in NOR-0003-G – Risk Management Standard.

**Actual Severity:** Characterization of the effective consequences generated by the event

**SIF:** Serious Injuries and Fatalities - serious injury such as a permanent impairment of an internal organ, body function or body part or life-altering condition, or an injury that, if not treated immediately, will lead to death or permanent or long-term disability.

**Note:** Other definitions on each topic can be found in the respective annexes.

## 4.2. Acronyms:

PRA – Preliminary Risk Analysis

HIRA – Hazard Identification and Risk Analysis

MUE – Material Unwanted Event

LAIA - Environmental Aspects and Impacts Assessment

LD – Line of defense.

SLD – Specialist line of defense (*LDE – In portuguese*)

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- MAC – Cause Tree Method developed internally by Vale.
- HAZOP – Hazard and Operability Study
- LOPA – Protection Layer Analysis
- 1LD – 1<sup>a</sup> Line of Defense
- 2LD – 2<sup>a</sup> Line of Defense
- HSEOP – Health, Safety, Environment and Operational Risks Department
- RAC – Critical Activities Requirements
- TAC – Conduct Adjustment Term
- SIF – Serious Injuries and Fatalities
- HPI- High Potential Incident

## 5 INTRODUCTION:

This normative standard was developed to add value to Vale's activities. Vale's Facilities and Areas of Interest must comply with the requirements of this standard and applicable laws and regulations. If there is a conflict between the technical requirements of this standard and the laws or regulations, Vale's Facilities and Areas of Interest must apply the stricter requirement, always enabling compliance with applicable legal requirements.

All events covered by this procedure must be assessed, at a minimum, in terms of their actual and potential severity. To explain the context of this procedure, it is necessary to define the concepts of High Potential Events for each dimension, as illustrated below:

### 5.1 Occupational Safety:

Events of **actual severity and with a high potential for fatalities** for occupational safety are classified as **N1, N2 or N3**, that is, they could result in fatality(ies) or life(s) changed:

- Significant or critical actual severity and/or,
- Significant or critical potential severity.

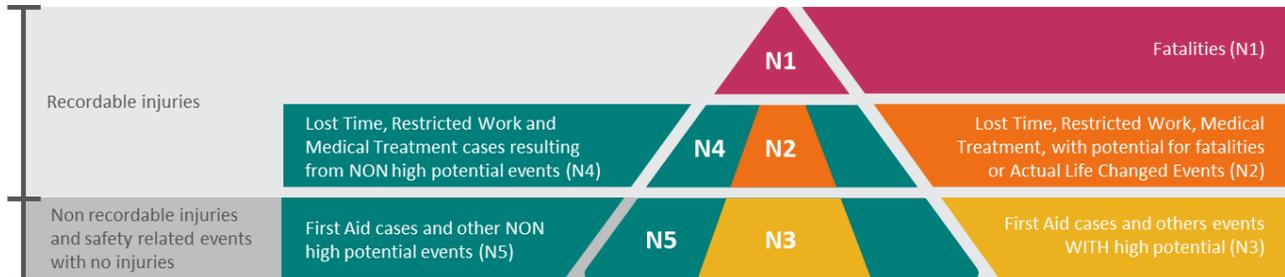


Figure 1 – Occupational Safety Events Pyramid

[Annex 01 - Guide for Classifying Occupational Health and Safety Events](#) should be consulted for more details on the criteria for classifying safety events.

### 5.2 Environment:

**High potential environmental events** are classified as **MA1, MA2 or MA3**, that is, they are capable of causing changes and/or adverse effects to the environment:

- Significant, critical or very critical actual severity and/or,
- Significant, critical or very critical potential severity.

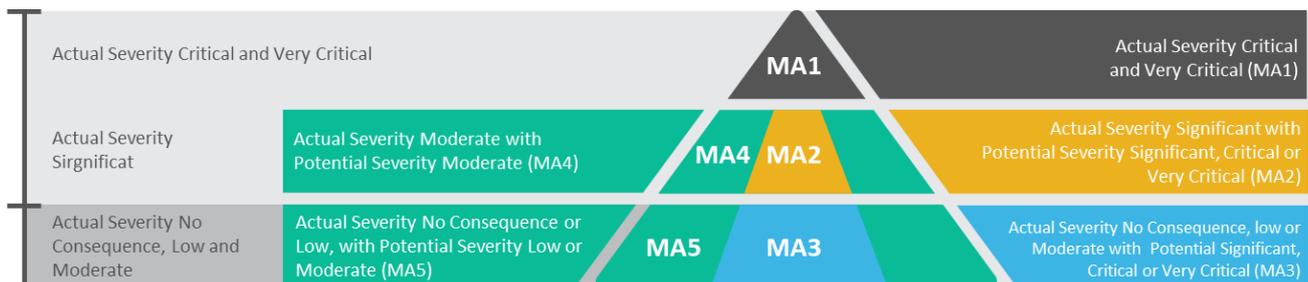


Figure 2 – Pyramid of Environmental Events

Annex 02 - Guide for Classifying Environmental Events should be consulted for more details on the criteria for classifying events with high environmental potential.

### 5.3 Operational Process Safety:

**Events with high potential for operational process safety** are classified as **P1, P2 or P3**, that is, their actual severity is classified as events with the greatest loss consequences.

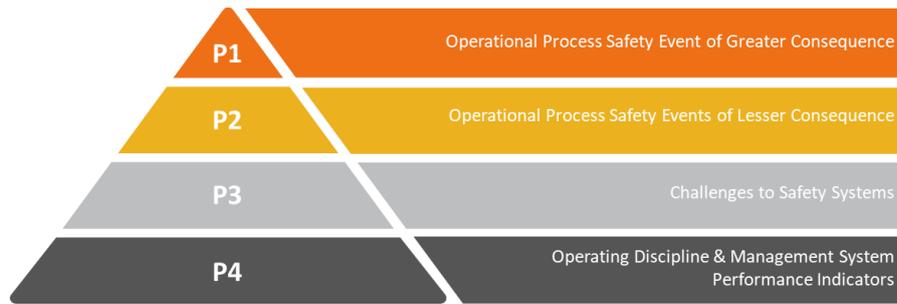


Figure 3 – Pyramid of Operational Process Safety Events

**Note:** Reliability failures that do not result in dangerous and unsafe conditions for people, significant material damage or other unacceptable consequences are **not** within the scope of this procedure and must be analyzed following the requirements of PNR-000007 - Guidelines for VPS Element 7 - Operation, PNR-000008 Guidelines for VPS Element 8 - Maintenance and PGS-006605 Reliability - Failure Analysis and Loss Profile. This makes it possible to direct, in the unfolding of the Analysis, actions to improve reliability and avoid duplication of analyses for the same event. When a P event is also considered a Reliability event, the P classification must be prioritized and follow the Analysis process described in this standard.

Annex 03 - Guide for Classifying Operational Process Safety Events should be consulted for more details on the criteria for identifying and classifying events.

### 5.4 Community:

**Events with high potential for social dimension** are classified as **C1, C2 or C3**, that is:

- Critical or very critical actual severity and/or,
- Critical or very critical potential severity..

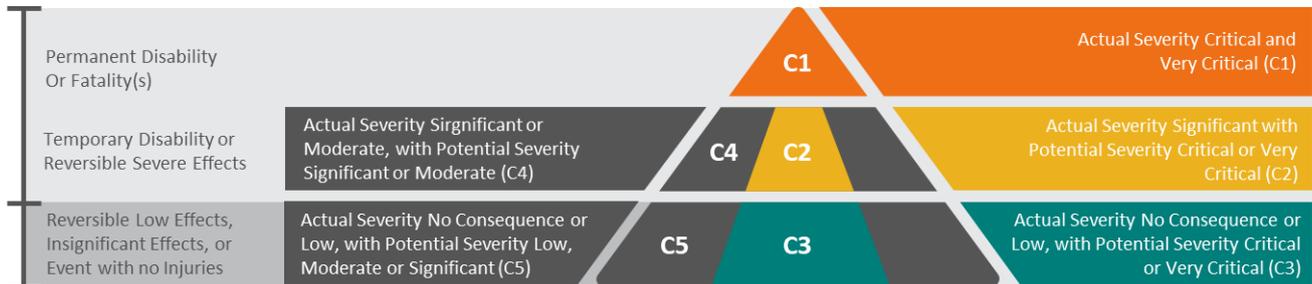


Figure 4 – Social Events Pyramid

Annex 04 - Guide for Classifying Social Events should be consulted for more details on the criteria for identifying and classifying events.

**IMPORTANT:** Monitoring the requirements, governance and adherence to this regulation regarding C events is the sole responsibility of the Corporate Sustainability Department.

## 6. CONTEXT

Vale's HSEC and Process Safety event management consists of the following steps:



Figure 5 – HSEC and Process Safety Event Management Flow

## 6.1. Identify, Report and Classify Events:

Anyone who witnesses, experiences or identifies an event must immediately report the occurrence to the person responsible for the activity or area.

### 6.1.1. Immediate Actions (post-event):

Immediate actions must be defined for each type of event, considering its severity and types of loss/impact or potential losses/impacts. Here are some premises:

Immediate actions include, but are not limited to:

- Notify the appropriate emergency services, in accordance with the local Emergency Response Plan;
- Emergency actions and referral of the injured person,
- Perform environmental emergency and contingency actions,
- Activate the Community Relations team,
- Notify competent bodies, such as the police/union/regulatory agencies/environmental bodies,
- Control the scene of the event and preserve evidence for analysis.

**Note:** For events with social loss, general guidelines for emergency care for victims and family members must be observed, including roles and responsibilities for emergency response, as per PGS-005912.

### 6.1.2 Classify Events:

Event classifications must follow the annexes of this procedure, for each specific theme: N events (annex 01), Environmental events (MA) (annex 02), P events (annex 03) and C events (annex 04).

The team responsible for reporting the event must analyze the classification in all themes (N, P, MA and C), since it may have different classifications in each of the themes.

**IMPORTANT:** In case of doubts about the classification or eligibility of level 1 and 2 events, a deliberative committee will be formed to make a final verdict regarding the classification of the event.

For N, P and MA events, the committee will be led by the Specialized Services area and composed of members of the 2LD of the HSE Department. The participation of members of the 1LD and other areas may be requested, at the discretion of the 2LD of Specialized Services, with the intention of providing additional clarifications about the event, as long as the participants do not have a conflict of interest with the event under discussion.

For C events, the committee will be led by the Corporate Sustainability Department. The participation of members of the 1LD and other areas may be requested, at the discretion of the 2LD of the Corporate Sustainability Department, with the intention of providing additional clarifications about the event, as long as the participants do not have a conflict of interest with the event under discussion.

The final decision on the classification of the event N, P and MA will be made by 2LD Specialized Services and for C events it will be made by the Corporate Sustainability Department based on the requirements of this procedure and annexes, and, if necessary, on recognized standards and publications on the subject.

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### 6.1.3 Immediate Communication:

Immediate communication is essential to ensure an agile, efficient and coordinated response to situations that may impact safety, operational integrity, the environment and the communities in which we operate.

Level 1 and 2 events must be communicated internally according to the following table:

| LEVEL | DEADLINE        | TYPE     | Specialized Services Management (Integrated Center) | HSE Department | Technical VP | Corporate Sustainability Department | VP Sustainability | VP (Event Owner) | President |
|-------|-----------------|----------|---|----------------|--------------|-------------------------------------|-------------------|------------------|-----------|
| 1     | Within 12 HOURS | N, P, MA | X   | X              | X            | *                                   | *                 | X                | X         |
|       |                 | C        | X   |                |              | X                                   | X                 | X                | X         |
| 2     | Within 24 HOURS | N, P, MA | X   | X              |              |                                     |                   | X                |           |
|       |                 | C        |   |                |              | X                                   |                   | X                |           |

Communicate

Table 1–Event Communication X Event Classification

\* For MA events that impact the community, it is necessary to communicate with the Corporate Sustainability area.

In addition to Table 1, here are some premises:

a) Health and Occupational Safety Events:

- **N1** Events, the owner of the area where the event took place must contact the Crisis and Emergency Communications Team for strategic alignment and support.
- Any occupational fatality in a controlled area must also be communicated to the Department of Directors by the VP who owns the event, immediately;
- Events **N1** and **N2** must be communicated by the event owner to the email [SSMA.Corp@saas.vale.com](mailto:SSMA.Corp@saas.vale.com) ;
- If the VP of the “event owner” area is not the same as the victim’s VP in the company’s formal organizational structure, both must be notified;
- Any injury must be reported to local medical services immediately upon identification. In the event of events involving fatalities in a controlled or monitored area, reporting of the event must also follow the protocol set out in PNR-0000261 - Crisis Communication Manual.

b) Environmental Events:

- Environmental events described in Table 1 and listed below must be reported by the event owner or local environmental area via email to [SSMA.Corp@saas.vale.com](mailto:SSMA.Corp@saas.vale.com) ;
- MA3 events must be communicated internally within 24 hours.
- MA4 and MA5 events that require notification to external bodies or involve media/social networks or government authorities, investors, customers, social groups and unions must be communicated internally within 24 hours.

**Note:** The local Environmental area must assess and define the need for external communication to the environmental agency and/or other relevant agencies, considering criteria, deadlines and forms established in federal, state and municipal laws and regulations and/or environmental conditions relevant to each unit. It is recommended that the Environmental Department and/or the Global Licensing Department be involved in preparing the external notification.

c) Process Safety Events:

- Events P1 and P2 must be communicated by the event owner to the email [SSMA.Corp@saas.vale.com](mailto:SSMA.Corp@saas.vale.com) , to the email [gestaoativos@vale.com](mailto:gestaoativos@vale.com) and to the email [cpia.ferrosos@vale.com](mailto:cpia.ferrosos@vale.com) .

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- P1 and P2 events involving geotechnics must be communicated by the event owner to the email [SSMA.Corp@saas.vale.com](mailto:SSMA.Corp@saas.vale.com) , to the email [gestaoativos@vale.com](mailto:gestaoativos@vale.com) , to the email [cpia.ferrosos@vale.com](mailto:cpia.ferrosos@vale.com) and to the email [eventosdeprocesso.geotecnia@vale.com](mailto:eventosdeprocesso.geotecnia@vale.com) .
- d) Community Events:
  - C1 and C2 must be communicated by the event owner to [gestao.social@vale.com](mailto:gestao.social@vale.com) and to the email [SSMA.Corp@saas.vale.com](mailto:SSMA.Corp@saas.vale.com) only for C1 events. C2 events must be communicated only to the Email [gestao.social@vale.com](mailto:gestao.social@vale.com).
- e) All Events:
  - Events involving suppliers must also be communicated to the Procurement area (SSMA Suppliers) by email at [hse.suppliers@vale.com](mailto:hse.suppliers@vale.com) . In case of delay in communicating the event by the supplier, the contract manager must evaluate and address the appropriate penalties according to the contractual clauses.
  - The Event Owner area must inform in the initial communication the activity that was being carried out during the event.
  - Each business unit must establish, in its local procedure, a communication flow to ensure that deadlines for immediate communication are met, in addition to communication flows for other types of events that they deem necessary, including escalation by hierarchical level according to severity and compliance with legal requirements (conditions, agreements, TACs, etc.).
  - Event notifications will be sent via email as per PGS-006686 - HSE Alert Guidelines.

#### 6.1.4 Report Events:

The event reporting step consists of registering and communicating the identified events, considering the first analysis of the circumstances and consequences, aiming to define the initial measures for implementing immediate actions.

All events that follow the premises below must be reported:

- All events that generate injuries or occupational disease in controlled areas and monitored areas,
- All events that cause injuries while commuting in controlled areas.
- All events with social loss occurring in controlled areas and monitored areas;
- All operational process safety events including geotechnical (P events);
- All events caused by third-party companies or the community, which generate actual/potential environmental impact;
- All events caused by Vale or contractors that generate actual/potential environmental impact;
- All events caused by third-party companies or the community, which generate actual/potential environmental impact when affecting Vale;
- Natural events that, when affecting Vale, cause actual/potential environmental impact;
- All events that generate or could have generated injuries to community members (actual or potential severity), regardless of the responsibility or intentionality of the parties involved, and that occur in operations, projects, right-of-way, and other areas under the responsibility or use of the company (e.g. public roads used for Vale's route or path) and as a consequence of activities, products, services and equipment linked to Vale, regardless of the classification of areas (controlled or monitored). Events with no relation to productive activities and areas and those supporting production, such as passenger transportation, cultural centers, among others, do not constitute events with social loss.
- All events with no loss/impact or that generate material loss, but that have the potential to generate losses/impacts to safety, the environment or the community in controlled areas. Note: Including contractor equipment mobilized and dedicated to Vale's service.

**Note:** The same event may result in losses/impacts of different dimensions simultaneously. In this case, the severity classifications will be multiple and must consider all losses/impacts, regardless of their magnitude.

The following report are recommended:

- Events that cause injuries while traveling in monitored areas;
- Natural events that do not cause environmental impact;
- Other events and behavioral observations for organizational learning purposes.

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All events must be registered within **48 hours from the time the event materializes/identifies**. The official system for registering events at Vale is SAP-IM, through the IRIS platform at the link: <https://iris.valeglobal.net/login> , or the IRIS app on your cell phone.

Responsibility for reporting events:

- Events with loss/impact: “event owner” area performs the registration.
- Events with no loss/impact: Any employee can perform the registration.

**IMPORTANT:** In case of questions regarding the event registration, this should be done considering the highest severity among the possible levels within a period of up to 48 consecutive hours from the moment the event materialized. After analysis, the registration may be rectified if necessary.

## 6.2. Analyze Events:

Event analysis is essential to promote a safer environment and to continually improve processes and practices to achieve safe operations and an environment free of injuries, fatalities and environmental impacts.

The main steps are highlighted in the following flow:

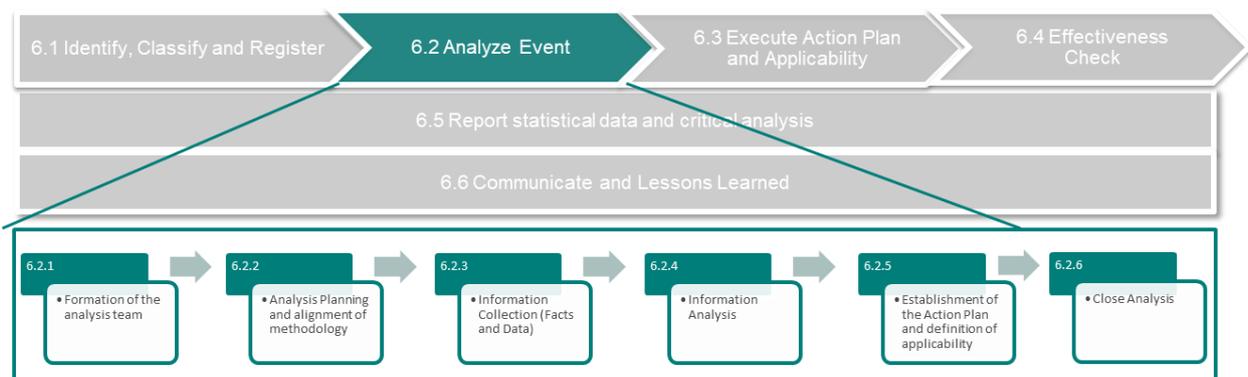


Figure 6 – HSEC and Process Safety Event Management Flow, broken down into the Analyze Event process

Event analysis is determined according to the following table:

| EVENTS  |  |
|---|--|
| LEVEL 1 (N, P, MA, C)<br>LEVEL 2 (N, P, MA)   | COMPLETE STRUCTURED ANALYSIS (MAC)                 |
| LEVEL 2 (C)<br>LEVEL 3 (N “Priority” , N “With Personal Loss”<br>P “With Loss” , MA, C)<br>LEVEL 4 e 5 (N “With Personal Loss”) | SIMPLIFIED ANALYSIS (5 WHYS)                       |
| LEVEL 3 (N “Others”, P “With no Loss”)<br>LEVEL 4 (P, MA, C)<br>LEVEL 5 (N “With NO Personal Loss”, MA, C)                      | RECOMMENDED AS PER LOCAL PROCEDURE, OR SEE AND ACT |

Table 2 – Methodology Analysis X Classification of Events

- For N3 events, events that meet all 3 criteria below simultaneously will be referred to as “Priority” N3:
  - Criterion 01: Event with energy release;
  - Criterion 02: With a person exposed to risk at the time of the event;
  - Criterion 03: Event associated with RAC - Critical Activity Requirements.

The “Priority” N3s must be analyzed using at **least the simplified analysis methodology**.

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**Note:** For all "Priority" N3s, it is mandatory to perform an analysis of the local event history, seeking to identify whether there is a recurrence of similar events (considering the same risk situation). If recurrence is identified, it is necessary to establish actions to treat similar events in a systemic manner, with the aim of preventing the occurrence of new events.

- Other N3 (events that do not meet the 3 criteria simultaneously) must be analyzed according to local procedure or See and Act;
- For N4 events, you must at least follow the simplified analysis methodology (5 Whys).
- All "Environmental Events originating external to Vale" can be analyzed using the 'simplified' methodology (5 Whys), without the need to apply the MAC (Cause Tree Methodology). If the simplified methodology confirms that the causes are not external but rather originate from Vale processes/activities, the events will be uncharacterized as "Environmental Events originating external to Vale" and will follow the normal analysis flow, according to the classification of Environmental events in Table 2;

**Note:** For accounting purposes, these events will not be included in the indicators.

- For **MA3** events that meet one of the following criteria, Environmental 2LD must be part of the analysis team. The criteria are:
  - The event is associated in the LAIA with some Significant Aspect in the Residual;
  - The event is associated with non-compliance with some Condition;
  - The event is associated with some Operational Risk (MUE);
  - Be a recurring event.

**IMPORTANT:** For **MA1**, **MA2** and **MA3** events that meet the above criteria, the 2LD of Environment will participate directly in the closing analysis meetings, together with the Leadership of the area that owns the event. The responsibility for presenting this meeting lies with the area that owns the event.

Here are some BASIC premises for the Analysis step:

- Responsibility for recording analysis data must be defined in local procedures.
- Events that generate multiple losses, which affect more than one dimension, **must be reported in a single Event Analysis report in SAP-IM.**
- Fatality analyses (N1 and C1) must be presented at the Executive Committee (RCE) and Board of Directors meeting once completed.
- For complete structured analysis (MAC) the maximum period is 30 calendar days after the event is registered.
- For simplified analysis (5 Whys) the maximum analysis period is 15 calendar days after the event is registered.
- **Note:** The time will be counted between the date of event registration until the end of the Analysis in SAP IM. For complete structured analysis (MAC), it is recommended that the time be distributed as follows: 15 days until Root Cause Analysis and Contributing Factors and 15 days for structuring the action plan and closing SAP IM, as per Step 6.3 – End Analysis.

**IMPORTANT:** The analysis of some events may take longer than the deadline determined by this regulation. In the case of N, P, MA level 1 and 2 events, the extension of the deadline must be aligned with the appropriate justifications, with the Specialized Services Management by email [SSMA.Corp@saas.vale.com](mailto:SSMA.Corp@saas.vale.com) , for C1 events it must be aligned with the Corporate Sustainability Directorate by email [gestao.social@vale.com](mailto:gestao.social@vale.com) .

Annex 05 – Guide for Event Analysis, must be followed to carry out all necessary steps and obtain more details about the responsibilities and characteristics of the methodologies to be used in event analysis.

The step of closing the analysis consists of ensuring that the previous steps have been completed and, after the analysis is completed, the appropriate documents are attached to SAP-IM, made available for history and consultation. For analyses performed using MAC (Cause Tree Methodology), the document that concludes the process is the report extracted from the tool itself. Editable template available in Annex 06 – Analysis

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Communication Guide. For Simplified Analyses (5 Whys), use the template available in Annex 06 – Analysis Communication Guide

**6.3. Execute Action Plan and Applicability**

The execution of the action plan must be monitored in the routine management of the units, in order to avoid setbacks and allow any deviation to be identified as quickly as possible and dealt with appropriately.

Any need to update action plan data must be executed in SAP-IM as quickly as possible, keeping records always up to date, with the appropriate justifications.

N1 and N2 actions can only be reprogrammed once and must follow the criteria below:

|   |   |   |
|---|---|---|
| <b>Postponement of up to 60 days from the original due date</b>     | <b>Postponement of more than 60 days from the original due date</b>               | <b>Cancellation of the action</b>   |
| <b>Approval requested from VP-1 of the area that owns the event</b> | <b>Approval requested from the Vice President of the area that owns the event</b> | <b>Approval requested from the Vice President of the area that owns the event</b> |

Table 3 – Rescheduling and Cancellation of Actions

In cases of delays in N1 and N2 action plans, automatic notifications will be sent by SAP-IM (**escalation notices**), according to the following criteria:

| ESCALATION NOTICE FOR OVERDUE N1/N2 ACTIONS                    |  |  |  |                      |
|--|--|--|--|----------------------|
| 1-day delay  | 7-day delay  | 15-day delay   | 30-day delay   | 45-day delay         |
| VP-3 of the person responsible for the action will be notified | VP-2 of the person responsible for the action will be notified | VP-1 of the person responsible for the action will be notified | Vice President of the person responsible for the action will be notified | CEO will be notified |

Table 4 – Escalation Notices

**Note:** Other events (other levels) must have their action plans executed properly.

Action plans associated with fatalities must be systematically monitored by the 2LD HSE Department, which must demand the appropriate justifications and approvals from the responsible operations in the event of delay(s) or rescheduling(s).

In the event of fatalities in C events, action plans must be systematically monitored by the Corporate Sustainability Department, which must demand the appropriate justifications and approvals from the responsible operations in the event of delay(s) or rescheduling(s).

Adequate resources to meet the action plans must be directed by responsible leaders and included in the budgetary planning of the areas.

In the annual budget planning of each department, in addition to the funds allocated for enhancements under the classification of health, safety, environment and social management, the execution of event action plans must also be considered.

**6.4. Effectiveness Check:**

This step aims to ensure that the action plan was carried out as planned and that it is effective in achieving its initial objective.

The effectiveness check must be carried out after the completion of the Action Plan by 1LD professionals with the technical capacity to evaluate the actions, and is mandatory for actions in events N1, N2, P1, P2, MA1, MA2, and recommended for C1. For other events, its applicability must be defined in the local procedure.

The 2LD HSE area must carry out independent and sample analyses of the effectiveness checks carried out by 1LD or other effectiveness analyses, on demand.

## 6.5. Report Statistical Data and Perform Critical Analysis

Once an Occupational Safety, Process Safety, Environmental and/or Community event has been registered in the system, the statistical data reporting step begins, which consists of providing visibility of the events that have occurred through analyses conducted using statistical methodologies for all hierarchical levels of the company. Data reporting can be divided into three steps, detailed below:



Figure 6 – Details on the extraction of registered data

### 6.5.1 Event registration in the SAP-IM:

The way to register a report is detailed in topic 6.1.4.

### 6.5.2 Extraction of Registered Data:

Data extraction is done through Connect Data, making it possible to update data daily, reflecting what is in the system. Therefore, it is important to make a complete report with as much detail as possible about the reported event.

### 6.5.3 Disclosure of Results:

For the purposes of closing the indicators, below is the table with the dates of the monthly releases:

| Theme               | Data de Fechamento  | Indicadores gerados                   |
|---------------------|---------------------|---------------------------------------|
| Occupational Safety | 3rd consecutive day | TRIFR, LTIFR, N Events, Analysis Data |
| Environment         | 3rd business day    | MA Events, Analysis Data              |
| Process Safety      | 3rd consecutive day | P Events, Analysis Data               |
| Community           | 3rd business day    | C Events, Analysis Data               |

Table 5 – Details on the monthly closing dates of the registered data

**Note 1:** For a better understanding of the indicators discussed here, see PNR-0000032: Routine Management;

**Note 2:** It is important to remember that the owner of the event is not always the same area that records the injury for indicator purposes.

It is important to note that these results are periodically disclosed in forums such as Coordination Meetings, Performance Meetings, FMDS Routines and others using tools such as Stratws, Executive Summary (monthly), Performance Report (quarterly), Weekly HSE Report, External Reports (ICMM, IBRAM, WDI, ESG, Integrated Report, etc.).

## 6.6. Communicate Lessons Learned from Events:

Effective event communication is critical to minimizing damage, protecting the company's reputation, and restoring trust with stakeholders, including customers, partners, and employees.

communication process must be carried out in accordance with PGS-0006686: HSE Alert Guidelines.

## 7. ANNEXES

- Annex 01 – Guide for Classifying Health and Safety Events
- Annex 02 – Guide for Classifying Environmental Events
- Annex 03 – Guide for Classifying Process Safety Events

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- Annex 04 – Guide for Classifying Social Events
- Annex 05 – Guide to Event Analysis
- Annex 06 – Guide for Communication of the Analysis
- Annex 07 - Falling Object Severity Potential Calculator

## 8. GENERAL PROVISIONS

Questions, comments and suggestions related to this document should be sent to:

- HSE Specialized Services Management - e-mail: [SSMA.Corp@saas.vale.com](mailto:SSMA.Corp@saas.vale.com)
- Corporate Sustainability Department - e-mail: [gestao.social@vale.com](mailto:gestao.social@vale.com)