STANDARDS

THE SAFETY ESSENTIAL REQUIREMENTS

eramet

TARGET ZERO ACCIDENT

An accident is never due to fate.
All accidents are avoidable.

With these two convictions in mind and since its creation, we support a common approach to rigorously secure on the Eramet group scale our “critical activities”: defined as recurring high risk activities, they expose our workers, internal or contracted, to deadly dangers when not properly under control.

At the heart of this initiative are the advice of operational managers and safety specialists who together, shared and pooled their knowledge and experience of real workshop life.

They identified the common critical activities for the Group and formalised the “Essential Requirements” for each of them. The strict compliance to these requirements by each and every one of us is crucial to control the related high potential risks.

Today, this work has been put together under these Guidelines, the foundation for our safety culture. They must be communicated, shared, accepted, and above all, complied to, by everyone across the entire Group.

I would like to pay tribute to this work. It is a bold act in pursuit of the only acceptable target for safety: ZERO accidents.

From now on, we are committed to working tirelessly so that the implementation and full compliance to these guidelines becomes a reflex for us all, rooted in our corporate culture.

Christel Bories
Chairman and CEO

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INTRODUCTION

Each day we are all faced with risks associated with the activities we do. These may be our own activities (DIY at home, sport with friends, or driving to a holiday destination), or those in our professional life.

As an employer, Eramet undertakes to ensure the safety of its employees and all those working at its sites. Aware of the specific risks associated with our operations, and in order to understand them properly, we classify them into 3 main groups:

- **technological risks:** associated with our processes and industrial plants, these may have disastrous consequences, but are fortunately the least common,
- **risks associated with not standardized activities:** associated with the most "mundane" activities in our plants (climbing the stairs, using a hammer, picking something up, etc.), these are the most likely causes of accidents, but their consequences are fortunately normally very minor,
- **risks associated with critical activities:** some recurrent professional activities of the Group expose workers to potentially fatal hazards, so it is vital to control these operations completely in order to avoid accidents and injuries.

In order to eliminate the most serious injuries (over 90% of serious accidents within the Group involve critical operations), Eramet is committed to a preventative process, deploying its **Essential Safety Requirements.** These requirements cover the critical operations carried out across the Group. For each operation, they provide the prevention principles as a series of obligatory conditions, which are a series of Essential Requirements defining the minimum precautions to be taken, independent of regulatory obligations.

This document forms the Eramet Group's Reference Base for these Essential Safety Requirements. Everyone must learn to respect these automatically! For each critical activity, the Essential Requirements are arranged in two formats:

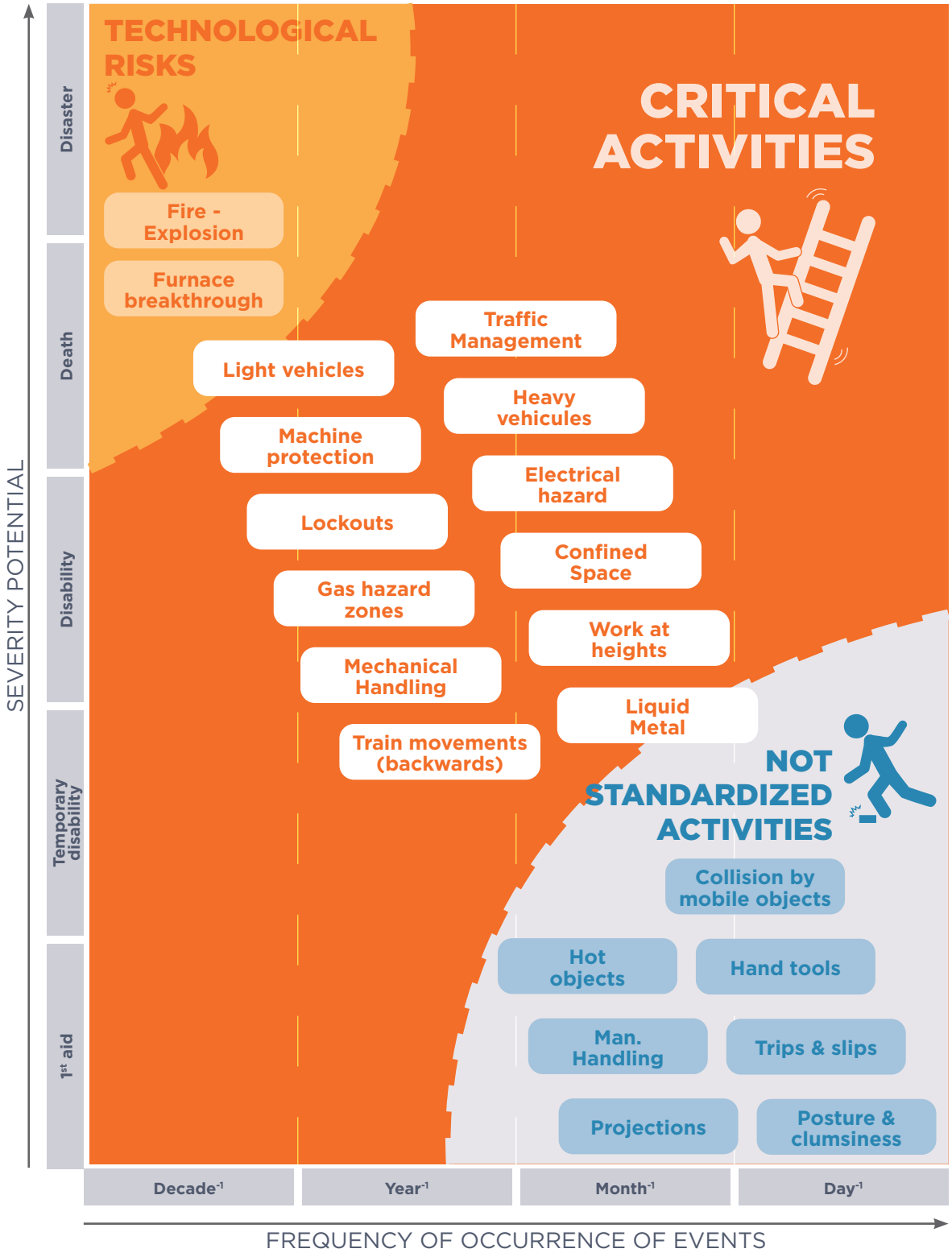
1) The strict requirements themselves, as they must be implemented by the management and as they will be audited. This full version is the working tool for managers and all safety professionals within the Group.

2) Life-Saving Behaviours: A part of the Essential Requirements that everyone needs to know and master on our Group's sites. They are to be shared with employees and contractors during Group and local training sessions, communication campaigns, etc.

Day-to-day, they will be rolled out and monitored through line management (from the site director to the supervisor), but each person must know and apply them, without having to have a thorough expertise in safety.

The Essential Safety Requirements protect our lives, let's put them into practice!

RISKS SCHEMA



GLOSSARY

CRITICAL LIFTING
A lifting operation is critical if it:
- requires more than one item of handling equipment, working together,
- requires the load to pass above critical installations or equipment (piping rack, electrical cable, staff premises, etc.),
- requires the lifting equipment to operate at 95% of its WLL.

LIFTING INSTRUCTIONS
Set of site documents which explain the rules for lifting. They vary in the level of detail, covering individual handling, a group of handling operations (for one part, one item of lifting equipment, one zone and so on).

LOOKOUT
Person assigned exclusively to monitor a risky operation. In the event of an injury, the lookout must sound the alarm, then, depending on the available skills and resources, provide first aid to the victim(s).

MEDICAL DEPARTMENT
Group of medical staff (doctor, occupational nurse, etc.) undertaking the medical care of employees on behalf of the employer.

N+1
Direct line manager for a person or team.

OPERATING POINT OF A MACHINE
The operating point is the place on the machine where the work is performed. It must be protected as far as possible.

OPERATOR
Person who has the responsibility and authority to operate (start, drive, stop) in a given area.

RAIL SHUNTING MASTER
Person on the ground in charge of switching rail path or guiding the train driver during maneuvers.

REGISTER OF RISK
The register of risks contains all the physical injury risks for a given site. It is merged with the Occupational Risk Assessment or Single Document in France.

RISK ANALYSIS
Formal risk assessment process for a particular operation, enabling suggestions and choice of risk control measures to be applied to make the operation safe.

SECTOR MANAGER
Person responsible for the geographical area where the activities take place.

WORK AUTHORISATION
Written document which certifies that the operator of a plant has given permission to a worker (internal or external) to work on this plant. Not to be confused with the work permit, of which the authorisation is only one part.

WORK PERMIT
Works planning and monitoring process, punctuated by:
- validation of the risk assessment plan for the work, provided by the order originator based on the formal risk analysis (confirmed by the work permit signature),
- the work authorisation, validated by the operator before the task, and renewed for each shift change,
- work completion, allowing the plant to return to service,
- final acceptance of the works, validated by the order originator.

*The words of the glossary are recognizable via an * in the following pages.*

LIFE-SAVING BEHAVIOURS

- **I only work** on activities that I am trained and qualified for.
- **I am fit** for work and **never work** under the influence of alcohol or drugs.
- **I use** the full set of PPE which is required for my task.
- **I ensure** that there is a risk analysis before I perform a critical activity.
- **I never start** an activity without completing my Take 5.
- **I only enter** hazard zones if I'm authorized to do so.
- **I stop work or intervene** if I observe a life-threatening condition or act.
- In case of injury **I seek** immediate help and **report** to my manager as soon as I can.
- **I never alter or modify** any safety device (guards, emergency stops, etc.).
- **I do not use** a cell phone while driving or doing any other risky activity.
- **I never work** on critical activities in adverse weather conditions (high wind, heavy rains, etc.)

TRAFFIC MANAGEMENT

This requirement applies to the management of movements in factories and at mines, away from public highways.

	Topic	Requirement
EMPLOYEES	**Training and competence**	Drivers must hold a **driving permit** issued by the establishment manager (or by the external company for a contractor) based on: • a report from the medical department* of fitness to drive, • **specific practical training** for authorised vehicles, in accordance with local regulations.
	Induction	All employees and contractors are informed of the site's traffic rules. Visitors are under the responsibility of their hosts when they are on site.
	Trained personnel register	Authorisations are verified by the N+1*, through **authorisation monitoring** (fitness, authorisation & training) updated at least once a year and available in the workshops.
MANAGEMENT	**Work permit**	
	Register of risk	At least once a year, the team or sector manager* updates the risks register* by evaluating all the risks relating to movement situations (pedestrians, vehicles, bicycles) within his/her zone, in order to drive a safety improvement. This results in a traffic plan, updated regularly (at least once a year). Any change in activity leads to a revision of the traffic risks analysis and if necessary of the rules and traffic plan. The traffic plan is displayed at the main entrances to the site and the workshops, and a paper copy handed to external staff and discussed with them.
	Risk factors	The traffic risk analysis* identifies: • traffic routes for each type of vehicle, for pedestrians, inside and outside the buildings, • specific zones such as pedestrian routes, crossings, emergency exits, blind corners, • zones with high levels of pedestrian/vehicle interaction.
	Prevention methods	Risk prevention relates to: • separation of pedestrian/vehicle traffic flows by physical protective barriers in zones with dense traffic, restricted areas or manoeuvring zones, • zones prohibited to vehicles or pedestrians, parking and authorised stopping zones, • speed limit zones, • at traffic crossing zones, a device (mirror) is installed to help visibility at blind corners. If the traffic crossing presents a hazard for pedestrians and vehicles, a device to stop pedestrians is installed (a gate that opens into the path of the pedestrian traffic obliging one to stop), • marking and identification of routes, • signage, • lighting suitable for night times or climate conditions, especially interaction zones, • parking of light vehicles in the direction of travel.
	Implementation conditions	Pedestrians wear garments with reflective devices (including night staff), stay within the lanes assigned to them, and do not cross without explicit permission (hand signal) from the driver.
	Inspections and audits	The sector manager regularly checks compliance with the traffic plan, to ensure it is properly respected.
EQUIPMENT	**Equipment**	Roads, paths, displays and lighting are kept clean and in good condition. They are repaired or replaced when they are damaged. Any malfunction of a safety device on vehicles leads to the vehicle being stopped at once.
	Pre-usage inspections	When arriving at his/her station, the driver verifies the condition of the vehicle and especially of safety devices (rotating beacon, klaxon, reversing alarm, safety belt, indicator light, state of tyres).
	Certification of equipment	
	Equipment register	

*The words of the glossary are recognizable via an * in the following pages.*

LIFE-SAVING BEHAVIOURS

1. **I do not enter** an area with vehicle movement unless authorized to do so.

2. **I make sure** that I have driver's approval before approaching a vehicle.

3. **I do not allow** myself to be distracted and **seek** a safe position when required to use the phone or radio.

LIGHT VEHICLES

This Essential Requirement covers vehicles in the fleets belonging to the sites, to Co-contractor companies or to visitors on the sites, leased vehicles and company cars used by the staff.

	Topic	Requirement
EMPLOYEES	**Training and competence**	Drivers hold an official driving licence. They are checked every year for validity. Drivers receive training on: • the traffic route and rules for driving on the site concerned, • the hazards which they may encounter when driving within the company site, • the safety check to be performed before handing over any vehicle, as well as the means for reporting any problems, for instance by filling in the vehicle's logbook, • some situations of particular risk (foreign country, high annual mileage, road conditions, etc.) with additional, targeted training sessions (defensive driving, all-terrain driving, etc.).
	Induction	
	Trained personnel register	The list of authorised drivers is available and up-to-date.
MANAGEMENT	**Work permit**	
	Register of risk	At least once a year, the team or sector manager* updates the risks register* by evaluating all the risks relating to movement situations (pedestrians, vehicles, bicycles) within his/her zone, in order to drive a safety improvement. The traffic plan is displayed at the main entrances to the site (outside) and the workshops, and a paper copy handed to external staff and discussed with them.
	Risk factors	The risks associated with driving light vehicles are linked to: • the state of the vehicle and its compatibility with the routes/roads used, • traffic conditions (road quality, other traffic), • weather conditions, • driver distractions, • use of medication, alcohol or drugs, • driver fatigue.
	Prevention methods	The site has implemented and applies rules regarding: • compliance of the vehicles provided, through general conditions for their purchase or lease, • prohibition on using the telephone, even with a hands-free kit, and on smoking, drinking or eating at the wheel, • prohibition on carrying alcohol or drugs in the vehicle. Local internal regulations include this condition, • the provisions to be taken in the event of exceptional weather conditions, and where appropriate, application of those of the Group, • the specific provisions relating to long journeys and/or accumulated travel for work, and as appropriate, application of those of the Group, • managing vehicle keys, which at the very least must be removed from the ignition after every use, • completion of a log book for vehicles not reserved for use by a single driver.
	Implementation conditions	The driver does not start until all his/her passengers are wearing seatbelts, whatever their management status. The driver must not answer the phone while driving. He/she stops in a safe place before calling back the contact. Manoeuvres involving towing operations are the subject of a specific risk analysis*, and are only permitted with the proper equipment for the task. If there is a problem, I always report it for handling according to the procedures at my site.
	Inspections and audits	The sector manager audits management of his/her vehicles regularly. Vehicles are stopped if any hazardous situation is identified, until corrective measures are implemented.
EQUIPMENT	**Equipment**	Vehicles comply with the relevant standards, and in particular, must have a working tachometer, tyres suitable for the driving conditions (snow, mud, etc.) and the necessary equipment in the event of a puncture. Vehicles have basic safety equipment (high-vis jacket, triangle). The vehicles also carry a first-aid kit and fire extinguisher, in case emergency assistance is not available quickly on the road. Vehicles operating in specific environments (mines for instance) may carry a rotating beacon, flag, GPS, mobile phone or VHF radio.
	Pre-usage inspections	A list of visual safety checks must be provided, to run through before each use of a vehicle. It specifies 2 categories of problem, those requiring the vehicle to stop immediately, and those requiring corrective action within a specific time.
	Certification of equipment	The written, tracked maintenance plan ensures that vehicles in service are kept in good condition. The same applies to leased vehicles. The log book ensures that important maintenance operations are checked.
	Equipment register	A list of vehicles in service is available and up-to-date.

*The words of the glossary are recognizable via an * in the following pages.*

LIFE-SAVING BEHAVIOURS

1. **I do not operate** a vehicle unless trained and authorized and have the permit on my possession.

2. **I only use** my vehicle if it is fit for use.

3. **I always respect** speed limits, stop signs and traffic lights.

4. **I use** my seatbelt (front and back seats) and **check** that all passengers are secured before I start.

HEAVY VEHICLES

Heavy vehicles are motor vehicles with at least four wheels, or tracked, used for handling or transport of goods, public works, lifting, mining, such as forklift trucks, bucket loader, lorries, cranes, etc.

	Topic	Requirement
EMPLOYEES	**Training and competence**	Workers must have a **driving permit** issued by the plant manager, based on: • **medical fitness** examination within the previous year, reviewed by the medical department*, • a **safe driver certificate,** compliant with local regulations, including practical examination on the vehicle concerned (truck, lorry, bull, mechanical shovel, etc.)
	Induction	All staff are trained in the rules for approaching site plant vehicles.
	Trained personnel register	Authorisations are verified by the N+1*, through the **authorisation monitoring register** (fitness, authorisation & training) updated at least once a year and available in the workshops.
MANAGEMENT	**Work permit**	
	Register of risk	At least once a year, the team or sector manager* updates the risks register* by evaluating all the risks relating to movement situations (pedestrians, vehicles, bicycles) within his/her zone, in order to drive a safety improvement.
	Risk factors	Risks associated with heavy vehicles are assessed as a function of: • the size of the vehicle with respect to the traffic routes, • the quality and state of the ground surface, • the operations to be performed (carrying loads, reversing, etc.), • safety distances to be respected for vehicles, • visibility from the driver's position.
	Prevention methods	The prevention facilities relate to: • restricted access, marking of manoeuvring zones, • rules for approaching vehicles for other vehicles or pedestrians, • speed limits, • management of ignition keys.
	Implementation conditions	Drivers access the vehicle using three support points. A passenger is only permitted in a vehicle if there is a seat available, fitted with a safety belt. Working zones are marked, especially zones where the vehicle is at risk of tilting. No-one may enter the manoeuvring zone without express permission (hand signal) from the driver. A vehicle may only be towed using properly designed equipment. When moving outside their normal area of operation (especially on the public road) vehicles must be in convoy with a pilot car. Loads are balanced and attached firmly to the vehicle before handling.
	Inspections and audits	The sector manager audits management of his/her vehicles regularly. Work is stopped if any hazardous situation is identified, until corrective measures are implemented.
EQUIPMENT	**Equipment**	Vehicles are fitted with: • seat belts or harnesses, • one or more checked fire extinguishers, • rotating beacons, lights, klaxons and reversing alarms. Mine vehicles are fitted with communication facilities, dumpers with GPS and a speed recorder.
	Pre-usage inspections	**Before first using a vehicle,** drivers check its condition according to the protocol concerned for that vehicle.
	Certification of equipment	Heavy vehicles are **certified as compliant within the previous year** by an accredited testing agency, or failing that by an internal checking system.
	Equipment register	The **heavy vehicles monitoring register** is used to check certification of the vehicles in accordance with the relevant standards.

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LIFE-SAVING BEHAVIOURS

1. **I do not operate** a heavy vehicle unless trained and authorized and have the permit on my possession.
2. **I only use** my vehicle if it is fit for use.
3. **I ensure** that the load and material I am moving is secured/lashed and is balanced correctly.
4. **I use** my seatbelt correctly and **check** that all passengers are secured before I start.
5. **I always respect** speed limits, stop signs and traffic lights.
6. **I make sure** that my vehicle is left parked in a safe position (wheel chocks, berms, etc.).

MACHINE PROTECTION

This requirement explains expectations for operation of machines (lathes, centrifuges, filters, presses, conveyor belts, conveyors, etc.) at Eramet sites.

	Topic	Requirement
EMPLOYEES	**Training and competence**	Employees responsible for maintenance, via lockout/release of machines or equipment, are trained and authorised by the site director (see EE lockout).
	Induction	Users of machines and equipment must be: • trained in their specific use: inherent hazards (moving part), existing collective or personal protection equipment, working procedure to follow, inspection prior to use, verification of protective devices in working order, identification and report of malfunctions, • and authorised by the machine operating manager.
	Trained personnel register	Authorisations are verified by the N+1*, through **authorisation monitoring** (authorisation, training) updated at least once a year and available in the workshops.
MANAGEMENT	**Work permit**	The permit is required for any maintenance operation (lockout/release), test, settings or maintenance that requires one of the protection systems to be disabled.
	Register of risk	For every machine or piece of equipment, the risk assessment must: • identify: sequences of operations (press, cutting, shearing, piercing), mechanical movements (transverse, rotation, etc.), electrical and thermal risks associated with noise, vibration, etc., and • specify the risk reduction measures to be implemented. The risk assessment must also state the malfunctions that may occur (tool breaking, flying parts, ruptured hose, etc.) and their potential consequences for the operator*. The maintenance register for the machine/equipment must list such incidents. The risk assessment must identify potential human-machine or equipment interference zones, and as far as possible implementation of technical (protection, barrier), organisational (exclusion zones) and human (training, working instructions, PPE) prevention measures to prevent or reduce contact. The risk assessment must provide an accurate list of the operations (maintenance, control, test and regulation) for which control devices may be disabled.
	Risk factors	
	Prevention methods	• **Protection:** fixed, mobile, adjustable. • **Device:** emergency stop, locking. • **Sensor:** sensitive to presence or pressure. • **Control:** two-handed, pedal. • **Tools:** holding, part guide. • **Pre-usage inspection.** • **Employee training.** • **Instructions for use,** operating method, station information sheet.
	Implementation conditions	Operating methods are available for each machine or item of equipment. They specify • the hazards of each machine/piece of equipment, • major malfunctions which have occurred, • prevention measures to be observed in order to minimise risks. If applicable, a station information sheet summarising the main items of information is available at the machine or piece of equipment.
	Inspections and audits	• An inspection system ensures that protection devices for machines and equipment are in place, in good condition and working normally. • Any missing protection device is replaced at once. • Any damaged protection device is replaced immediately. • An inspection system ensures that, after a cleaning or maintenance operation, protection devices have been replaced properly and are working. • The management ensures that inspections are carried out correctly before start-up. • Management ensures that a machine or device presenting a risk to the operator's safety is immediately taken out of service for repair.
EQUIPMENT	**Equipment**	Machines and equipment comply with the relevant standards, Safety devices or components (casings, presence sensors, emergency stops, etc.) are identified and maintained as part of a preventive maintenance plan. Interventions and malfunctions are logged. Any planned modification to a machine or piece of equipment must first be the subject of a risk assessment which will show that there is no change made to safety components and devices.
	Pre-usage inspections	The user checks that the machine and equipment is in good condition before use. In particular, the user ensures that protection devices are operational.
	Certification of equipment	Machines and equipment are certified according to the relevant standards.
	Equipment register	The site keeps an up-to-date list of machines and equipment in service, as well as the certification inspection reports and maintenance logs.

*The words of the glossary are recognizable via an * in the following pages.*

LIFE-SAVING BEHAVIOURS

1. After intervention, **I always reinstall** guards, barriers and barricades which are safe, solid and protect the moving parts of the equipment prior to return to service.

2. **I do not work** on a live machine with moving parts, with loose clothing, jewelry, long hair, beard.

3. **I do not put** my hands close to moving parts of a machine unless specifically authorized by the safety operating procedure or risk analysis.

ELECTRICAL HAZARD

An electrical hazard includes the risk of direct or indirect contact, with a bare, live part, the risk of short-circuit and that of electrical arcing. Consequences are electric shock, electrocution, fire, explosion, etc. The term 'electrical installations' covers all the electrical equipment implemented for production, conversion, distribution or use of electrical power.

	Topic	Requirement
EMPLOYEES	**Training and competence**	Employees must hold: • valid electrical certification relating to the voltage range and the tasks to be carried out. Only employees providing evidence of their technical competence (diplomas, professional certificates, recognition of their experience, etc.) may be certified to carry out electrical work, • an annual medical fitness examination carried out according to their certification.
	Induction	Certification alone does not authorise its holder on his/her own initiative to carry out operations for which he/she is qualified. He/she must also be appointed to carry out these operations by an employer.
	Trained personnel register	Authorisations are verified by the N+1*, through **authorisation monitoring** (fitness, authorisation & training) updated at least once a year and available in the workshops.
MANAGEMENT	**Work permit**	An official work permit* must be issued, according to the nature of the operations. For electrical work, the permit must be issued by someone trained in electrical safety.
	Register of risk	At least once a year, the sector manager* updates the **risks register*** by evaluating all the electrical hazard activities within his/her zone, in order to drive a safety improvement.
	Risk factors	
	Prevention methods	• Give preference to non-live operations (installation locked out). • Limit operations in the vicinity of live equipment, giving preference to protection measures using physical obstacles or isolation and wearing of PPE. • Prepare and organise operations (with work permit). • Maintain installations in accordance with a maintenance and verification programme. • Drawings and single-wire diagrams of electrical installations are provided and kept updated.
	Implementation conditions	It is mandatory for employees to use insulated or insulating hand tools, corresponding to the voltage range. Every electrician carries his/her own working/isolating equipment (insulating mat, gloves, over-gloves, hard hat with visor, covering, etc.). Zero-voltage checks are made as late as possible before the operation. Zero-voltage checks, measurement, opening and closing of the separation device must be made wearing isolating gloves, over-gloves, safety helmet with face screen and full-covering clothes. Employees must ensure they are not carrying metal or conducting objects on themselves (jewellery, keyrings, etc.) Employees must wear suitable PPE, specific to electric hazards according to the voltage range, normally indicated by a classification.
	Inspections and audits	Site managers regularly audit operations. Work is stopped if any hazardous situation is identified, until corrective measures are implemented.
EQUIPMENT	**Equipment**	Electrical circuits and switchgear are identified with durable labelling. Live parts must be made inaccessible for unauthorised staff (barriers, grilles, restricted access to premises, etc.). Premises containing live parts must be fitted with independent emergency lighting. Electrical premises must be identified by signage, access doors locked, and only authorised staff allowed to enter. Such premises are fitted with a system so that they can be opened freely from inside.
	Pre-usage inspections	Before carrying out a job, workers check the condition of their PPE, the tools used, the zero-voltage checks and the multimeters, according to the site protocol.
	Certification of equipment	Equipment is subject to design rules according to local regulations. Equipment and electrical devices must be ATEX-certified if used in an explosive atmosphere.
	Equipment register	

*The words of the glossary are recognizable via an * in the following pages.*

LIFE-SAVING BEHAVIOURS

1. Before starting work on electrical equipment **I ensure** that the equipment is disconnected from all power sources.

2. Before starting work on electrical equipment **I ensure** it is voltage-free and tested for dead.

3. **I always lock** electrical cabinet and **never open** it without authorization.

LOCKOUTS

Lockout applies to any work on an installation/item of equipment which could release energy (movement, electricity, pressure, etc.).

	Topic	Requirement
EMPLOYEES	**Training and competence**	Lockout managers must have authorisation issued by the site director based on **training** in lockout, in accordance with local regulations and covering the site lockout procedure and the methods for lockout on equipment to be locked. One refresher is carried out every year, at least. The N+1* defines the lockouts which each person responsible is capable of doing.
	Induction	All staff concerned are trained in the site lockout procedures and in recognising equipment requiring lockout.
	Trained personnel register	Authorisations are verified by the N+1, through the **authorisation monitoring register** (fitness, authorisation & training) updated at least once a year and available in the workshops.
MANAGEMENT	**Work permit**	Before any operation (including sub-contractors) the person responsible carries out a **risk analysis*** to determine the systems to be locked out and issues a LOTO (lock out, tag out) permit.
	Register of risk	The risk analysis identifies: • the energy sources to be locked out, • the cut-off points and the equipment used to lock these points (visible break switch, padlockable valves, solid plugs, wedges, etc.). • the method to use to ensure energy is properly dissipated, • tests to be performed to ensure there is no residual energy present, • marking and monitoring to be set up during the lockout phase, especially when the teams change over.
	Risk factors	Diagnostic, adjustment and test phases needing work on an unlocked machine are made safe with additional actions from a specific risk analysis carried out with all the operators*.
	Prevention methods	
	Implementation conditions	Every break point is locked and if possible marked by the lockout manager. Every key is locked with the lockout manager's padlock, then by the named padlock for each operator (in a locked box on the visible break switch, etc.). The lockout points must be identified on the LOTO permit, a duplicate copy of which is provided at the site. The link between the breakpoints, lockout and associated work must be easily demonstrated by the lockout and marking documentation chain. The lockout manager and his witness sign a LOTO permit after checking there is no residual energy present. The workers involved (internal, external companies, etc.) attach and remove their personal padlocks every time they arrive/leave the site. Removal of lockout only takes place if authorised by all those responsible for the work concerned. A strict procedure applies to cases of force majeure requiring a padlock to be "broken".
	Inspections and audits	The site is regularly audited by the project/site manager, to ensure it proceeds in accordance with the risk analysis. Work is stopped if any hazardous situation is identified, until corrective measures are implemented.
EQUIPMENT	**Equipment**	Lockout and signage equipment (padlocks, chains, valve-locks, locked box, etc.) are: • specific to this sole function, in the absence of other equipment, and recognisable, • standardised (shape, colour, size, etc.) and compliant with relevant rules, • tolerant of the environment where they are used (labelling and signage resistant to bad weather), • designed to be removed without the need for excessive force or cutting equipment, • available for lockout managers. Operators' padlocks are named, with their own unique key. ***Exceptions: wood, stays, pins for wedging without specific equipment, etc.***
	Pre-usage inspections	
	Certification of equipment	
	Equipment register	

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LIFE-SAVING BEHAVIOURS

1. **I do not carry out** the job if the equipment is not locked out by a competent person.

2. Before starting work, **I add** my own named padlock on the isolating points (visible break switch, locked box, etc.).

3. **I do not allow** anyone to attach or remove a padlock for me, and **I never attach/ remove** a padlock for a colleague.

CONFINED SPACES

Confined spaces are totally or partly closed spaces, not designed as a place to work, not permanently occupied by people, or intended to be so, and presenting at least one of these hazards:

- because of a lack of natural ventilation, the atmosphere may present a risk to the health or safety of people entering them,
- with restricted access, removal of an injured person could be made very difficult.

Examples: pits, tanks, crawl spaces, etc.

	Topic	Requirement
EMPLOYEES	**Training and competence**	Workers must have a **permit to work in confined spaces** issued by the site director or his/her delegate, based on: • **medical fitness** certificate issued within the previous year by the medical department*, • **specific training** for work in confined spaces, compliant with local regulations and covering use and checking of the equipment used (gas detectors, masks, rescue equipment, etc.). One refresher is carried out every year, at least.
	Induction	
	Trained personnel register	Authorisations are verified through **authorisation monitoring** (capacity, authorisation & training) kept up to date by the N+1*, and available in the workshops.
MANAGEMENT	**Work permit**	Before any work takes place, the person responsible for the task uses a **work permit*** to list the hazards and specify the safety instructions for the task.
	Register of risk	The team or sector manager* updates the **list of confined spaces in the sector** each year, and the corresponding poster.
	Risk factors	Risks associated with confined spaces are assessed as a function of: • the nature and duration of the tasks to be performed (welding, fitting, cleaning, etc.) • hazardous fluids or gases which may be present or generated by the work, • the strength of the lockouts, • the problems of access and of evacuation of any injured or poisoned people.
	Prevention methods	The prevention facilities relate to: • lockout of all fluid intakes (gases, liquids) into the confined space, • implementation of forced ventilation and purging resources for the space, • identification of suitable PPE, • definition of access facilities, • preparation of emergency response facilities (evaluation, care of a victim of poisoning).
	Implementation conditions	Before issuing a permit to enter, the operator* confirms acceptance of fluid and energy lockouts. Before entering the confined space, the worker analyses the atmosphere with a gas detector and enters this measurement on the entry authorisation: • all the time workers are in the confined space, the atmosphere is continually measured, • a specific lookout* is posted outside throughout the work who may initiate emergency procedures, • emergency response procedures are regularly tested.
	Inspections and audits	The site is regularly audited by the project/site manager, to ensure it proceeds in accordance with the accident prevention plan. Work is stopped if any hazardous situation is identified, until corrective measures are implemented.
EQUIPMENT	**Equipment**	Equipment complies with the relevant standards and good industry practice.
	Pre-usage inspections	**Before working in confined spaces, the workers check** the status of the safety equipment (gas detectors, masks, harnesses, etc.) according to the protocol specified for the site.
	Certification of equipment	Equipment used (gas detectors, masks, harnesses, etc.) is **certified within the previous twelve months** by an accredited testing agency, or failing that by an internal testing system.
	Equipment register	The **Equipment monitoring register** for working in confined spaces is used to check certification of the equipment in accordance with the relevant standards.

*The words of the glossary are recognizable via an * in the following pages.*

LIFE-SAVING BEHAVIOURS

1. **I enter** the confined space only when appropriate rescue resources (people and equipment), tested and functional communication means are available.

2. **I do not enter** a confined space which is not energy isolated, not purged or not ventilated.

3. **I do not enter** a confined space without the entry permit given by a competent person that guarantees all conditions are met for a safe entry.

GAZ HAZARD ZONES

A zone with gas hazard is a space (working zone or not) where the risk of gas accumulation has been identified (conduit passage, presence of gas bottles, gas fire extinguishers, etc.) which could lead to formation of an atmosphere where there is a temporary or permanent hazard (gas hazard) despite existing ventilation.

	Topic	Requirement
EMPLOYEES	**Training and competence**	Workers in a gas hazard zone must have **specific training** in working in a gas hazard zone, covering use and verification of equipment used (gas detectors, mask, rescue equipment, etc.). Some personal health factors may lead to unfitness for working in a gas hazard zone (breathing problems, asthma, pregnancy, etc.). Employees must report this to the occupational health service, which will notify managers about the fitness restrictions.
	Induction	All employees and visitors must be kept regularly up to date about gas hazard zones, covering the nature and level of hazard for the gases that may be present, as well as the response to make in the event of an alarm.
	Trained personnel register	A list of fitness issues produced by the medical department* is available from managers.
MANAGEMENT	**Work permit**	
	Register of risk	The team or sector manager* updates the gas hazard zones each year and the prevention measures applicable in each one.
	Risk factors	Risks associated with toxic gases are assessed as a function of: • the nature of the gas or gases that may be present, and their effects on the human body, • scenarios leading to the dispersal of toxic gases (fugitive leaks, clear ruptures, etc.), • ambient measurements made.
	Prevention methods	The prevention facilities relate to: • identification, marking and display or safety and access instructions for gas hazard zones, • installation of fixed detectors when possible, • staff wearing portable detectors, • access control (via a register) in the most critical zones.
	Implementation conditions	Emergency response procedures in case of poisoning are regularly tested.
	Inspections and audits	The site is regularly audited by the project/site manager, to ensure it proceeds in accordance with the accident prevention plan. Work is stopped if any hazardous situation is identified, until corrective measures are implemented.
EQUIPMENT	**Equipment**	Equipment complies with the relevant standards and good industry practice.
	Pre-usage inspections	**Before any operation, the workers check** the status of the safety equipment (gas detectors, masks, etc.) according to the protocol specified for the site.
	Certification of equipment	The equipment used (gas detectors, masks, etc.) is **certified within the previous twelve months** by an accredited testing agency, or failing that by an internal testing system.
	Equipment register	The **equipment monitoring register** is used to check certification of the equipment in accordance with the relevant standards.

*The words of the glossary are recognizable via an * in the following pages.*

LIFE-SAVING BEHAVIOURS

1. **I enter** gas hazard zones only if I have received the proper training on the hazards and the rescue procedures.

2. **I use** gas detector that is tested and calibrated and **report** any damage or faults to supervisor to arrange repairs.

3. In case of a high-level gas alarm sounding, **I stop work** and immediately **evacuate** the area.

WORK AT HEIGHTS

Work carried out above a void in conditions that could lead to persons falling and injuring themselves, unless specific precautions are taken.

Examples: operation using a cradle, scaffolding, a mobile platform or ladder, on bridge decking, on roofs, etc.

	Topic	Requirement
EMPLOYEES	**Training and competence**	Workers must have a **working at heights permit** issued by the plant manager or representative on site, based on: • **medical fitness certificate** for the previous year at least, reviewed by the medical department*, • **specific training** in working at heights, compliant with local regulations (content, recycling, etc.), and covering use and verification of the equipment implemented (cradle, harness, lifeline, falling arrest equipment).
	Induction	
	Trained personnel register	Authorisations are verified through **authorisation monitoring** (capacity, authorisation & training) kept up to date by the N+1*, and available in the workshops.
MANAGEMENT	**Work permit**	Before any work over 2 meters high take places, the person responsible for the task uses a work permit* to select the means of access and specify the safety instructions for the task.
	Register of risk	At least once a year, the team or sector manager* updates the risks register* by evaluating all the risks of falling from a height within his/her zone, in order to drive a safety improvement.
	Risk factors	The risks of falling from a height and of falling objects are evaluated according to: • the nature and duration of the tasks to be performed at height (assembly, handling hazardous products, visual inspections, etc.), • accessibility, overall area for the working at height situation, • the condition of the structures on which the access facilities stand (stability of equipment, fragility of roofs, etc.) • potential interactions and co-activities (e.g.: bridge/shuttle).
	Prevention methods	The prevention facilities relate to: • fixed platforms secured with railings for the most frequent activities (access to sampling points, control valves, etc.), • mobile platform or cradles for specific, short operational needs (e.g.: window seals on Rack, etc.), • scaffolding certified compliant with standards allowing staff to work at heights, • harnesses at attachment points and certified lifelines (roofs, bridge decking, etc.), • in exceptional circumstances validated a risk analysis*, when other solutions are not realistic, work on step-ladder or long ladder only for tasks taking a short time. Choice of non-conducting material (glass fibre, wood) is essential for work in an electrically-hazardous environment (electricity, conducting material).
	Implementation conditions	Working with a harness is never a solitary procedure: a ground lookout* is present for cradles and lifting platforms, working in pairs in other cases. Falling from a height is prevented by: • keeping the body inside the guard-rail, • staying attached to the highest anchorage point available, in all circumstances, • adjusting the tether to the correct length. When activity on the ground cannot be halted during the work, dropping of objects is prevented by: • attaching tools and wearing the helmet throat strap, • installing skirting boards on the floors of cradles and scaffolding, safety nets, etc., • marking risk areas on the ground.
	Inspections and audits	Plants and construction places are regularly audited by the area manager and the project manager, to ensure that facilities are in good condition (cleanliness, gratings, staircases, railings) or construction place are proceeding in accordance with the accident prevention plan. Work is stopped if any hazardous situation is identified, until corrective measures are implemented.
EQUIPMENT	**Equipment**	Permanent and temporary equipment complies with the relevant standards.
		Scaffolding carries a plate clearly identifying its status (not checked - access forbidden; checked - access permitted).
		Permanent equipment is subject to periodic inspection to check the good conditions (railings, gratings, skirting boards, staircases).
	Pre-usage inspections	**Before working at height, the workers check** the status of the safety equipment (cradles, harness, lifelines, etc.) according to the protocol specified for the site.
	Certification of equipment	Equipment used for any working at heights (cradles, harness, lifelines, anchorage points, etc.) is **certified within the previous twelve months** by a competent testing agency, or failing that by an internal testing system.
	Equipment register	The **Equipment monitoring register** for working at heights is used to check certification of the equipment in accordance with the relevant standards.

*The words of the glossary are recognizable via an * in the following pages.*

LIFE-SAVING BEHAVIOURS

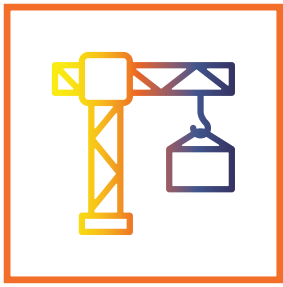
1. **I never work** at height without fall arrest/restrain equipment in case collective protections are not available.

2. **I connect** my fall arrest/ restrain lanyard equipment to approved anchor points.

3. **I secure** tools/equipment from falling from height and **demarcate** all levels / floors below.

4. **I never execute** work at height with open air energized power lines in the danger zone.

5. **I only access** to a scaffold with a compliance tag.



MECHANICAL HANDLING

Mechanical handling relates to the use of any mechanical handling facility (crane, travelling bridge, trucks, beams and their accessories, etc.).

	Topic	Requirement
EMPLOYEES	**Training and competence**	Workers must have a **driving permit** issued by the plant manager or his/her delegate, based on: • a **medical fitness** examination issued by the medical department*, • a **specific certificate** for safe driving of the handling equipment used, compliant with local regulations, and covering use and checking of the equipment used (travelling crane, truck, crane).
	Induction	
	Trained personnel register	Authorisations are verified by the N+1*, through the **authorisation monitoring register** (fitness, authorisation & training) updated at least once a year and available in the workshops.
MANAGEMENT	**Work permit**	Any critical lifting* operation is subject to a lifting permit which enables the risks specific to the operation to be analysed and the operating method determined.
	Register of risk	At least once a year, the sector or team manager updates the risks register* by evaluating all the mechanical handling operations recurrent within his/her zone, in order to drive a safety improvement.
	Risk factors	Risks associated with handling are assessed as a function of: • characteristics of the load: weight, shape, possible grips, temperatures, etc. • the operation to be performed: distance, height, manoeuvre (reversal), • the working environment: visibility, available space, need for guiding, • interference with the handling operation (wind, rain, interaction, etc.).
	Prevention methods	The prevention facilities relate to: • choice of handling equipment compatible with the load (capacity, etc.) and manoeuvres (turners, etc.), • preparing the set-down zone and the anchorage of the load once it is set down, • the position of the manoeuvring manager and teams to keep a watch on the load, • marking of the manoeuvring zone, • use of the necessary communication facilities. Reach extender tools are available at normal handling stations.
	Implementation conditions	During operations: • the manoeuvring manager keeps watch on the load at all times, • the team has communication facilities, • no-one remains in the exclusion zone, close to or below the load, • proper use is made of load guidance and stabilisation resources.
	Inspections and audits	The manager regularly audits operations to ensure they proceed in accordance with the handling rules (handling plan, instructions, procedures, etc.). Operations are stopped if any hazardous situation is identified, until corrective measures are implemented.
EQUIPMENT	**Equipment**	Equipment complies with the relevant standards and good industry practice.
	Pre-usage inspections	**Before any handling operation, the workers check** the status of the equipment and lifting devices (hooks, belts, chains, etc.) according to the protocol specified for the site.
	Certification of equipment	Equipment used for mechanical handling (trucks, travelling cranes, handling devices, hooks, slings, chains, etc.) is **certified within the previous twelve months** by an accredited testing agency, or failing that by an internal testing system.
	Equipment register	The consolidated list of equipment and accessories is kept up to date and is available on site. A register (maintenance log) of the maintenance operations is kept up to date for each item of lifting equipment.

*The words of the glossary are recognizable via an * in the following pages.*

LIFE-SAVING BEHAVIOURS

1. **I never position** myself below suspended load or inside the exclusion zone.

2. **I always use** lifting accessories and equipment that are fit for use and rated for the duty.

3. **I never touch** the suspended load. **I use** tagline and or hand extension if I need to control the load.

4. **I always use** a lifting instruction/procedure or a written safe lifting plan to perform lifting operations.

LIQUID METAL

This requirement applies to all workshops where molten metal is handled.

	Topic	Requirement
EMPLOYEES	**Training and competence**	The operators* working in the liquid metal workshop are specifically trained in the risks associated with liquid metal.
	Induction	All site personnel must be kept informed regularly about the hazards of liquid metal, and must know the rules and conditions for access to the sector.
	Trained personnel register	Training is verified through **authorisation** monitoring (authorisation & training) kept up to date by the N+1*, and available in the workshops.
MANAGEMENT	**Work permit**	
	Register of risk	At least once a year, the team or sector manager* updates the risks register* by evaluating all operations undertaken in the vicinity of liquid metal within his/her zone, in order to drive a safety improvement.
	Risk factors	The risk analysis* identifies: • water/metal contact, • explosion or splashing in all zones where metal or slag are produced, transported and stored, • radiant heat.
	Prevention methods	**Generation of hydrogen** by water-metal contact is prevented by carefully ensuring there is no water present: • in raw materials (water or humidity level), • in equipment in contact with metal or slag (ladle, channels, crucibles, tools, sand in casting zones, etc.), • on the ground, in the casting pits, in the furnace confinement chamber and any other workshop retention facilities, • associated with leaks in the cooling system, or any other water pipes in the workshop, • after maintenance work, before return to service (crucibles, ladles, refractories, etc.), • from rain. **Explosions/spraying** in cooling zones (metal or slag) are prevented by verifying and respecting: • flow rates for slag granulation water, • prescribed solidification times before handling, • the condition of blast-proof walls.
	Implementation conditions	Before any metal casting, the casting manager checks: • there is no water present (on the ground, in channels, crucibles, ladles, casting zones, pits, etc.), • that channels and pouring zones are properly prepared in line with the quantity of product expected, • that ladles, pots and crucibles are in good condition (visual inspection), • that working zones and pits are in order and clean, • for the presence and condition of the safety equipment provided (PPE, showers, fire blankets, etc.), • of the safety of anyone not belonging to the department who may be present nearby, • that there are no obstacles in the emergency evacuation routes. Operators wear PPE suitable for the risk of splashes of liquid metal as well as the risk relating to radiant heat (suitable helmet with visor, aluminised clothing to protect the neck, the body and upper and lower limbs). For other tasks, fire-retardant clothing must be worn. Access to critical zones (casting, transport, storage) is restricted to employees who work there. Practice exercises simulating emergency scenarios are organised at least once a year. The emergency plan concerned is updated with the results of these experiments.
	Inspections and audits	The workshop is audited regularly by the workshop and team leaders, to ensure that the risk of liquid metal is controlled. Production is stopped if any hazardous situation is identified, until corrective measures are implemented.
EQUIPMENT	**Equipment**	
	Pre-usage inspections	
	Certification of equipment	Equipment used for casting (ladles, pots, crucibles, etc.) is **certified within the previous year** by an internal monitoring department.
	Equipment register	The **equipment monitoring register** is used to check certification of the equipment in accordance with the relevant standards.

*The words of the glossary are recognizable via an * in the following pages.*

LIFE-SAVING BEHAVIOURS

1 **I never start tapping** or **casting** liquid metal if the presence of water on the immediate tapping floor/area and or in the recipients.

2 **I use** PPE to be fully protected against possible liquid metal splash and radiant heat.

3 **I never accept** people who are unauthorized to enter the forbidden zone during tapping and casting.

TRAIN MOVEMENTS (BACKWARDS)

Applicable to train reverse manoeuvres.

	Topic	Requirement
EMPLOYEES	**Training and competence**	Shunting masters* and drivers are specifically trained in the safety rules and the procedures that apply to this type of manoeuvre. A "monitoring plan" (skills monitoring) is implemented to periodically check shunters' and drivers' theoretical and practical knowledge. Drivers' medical fitness is confirmed every year. Shunters' medical fitness is confirmed....
	Induction	Drivers are trained in the local operating rules (station, yard, rail siding and special sites). Operators* are made aware of accident analysis linked to reverse manoeuvres.
	Trained personnel register	An "authorisation" file keeps track of the up-to-date list and the validation period for certified personnel's certificates. Every worker has authorisation during their service period. This file is available. A log keeps track of the up-to-date list of drivers' and shunters' medical fitness. This log is available. Implementation of manoeuvre support schedule.
MANAGEMENT	**Work permit**	Operational follow-up on qualifications for shunters and drivers.
	Register of risk	
	Risk factors	The risks associated with the manoeuvre are assessed based on: • the length/tonnage of the convoy, • the length of the manoeuvre, • co-activity (workshop, yard, station...), • visibility.
	Prevention methods	The safety rules governing this handling are summarised in a written document, sent out to the affected personnel. They cover the following areas: • Personal Protective Equipment (PPE) is required (night and day), • the safety distance of at least 3 meters to the floor opposite the convoy until the train is completely stopped, • the handling of the sleepers, • the ban from getting on or getting off the leading rail car when movement is underway, • the ban from using a mobile phone during the entire shunting process, • protection of level crossings before and during the crossing movement, • the rule of three supports, • the need to be permanently outside the gauge when the train is moving and be within the driver's vision or in permanent contact via radio. Penetration in the train gauge when driver ensures the train is stopped. The training covers: • route recognition and training, • the prescribed instructions to coordinate the handling by radio or flag.
	Implementation conditions	The driver is not responsible for respecting signalling. Rather it is the responsibility of the head-end trainer in the direction of the movement. The head-end trainer must give the driver instructions for slowing down and stopping in good time to avoid sudden vehicle docking, exceeding the set cut-off point, and hitting a buffer...
	Inspections and audits	
EQUIPMENT	**Equipment**	PPE required: helmet, protective footwear, gloves, fluorescent jacket or blue overalls. Equipment required: • red flag, • lamp (white and red light) for night work whose proper functioning is checked before use, • radio whose proper functioning is checked before use, as well as a shoulder strap for freedom of movement (do not obstruct the 3 supports), • whistle to support manoeuvre hand signals.
	Pre-usage inspections	Before the equipment is used for the first time, the workers check its condition according to the defined protocol.
	Certification of equipment	
	Equipment register	

*The words of the glossary are recognizable via an * in the following pages.*

LIFE-SAVING BEHAVIOURS

1. When approaching a train, **I always respect** a safety distance of at least 3 meters until train is completely stopped.

2. **I do not move** the train or portion of the train until receiving and understanding a signal to do so from the shunting master.

3. **I stop** the shunting movement if I am not able to establish communication (hand signal, radio, or other visual signals) with the shunting master.

Find all the Essential Requirements on
the Group Safety & Prevention SharePoint

https://erametgroup.sharepoint.com/sites/DSP

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