

ISO 45001:2018

Occupational health and safety management systems — Requirements with guidance for use

Agenda

- Introduction
- Clause 4- Context of the organization
- Clause 5- Leadership and commitment
- Clause 6- Planning
- Clause 7- Support
- Clause 8- Operation
- Clause 9- Performance evaluation
- Clause 10- Continual improvement
- Course Recap
- Examination

Terms related to OH&S

Hazard Vs. Risk

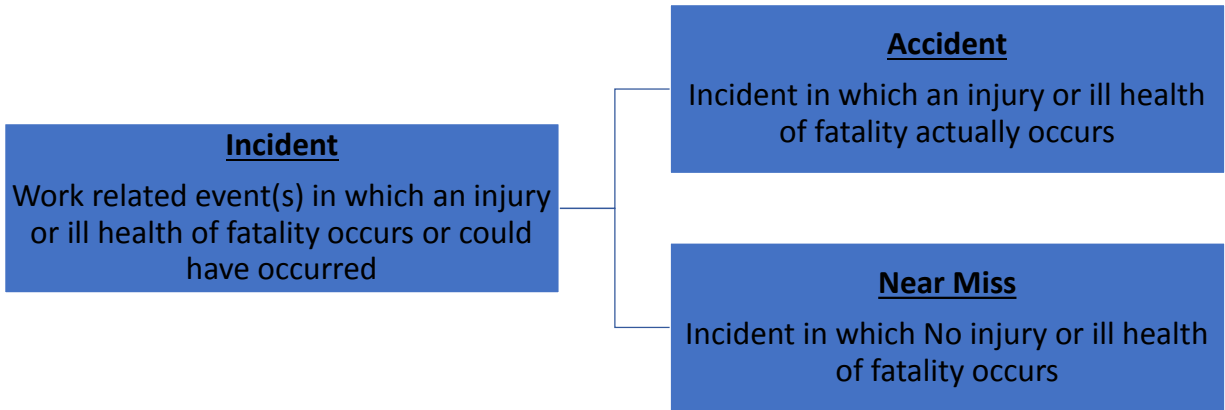


<u>Safety Hazard</u> Most common in workplaces , represent unsafe conditions • Spills on floors • Tripping hazards • Working from heights • Unguarded machinery and moving machinery parts • Electrical hazards • Confined spaces	<u>Biological Hazards.</u> • Blood and other body fluids • Fungi/mold • Bacteria and viruses • Plants • Insect bites • Animal and bird droppings	<u>Physical Hazards</u> Factors within the environment • Radiation • High exposure to sunlight/ultraviolet rays • Temperature extremes – hot and cold • Constant loud noise
<u>Ergonomic Hazards</u> Body positions and working conditions • Improperly adjusted workstations and chairs • Frequent lifting • Repeating the same movements over and over • Vibration	<u>Chemical Hazards</u> • Liquids like cleaning products, paints, acids, solvents • Vapors and fumes that come from welding or exposure to solvents • Gases like acetylene, propane, carbon monoxide and helium • Flammable materials like gasoline, solvents, and explosive chemicals. • Pesticides	<u>Organization Hazards</u> • Workload demands • Workplace violence • Flexibility

Occupational Illnesses and Disorders

- Musculoskeletal conditions
 - Repeated trauma
- Skin disease and disorders
 - Allergic and irritant dermatitis
- Noise-induced hearing loss
- Respiratory disorders
 - Chronic nature
 - Difficult to recognize
- Other work-related diseases and disorders
 - Poisoning and infections
 - Anxiety, stress, or neurotic disorders

Incident Vs. Accident



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Incident Categories:

- **Fatality (FTL):**
 - A fatality is a work-related injury or illness that results in death.
- **First Aid:**
 - Any treatment of minor scratches, cuts, burns, splinters and so forth, and any follow-up visit for the purpose of observation.
- **Lost Time Incident (LTI):**
 - A work-related incident (injury or illness) to an employee in which a physician or licensed health care professional recommends days away from work due to the incident.
- **Medical Treatment Only (MTO):**
 - Any work related injury or illness requiring medical care or treatment beyond first aid (regardless of the provider of such treatment) that does not result in a Restricted Work/Transfer Case (RWTC) or Lost Time Incident (LTI).

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Risk Assessment (1)

Probability (P)	Score	Indicative Guidelines (Frequency of last occurrence)
Almost Certain	5	Daily
Quite Possible	4	Weekly
Unusual but Possible	3	Monthly
Unlikely	2	Yearly
Very unlikely	1	> one year

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Risk Assessment (2)

Human Severity (S)	Asset Damage and other Consequential Business Loss (S)	Environmental Effect (S)	Impact on Reputation (S)	Score
Multiple Fatality	Massive damages: Costs in excess of fifty crore Rupees	Massive damages: loss of natural resources over a wide area.	Massive impact: International public concern	5
Fatality	Major damage: Costs between five crore and fifty crore Rupees	Major damage: Excesses, persistent leakage, with potential long term effects	Major impact: National public concern	4
Serious Injury	Moderate damages: Costs between five Lakh and five crore Rupees	Moderate damages: Contamination Damages	Moderate impact: Significant impact in region	3
Minor Injury	Minor damage: Costs between 500000 to fifty Lakh Rupees	Minor damage: No permanent effect on environment	Minor impact: Local public concern Local media coverage	2
First Aid	Slight damage: Costs less than 5, 00,000 Rupees	Slight damage: contained within the premises	Slight impact: Local public awareness, but no	1

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Risk Assessment (3)

- Calculate **Risk Score (R)** of each hazards as $R = P \times S$.
- Evaluate the Base Risk Level from the risk score as per the following Table

Score	Risk Level
1 to 4	Acceptable (A)
5 to 7	Moderate (M)
8 to 9	Substantial (S)
10 and above	Unacceptable (U)

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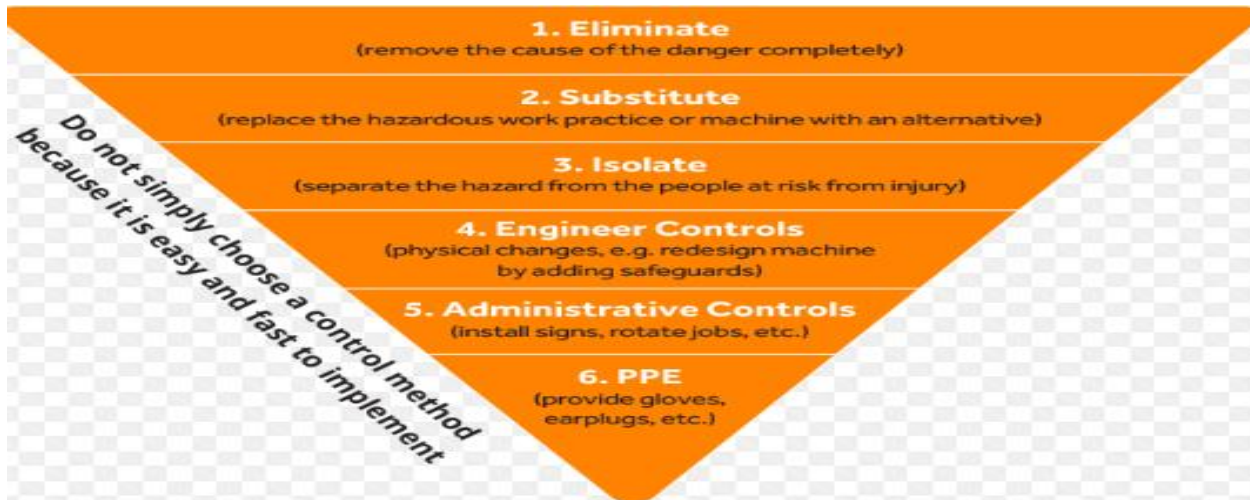
Risk assessment (4)

Risk assessment matrix is one most used technique to categorize the identified hazards basing on their risk scores.

	Consequence				Likelihood				
	People	Assets	Environment	Reputation	1 Very unlikely	2 Unlikely	3 Unusual but Possible	4 Quite Possible	5 Almost Certain
Severity									
1	First Aid	Slight Damage	Slight effect	Slight Impact					
2	Minor Injury	Minor Damage	Minor effect	Minor Impact		LOW	RISK		
3	Serious Injury	Moderate Damage	Moderate effect	Moderate Impact			MEDIUM	RISK	
4	Fatality	Major Damage	Major effect	Major Impact				HIGH	RISK
5	Multiple fatality	Massive Damage	Massive effect	Massive Impact					

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Hierarchy of controls



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Examples of PPE

Body Part	Protection
Eye	Safety Glasses and Goggles
Face	Face Shields
Head	Hard Hats
Feet	Safety Shoes
Hands and Arms	Gloves
Bodies	Vests/Falls
Hearing	Earplugs and Earmuffs

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Emergency Situations

Emergencies businesses can experience include:

Natural Disasters

Avalanche
Biological
Drought
Dust/Sand Storms
Earthquakes
Extreme Heat/Cold
Fire
Flood
Hurricane/Tsunami
Landslide/Mudslide
Lightning
Snow/Ice/Hail
Tornado
Volcanic Eruption
Windstorm

Technological

Aircraft Crash
Structural Collapse
Business Interruption
Communication
Dam/Levee Failure
Explosions/Fire
Extreme Air Pollution
Financial Collapse
Fuel/Resource Shortage
Hazardous Material Release
Power/Utility Failure
Radiological/Nuclear Accidents
Strikes
Transportation Accidents

Human

Arson
Civil Unrest
Economic
Enemy Attack
General Strike
Hostage Situation
Mass Hysteria
Sabotage
Special Events
Terrorism
War
Workplace Violence

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Benefits of Adopting Safety Management System

- Reduce the costs associated with accidents and incidents.
- Compliance to legal requirements.
- Employees Loyalty will improve.
- Public image and social responsibility.
- Encourage Banks and investors

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What is Changing in ISO 45001:2018?

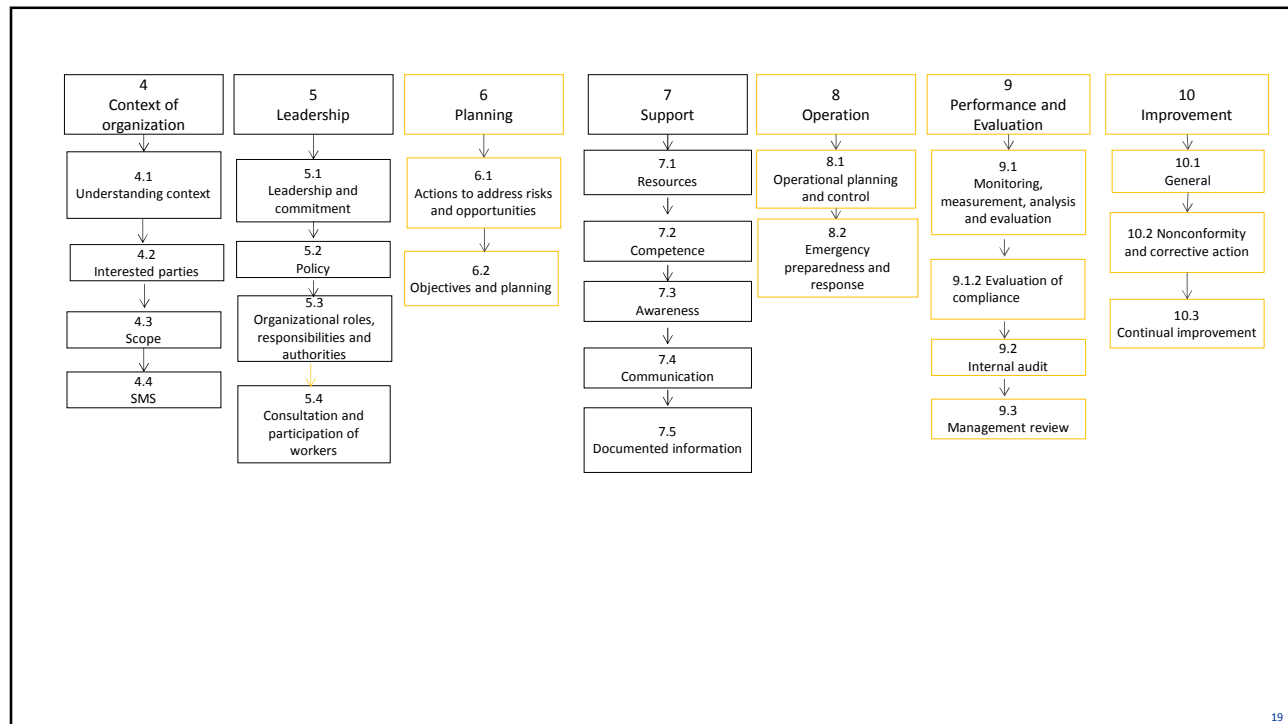
- Changes in **structure- HLS**. **information**".
- Movement away from classical **preventive action** approach to more of a general **risk thinking** model.
- Requiring systems which take into account the "**context of the organization**".
- Movement from "documents" and "records" to "**documented**
- No requirement for a **Management Representative**.
- Enhance **Leadership** requirements.
- Replaced "Continual improvement" by "**Improvement**".

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Plan-Do-Check-Act



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4.1 Understanding the organization and its context

The organization shall determine external and internal issues that are relevant to its purpose and that affect its ability to achieve the intended outcome(s) of its OH&S management system.

4.1 Understanding the organization and its context

a) external issues, such as:

- 1) the cultural, social, political, legal, financial, technological, economic and natural surroundings and market competition, whether international, national, regional or local;
- 2) introduction of new competitors, contractors, subcontractors, suppliers, partners and providers, new technologies, new laws and the emergence of new occupations;
- 3) new knowledge on products and their effect on health and safety;
- 4) key drivers and trends relevant to the industry or sector having impact on the organization;
- 5) relationships with, as well as perceptions and values of, its external interested parties;
- 6) changes in relation to any of the above;

b) internal issues, such as:

- 1) governance, organizational structure, roles and accountabilities;
- 2) policies, objectives and the strategies that are in place to achieve them;
- 3) the capabilities, understood in terms of resources, knowledge and competence (e.g. capital, time, human resources, processes, systems and technologies);
- 4) information systems, information flows and decision-making processes (both formal and informal);
- 5) introduction of new products, materials, services, tools, software, premises and equipment;
- 6) relationships with, as well as perceptions and values of, workers;
- 7) the culture in the organization;
- 8) standards, guidelines and models adopted by the organization;
- 9) the form and extent of contractual relationships, including, for example, outsourced activities;
- 10) working time arrangements;
- 11) working conditions;
- 12) changes in relation to any of the above.

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4.2- Understanding the needs and expectations of interested parties

The organization shall determine:

- a) the other interested parties, in addition to workers, that are relevant to the OH&S management system;
- b) the relevant needs and expectations (i.e. requirements) of workers and other interested parties;
- c) which of these needs and expectations are, or could become, legal requirements and other requirements.

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4.2- Understanding the needs and expectations of interested parties

Interested parties, in addition to workers, can include:

- a) legal and regulatory authorities (local, regional, state/provincial, national or international);
- b) parent organizations;
- c) suppliers, contractors and subcontractors;
- d) workers' representatives;
- e) workers' organizations (trade unions) and employers' organizations;
- f) owners, shareholders, clients, visitors, local community and neighbours of the organization and the general public;
- g) customers, medical and other community services, media, academia, business associations and non-governmental organizations (NGOs);
- h) occupational health and safety organizations, occupational safety and health-care professionals.

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4.2- Understanding the needs and expectations of interested parties

Interested party	Needs and expectations	OHSMS Requirement
Owners	- Maintain a good image of the company in terms of safety record. - Do not incur costs for important incidents. - Not receiving sanctions or closing the company for poor OH&S performance. - Compliance with the objectives set out in OH&S for the company.	N/A N/A Legal requirement OHSMS requirement
Workers	- Have a safe workplace that does not deteriorate health. - Constant training in safe ways of doing work. - Receive incentives for good OH&S performance. - Receive transportation and adequate food in the workplace.	Legal requirement OHSMS requirement N/A Legal requirement
Contractors	- Have precise OH&S requirements. - That the company provides them with safe working conditions. - Involve them in trainings provided to workers. - Not be exposed to incidents due to work in other areas.	OHSMS requirement Legal requirement N/A OHSMS requirement
Suppliers	- Have precise OH&S requirements. - Feedback from the evaluation made to suppliers.	OHSMS requirement N/A
Neighbors	- That the activities of the company do not impact on their quality of life. - Generation of employment sources.	Legal requirement N/A
Universities and Technical Institutes	That the company receives its students to do practices that allow them to finish their studies.	N/A

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4.3 Determining the scope of the OH&S management system

The organization shall determine the boundaries and applicability of the OH&S management system to establish its scope.

When determining this scope, the organization shall:

- a) consider the external and internal issues referred to in 4.1;
- b) take into account the requirements referred to in 4.2;
- c) take into account the planned or performed work-related activities.

The OH&S management system shall include the activities, products and services within the organization's control or influence that can impact the organization's OH&S performance.

The scope shall be available as documented information.

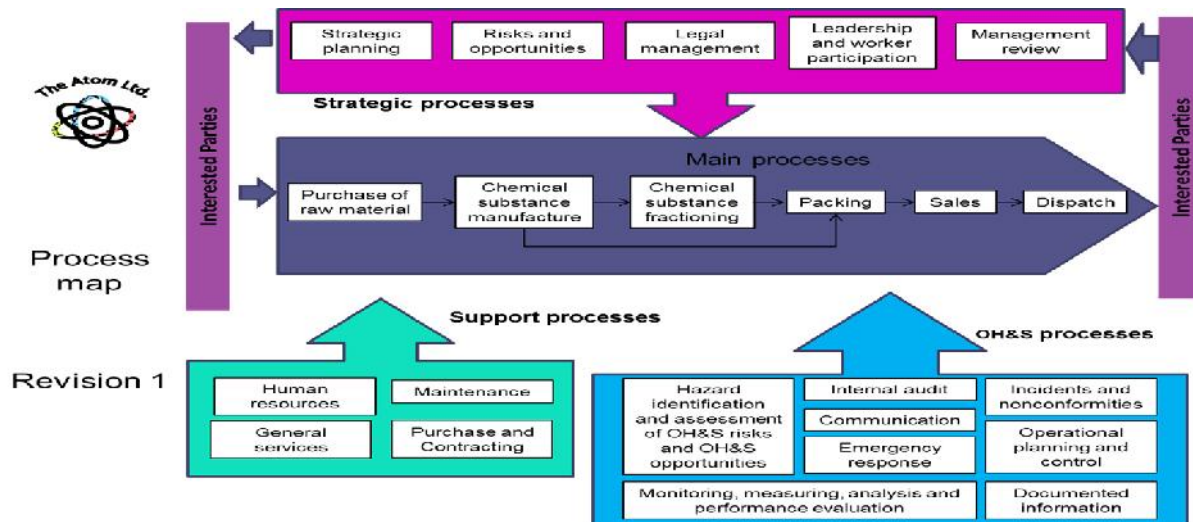
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4.4 OH&S management system

The organization shall establish, implement, maintain and continually improve an OH&S management system, including the processes needed and their interactions, in accordance with the requirements of this document.

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4.4 OH&S management system



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5 Leadership and worker participation

5.1 Leadership and commitment

Top management shall demonstrate leadership and commitment with respect to the OH&S management system by:

- taking overall responsibility and accountability for the prevention of work-related injury and ill health, as well as the provision of safe and healthy workplaces and activities;
- ensuring that the OH&S policy and related OH&S objectives are established and are compatible with the strategic direction of the organization;
- ensuring the integration of the OH&S management system requirements into the organization's business processes;
- ensuring that the resources needed to establish, implement, maintain and improve the OH&S management system are available;
- communicating the importance of effective OH&S management and of conforming to the OH&S management system requirements;

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5 Leadership and worker participation

- f) ensuring that the OH&S management system achieves its intended outcome(s);
 - g) directing and supporting persons to contribute to the effectiveness of the OH&S management system;
 - h) ensuring and promoting continual improvement;
 - i) supporting other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility;
 - j) developing, leading and promoting a culture in the organization that supports the intended outcomes of the OH&S management system;
 - k) protecting workers from reprisals when reporting incidents, hazards, risks and opportunities;
 - l) ensuring the organization establishes and implements a process(es) for consultation and participation of workers (see [5.4](#));
 - m) supporting the establishment and functioning of health and safety committees, [see [5.4 e](#) 1)].
- NOTE Reference to “business” in this document can be interpreted broadly to mean those activities that are core to the purposes of the organization’s existence.

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5.2 OH&S policy

Top management shall establish, implement and maintain an OH&S policy that:

- a) includes a commitment to provide safe and healthy working conditions for the prevention of work-related injury and ill health and is appropriate to the purpose, size and context of the organization and to the specific nature of its OH&S risks and OH&S opportunities;
- b) provides a framework for setting the OH&S objectives;
- c) includes a commitment to fulfil legal requirements and other requirements;
- d) includes a commitment to eliminate hazards and reduce OH&S risks (see [8.1.2](#));
- e) includes a commitment to continual improvement of the OH&S management system;
- f) includes a commitment to consultation and participation of workers, and, where they exist, workers’ representatives.

The OH&S policy shall:

- be available as documented information;
- be communicated within the organization;
- be available to interested parties, as appropriate;
- be relevant and appropriate.

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5.2 OH&S policy



OH&S Policy

Code: POC1
Revision: 1

We at The Atom Ltd. have the basic objective of manufacturing and fractionating high quality chemical products for labs and companies, and we believe that the quality of our products and the health and safety of our employees are an integral part of our business. That is why we are responsible for carrying out our activities in a preventive manner, trying to prevent industrial incidents and diseases, eliminating hazards, minimizing risks, complying with the applicable legal and other requirements on the subject, and continuously improving.

To achieve this, we implement an OH&S Management System, through which we undertake the following commitments:

1. To train and achieve employee commitment to risk prevention and occupational health care, involving suppliers, contractors, the community, competent bodies and other interested parties.
2. To work keeping risks under control, encouraging the identification of hazards and the assessment of risks that might affect health and safety, in order to achieve improvements in overall performance.
3. To maintain high-level communication channels with our interested parties and promote consultation and participation of our employees and their representatives.
4. To promote the use of intrinsically safe equipment, technologies and facilities.

John Havillan
General Manager
02/20/2018

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5.3 Organizational roles, responsibilities and authorities

Top management shall ensure that the responsibilities and authorities for relevant roles within the OH&S management system are assigned and communicated at all levels within the organization and maintained as documented information. Workers at each level of the organization shall assume responsibility for those aspects of the OH&S management system over which they have control.

NOTE While responsibility and authority can be assigned, ultimately top management is still accountable for the functioning of the OH&S management system.

Top management shall assign the responsibility and authority for:

- a) ensuring that the OH&S management system conforms to the requirements of this document;
- b) reporting on the performance of the OH&S management system to top management.

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5.4 Consultation and participation of workers

The organization shall establish, implement and maintain a process(es) for consultation and participation of workers at all applicable levels and functions, and, where they exist, workers' representatives, in the development, planning, implementation, performance evaluation and actions for improvement of the OH&S management system.

The organization shall:

a) provide mechanisms, time, training and resources necessary for consultation and participation;

NOTE 1 Worker representation can be a mechanism for consultation and participation.

b) provide timely access to clear, understandable and relevant information about the OH&S management system;

c) determine and remove obstacles or barriers to participation and minimize those that cannot be removed;

NOTE 2 Obstacles and barriers can include failure to respond to worker inputs or suggestions, language or literacy barriers, reprisals or threats of reprisals and policies or practices that discourage or penalize worker participation.

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5.4 Consultation and participation of workers

d) emphasize the consultation of non-managerial workers on the following:

1) determining the needs and expectations of interested parties (see 4.2);

2) establishing the OH&S policy (see 5.2);

3) assigning organizational roles, responsibilities and authorities, as applicable (see 5.3);

4) determining how to fulfil legal requirements and other requirements (see 6.1.3);

5) establishing OH&S objectives and planning to achieve them (see 6.2);

6) determining applicable controls for outsourcing, procurement and contractors (see 8.1.4);

7) determining what needs to be monitored, measured and evaluated (see 9.1);

8) planning, establishing, implementing and maintaining an audit programme(s) (see 9.2.2);

9) ensuring continual improvement (see 10.3);

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5.4 Consultation and participation of workers

e) emphasize the participation of non-managerial workers in the following:

- 1) determining the mechanisms for their consultation and participation;
- 2) identifying hazards and assessing risks and opportunities (see [6.1.1](#) and [6.1.2](#));
- 3) determining actions to eliminate hazards and reduce OH&S risks (see [6.1.4](#));
- 4) determining competence requirements, training needs, training and evaluating training (see [7.2](#));
- 5) determining what needs to be communicated and how this will be done (see [7.4](#));
- 6) determining control measures and their effective implementation and use (see [8.1](#), [8.1.3](#) and [8.2](#));
- 7) investigating incidents and nonconformities and determining corrective actions (see [10.2](#)).

NOTE 3 Emphasizing the consultation and participation of non-managerial workers is intended to apply to persons carrying out the work activities, but is not intended to exclude, for example, managers who are impacted by work activities or other factors in the organization.

NOTE 4 It is recognized that the provision of training at no cost to workers and the provision of training during working hours, where possible, can remove significant barriers to worker participation.

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6.1 Actions to address risks and opportunities

When planning for the OH&S management system, the organization shall consider the issues referred to in [4.1](#) (context), the requirements referred to in [4.2](#) (interested parties) and [4.3](#) (the scope of its OH&S management system) and determine the risks and opportunities that need to be addressed to:

- a) give assurance that the OH&S management system can achieve its intended outcome(s);
- b) prevent, or reduce, undesired effects;
- c) achieve continual improvement.

When determining the risks and opportunities for the OH&S management system and its intended outcomes that need to be addressed, the organization shall take into account:

- hazards (see [6.1.2.1](#));
- OH&S risks and other risks (see [6.1.2.2](#));
- OH&S opportunities and other opportunities (see [6.1.2.3](#));
- legal requirements and other requirements (see [6.1.3](#)).

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6.1 Actions to address risks and opportunities

The organization, in its planning process(es), shall determine and assess the risks and opportunities that are relevant to the intended outcomes of the OH&S management system associated with changes in the organization, its processes or the OH&S management system. In the case of planned changes, permanent or temporary, this assessment shall be undertaken before the change is implemented (see [8.1.3](#)).

The organization shall maintain documented information on:

- risks and opportunities;
- the process(es) and actions needed to determine and address its risks and opportunities (see [6.1.2](#) to [6.1.4](#)) to the extent necessary to have confidence that they are carried out as planned.

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6.1 Actions to address risks and opportunities

CO	Affecting regulatory compliance	4 (otherwise 1)
Obj	Affects objectives achievements	3 (otherwise 1)
IP	Affects interested parties expectations	2 (otherwise 1)
S	Impact on OH&S of workers	1 to 4

Criticality	(CO x Obj x IP x S)
1 - 9	P3 (Priority 3) – There is no need to take action to address the risk or opportunity.
10 - 25	P2 (Priority 2) – Management will evaluate if it is necessary to take action to reduce the risk or to promote the opportunity.
> 50	P1 (Priority 1) - It is necessary to take actions to address the risk or opportunity.

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6.1 Actions to address risks and opportunities

N°	Risk and opportunities identification				Risk and opportunities assessment						
					Criteria				Criticality	Priority (*)	
	Risks and opportunities	Compliance obligations	OH&S Obj.	Interested parties	CO	Obj	IP	S			
1	Constant changes in national legal requirements	X	X	X	4	3	2	1	24	R 2	
2	Lack of OH&S information and advice from raw material suppliers	X	X	X	4	3	2	3	72	R 1	
3	Few transportation suppliers for chemical products that meet legal requirements	X	X	X	4	3	2	2	48	R 1	
4	Low quality of packaging of some chemical products (raw materials)		X	X	1	3	2	3	18	R 2	
5	Monitoring of particulate matter out of specification	X	X	X	4	3	2	4	96	R 1	
6	Bureaucratic administrative processes (for purchase of safety elements)		X	X	1	3	2	2	12	R 2	
7	Lack of monitoring the OH&S conditions of contractors working inside the plant	X	X	X	4	3	2	4	96	R 1	
8	Lack of commitment of personnel regarding new OH&S measures established		X		1	3	1	3	9	R 3	
9	Lack of parking for tankers		X	X	1	3	2	2	12	R 2	
10	Constant change of contractors for packaging services in the plant		X	X	1	3	2	3	18	R 2	
11	Possible technological changes (less handling of chemical products)		X		1	3	1	4	12	O 2	
12	Improve the company's image regarding OH&S		X	X	1	3	2	1	6	O 3	
13	Establish contacts with neighbors and nearby companies to coordinate emergency response	X	X	X	4	3	2	3	72	O 1	
14	Contact with suppliers to see their plants and see safety conditions		X	X	1	3	2	2	12	O 2	
15	Possibility of acquiring raw materials in larger containers to reduce manual handling	X	X	X	4	3	2	4	72	O 1	

*: R – Risk, O – Opportunity

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6.1.2 Hazard identification and assessment of risks and opportunities

6.1.2.1 Hazard identification

The organization shall establish, implement and maintain a process(es) for hazard identification that is ongoing and proactive. The process(es) shall take into account, but not be limited to:

- how work is organized, social factors (including workload, work hours, victimization, harassment and bullying), leadership and the culture in the organization;
- routine and non-routine activities and situations, including hazards arising from:
 - infrastructure, equipment, materials, substances and the physical conditions of the workplace;
 - product and service design, research, development, testing, production, assembly, construction, service delivery, maintenance and disposal;
 - human factors;
 - how the work is performed;
- past relevant incidents, internal or external to the organization, including emergencies, and their causes;
- potential emergency situations;

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6.1.2 Hazard identification and assessment of risks and opportunities

e) people, including consideration of:

- 1) those with access to the workplace and their activities, including workers, contractors, visitors and other persons;
- 2) those in the vicinity of the workplace who can be affected by the activities of the organization;
- 3) workers at a location not under the direct control of the organization;

f) other issues, including consideration of:

- 1) the design of work areas, processes, installations, machinery/equipment, operating procedures and work organization, including their adaptation to the needs and capabilities of the workers involved;
- 2) situations occurring in the vicinity of the workplace caused by work-related activities under the control of the organization;
- 3) situations not controlled by the organization and occurring in the vicinity of the workplace that can cause injury and ill health to persons in the workplace;

g) actual or proposed changes in organization, operations, processes, activities and the OH&S management system (see [8.1.3](#));

h) changes in knowledge of, and information about, hazards.

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6.1.2 Hazard identification and assessment of risks and opportunities

6.1.2.2 Assessment of OH&S risks and other risks to the OH&S management system

The organization shall establish, implement and maintain a process(es) to:

- a) assess OH&S risks from the identified hazards, while taking into account the effectiveness of existing controls;
- b) determine and assess the other risks related to the establishment, implementation, operation and maintenance of the OH&S management system.

The organization's methodology(ies) and criteria for the assessment of OH&S risks shall be defined with respect to their scope, nature and timing to ensure they are proactive rather than reactive and are used in a systematic way. Documented information shall be maintained and retained on the methodology(ies) and criteria.

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6.1.2 Hazard identification and assessment of risks and opportunities

6.1.2.3 Assessment of OH&S opportunities and other opportunities for the OH&S management system

The organization shall establish, implement and maintain a process(es) to assess:

a) OH&S opportunities to enhance OH&S performance, while taking into account planned changes to the organization, its policies, its processes or its activities and:

- 1) opportunities to adapt work, work organization and work environment to workers;
- 2) opportunities to eliminate hazards and reduce OH&S risks;

b) other opportunities for improving the OH&S management system.

NOTE OH&S risks and OH&S opportunities can result in other risks and other opportunities for the organization.

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6.1.2 Hazard identification and assessment of risks and opportunities

OH&S Risk an OH&S Opportunity level = Seriousness * Probability

Seriousness	
Value	Description
1	The worker may suffer minor damages that require first aid, however, it does not affect job performance nor losses of time in the workday (minor contusions, such as cuts, kinks, scrapes). Temporary indisposition that happens with medication basic and rest.
2	Minor injuries in health that need medical assistance (bruises or severe trauma, superficial wounds, second-degree burns, continuous bleeding), which affects the work performance; the person may be disabled to perform certain activities, during the period established by the doctor. Disease with a short treatment term.
3	It could cause irreversible damage to health without loss of life (chronic injury in the spine, extensive third degree burns, polytrauma, strong blow to the skull), including partial disability and permanent (loss of a hand, being immobilized), illness that cause temporary loss of employees.
4	Fatality due to accident or occupational disease. Generation of an occupational disease.

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6.1.2 Hazard identification and assessment of risks and opportunities

Probability	
Value	Description
1	Given the frequency of activity and current operational controls, there is a very low probability that the unwanted event will occur.
2	Given the frequency of activity and current operational controls that are met in most cases, there is a low probability that the unwanted event will occur.
3	Given the frequency of activity and current operational controls that are not met in most cases, there is a certain probability that the unwanted event will occur.
4	Given the frequency of activity and the lack of operational controls, there is a high probability that the unwanted event occurs.

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6.1.2 Hazard identification and assessment of risks and opportunities

OH&S Risk an OH&S Opportunity level	
Value	Level
1 - 2	Low - The operational controls must be maintained.
4 - 8	Moderate - Additional operational controls should be proposed to take advantage of medium or long-term risk reduction opportunities.
9 - 16	Important - Short-term operational control measures must be proposed. The hierarchy of operational controls must be taken into account.

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6.1.2 Hazard identification and assessment of risks and opportunities



Hazards, OH&S Risks and OH&S Opportunities Matrix

Code: F-OH-10

Revision: 1

N°	Hazard Identification			Legal requirement	OH&S Risk and OH&S Opportunities assessment				Control Measures		
	Area /Process	Activity / Facilities	Hazard		Seriousness	Probability	Result	Risk Level			
1	Production	Dissolution	Fall of suspended products	no	2	2	4	Moderate	Periodic inspection	Communication of maximum load through signs	
2			People falling to different levels	no	2	2	4	Moderate	Stairs in good state	Periodic inspection	
3			Particle projection	no	2	2	4	Moderate	Use of PPE	Training	CP Safety Data sheet
4			Contact with chemical substances	yes	2	2	4	Moderate	Use of PPE	Training	CP Safety Data sheet
5		Filtering	Explosion of the compressor	yes	4	1	4	Moderate	Pressure switches and safety valves	Periodic inspection	
6			Contacts	yes	4	1	4	Moderate	Differential switch circuit breakers	Earthing measurement	Periodic inspection

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6.1.2 Hazard identification and assessment of risks and opportunities

6.1.3 Determination of legal requirements and other requirements

The organization shall establish, implement and maintain a process(es) to:

- determine and have access to up-to-date legal requirements and other requirements that are applicable to its hazards, OH&S risks and OH&S management system;
- determine how these legal requirements and other requirements apply to the organization and what needs to be communicated;
- take these legal requirements and other requirements into account when establishing, implementing, maintaining and continually improving its OH&S management system.

The organization shall maintain and retain documented information on its legal requirements and other requirements and shall ensure that it is updated to reflect any changes.

NOTE Legal requirements and other requirements can result in risks and opportunities for the organization.

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6.1.2 Hazard identification and assessment of risks and opportunities

a) Legal requirements can include:

- 1) legislation (national, regional or international), including statutes and regulations;
- 2) decrees and directives;
- 3) orders issued by regulators;
- 4) permits, licences or other forms of authorization;
- 5) judgments of courts or administrative tribunals;
- 6) treaties, conventions, protocols;
- 7) collective bargaining agreements.

b) Other requirements can include:

- 1) the organization's requirements;
- 2) contractual conditions;
- 3) employment agreements;
- 4) agreements with interested parties;
- 5) agreements with health authorities;
- 6) non-regulatory standards, consensus standards and guidelines;
- 7) voluntary principles, codes of practice, technical specifications, charters;
- 8) public commitments of the organization or its parent organization.

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6.1.2 Hazard identification and assessment of risks and opportunities

6.1.4 Planning action

The organization shall plan:

a) actions to:

- 1) address these risks and opportunities (see [6.1.2.2](#) and [6.1.2.3](#));
- 2) address legal requirements and other requirements (see [6.1.3](#));
- 3) prepare for and respond to emergency situations (see [8.2](#));

b) how to:

- 1) integrate and implement the actions into its OH&S management system processes or other business processes;
- 2) evaluate the effectiveness of these actions.

The organization shall take into account the hierarchy of controls (see [8.1.2](#)) and outputs from the OH&S management system when planning to take action.

When planning its actions, the organization shall consider best practices, technological options and financial, operational and business requirements.

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6.2 OH&S objectives and planning to achieve them

6.2.1 OH&S objectives

The organization shall establish OH&S objectives at relevant functions and levels in order to maintain and continually improve the OH&S management system and OH&S performance (see [10.3](#)).

The OH&S objectives shall:

- a) be consistent with the OH&S policy;
- b) be measurable (if practicable) or capable of performance evaluation;
- c) take into account:
 - 1) applicable requirements;
 - 2) the results of the assessment of risks and opportunities (see [6.1.2.2](#) and [6.1.2.3](#));
 - 3) the results of consultation with workers (see [5.4](#)) and, where they exist, workers' representatives;
- d) be monitored;
- e) be communicated;
- f) be updated as appropriate.

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6.2 OH&S objectives and planning to achieve them

6.2.2 Planning to achieve OH&S objectives

When planning how to achieve its OH&S objectives, the organization shall determine:

- a) what will be done;
 - b) what resources will be required;
 - c) who will be responsible;
 - d) when it will be completed;
 - e) how the results will be evaluated, including indicators for monitoring;
 - f) how the actions to achieve OH&S objectives will be integrated into the organization's business processes.
- The organization shall maintain and retain documented information on the OH&S objectives and plans to achieve them.

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6.2 OH&S objectives and planning to achieve them

Objectives	Indicators	Target	Risks / Opportunities	Actions	Responsible	Realization date	Budget	Observations
Improve relationship with suppliers	Number of visits to supplier plants	At least 3	Lack of OH&S information and advice from raw material suppliers	Establish contact at the managerial level with type A suppliers to visit their plants	General Manager	June 2018 (for contacting) December 2018 (for visiting)	20.000 €	
Improve the control of contractor OH&S performance	Number of new suppliers developed with legal requirements up to date	At least 3	Few transportation suppliers for chemical products that meet legal requirements	Contact new transportation providers and offer incentives for compliance with legal requirements, in addition to long-term transportation contracts.	Transport Service Chief	December 2018	Value of 10% increase in current transport rates	Former suppliers who wish to adapt to legal requirements may also benefit
	Number of behavioral audits for contractors	At least 2 per month	Lack of monitoring the OH&S conditions of contractors working inside the plant	Establish a plan of behavioral audits with personnel from different areas, train personnel in carrying out behavioral audits and follow up on their performance	OH&S Manager / OH&S Chief	May 2018 (for planning the audits) May 2018 (for training personnel) December 2018 (for executing audits)	Training Budget	

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7.1 Resources

The organization shall determine and provide the resources needed for the establishment, implementation, maintenance and continual improvement of the OH&S management system.

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7.2 Competence

The organization shall:

- a) determine the necessary competence of workers that affects or can affect its OH&S performance;
- b) ensure that workers are competent (including the ability to identify hazards) on the basis of appropriate education, training or experience;
- c) where applicable, take actions to acquire and maintain the necessary competence, and evaluate the effectiveness of the actions taken;
- d) retain appropriate documented information as evidence of competence.

NOTE Applicable actions can include, for example, the provision of training to, the mentoring of, or the re-assignment of currently employed persons, or the hiring or contracting of competent persons.

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7.3 Awareness

Workers shall be made aware of:

- a) the OH&S policy and OH&S objectives;
- b) their contribution to the effectiveness of the OH&S management system, including the benefits of improved OH&S performance;
- c) the implications and potential consequences of not conforming to the OH&S management system requirements;
- d) incidents and the outcomes of investigations that are relevant to them;
- e) hazards, OH&S risks and actions determined that are relevant to them;
- f) the ability to remove themselves from work situations that they consider present an imminent and serious danger to their life or health, as well as the arrangements for protecting them from undue consequences for doing so.

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7.4 Communication

7.4.1 General

The organization shall establish, implement and maintain the process(es) needed for the internal and external communications relevant to the OH&S management system, including determining:

- a) on what it will communicate;
- b) when to communicate;
- c) with whom to communicate:
 - 1) internally among the various levels and functions of the organization;
 - 2) among contractors and visitors to the workplace;
 - 3) among other interested parties;
- d) how to communicate.

The organization shall take into account diversity aspects (e.g. gender, language, culture, literacy, disability) when considering its communication needs.

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7.4 Communication

The organization shall ensure that the views of external interested parties are considered in establishing its communication process(es).

When establishing its communication process(es), the organization shall:

- take into account its legal requirements and other requirements;
- ensure that OH&S information to be communicated is consistent with information generated within the OH&S management system, and is reliable.

The organization shall respond to relevant communications on its OH&S management system.

The organization shall retain documented information as evidence of its communications, as appropriate.

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7.4 Communication

7.4.2 Internal communication

The organization shall:

- internally communicate information relevant to the OH&S management system among the various levels and functions of the organization, including changes to the OH&S management system, as appropriate;
- ensure its communication process(es) enables workers to contribute to continual improvement.

7.4.3 External communication

The organization shall externally communicate information relevant to the OH&S management system, as established by the organization's communication process(es) and taking into account its legal requirements and other requirements.

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7.4 Communication

What to communicate	Whom to communicate	Who communicates	How to communicate	When to communicate
OH&S policy	All interested parties	General Manager	Annual report Web page Intranet	Yearly / when OH&S policy changes
OH&S objectives	Board of Directors Employees	General Manager	Internal training Annual report Internal training	Yearly
OH&S performance results	All interested parties	General Manager	Annual report Web page Intranet	Yearly
Hazards, OH&S risks and OH&S opportunities	Employees Contractors Visits	CH&S Chief	Internal Training OH&S risk and OH&S opportunities matrix Induction process	Yearly, when there are changes, every new contract and visit
Response to complaints and claims	Workers' representatives Employees	CH&S Manager	Personal meetings, Meetings with workers' representatives Internal bulletin	When a complaint or claim is generated that requires a response
Operational control measures, emergency plans, emergency drills and their performance	Top management Employees Contractors	CH&S Chief	Management review Monthly reports Internal and external training OH&S documented information Induction process Contract	Several times a year and when a new contract starts
Changes in the OH&S management system	Top management Employees Contractors	CH&S Manager	Management review Monthly reports Internal training OH&S documented information Induction process	When there are changes related to the OH&S management system

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7.5 Documented information

7.5.1 General

The organization's OH&S management system shall include:

- a) documented information required by this document;
- b) documented information determined by the organization as being necessary for the effectiveness of the OH&S management system.

NOTE The extent of documented information for an OH&S management system can differ from one organization to another due to:

- the size of organization and its type of activities, processes, products and services;
- the need to demonstrate fulfilment of legal requirements and other requirements;
- the complexity of processes and their interactions;
- the competence of workers.

7.5.2 Creating and updating

When creating and updating documented information, the organization shall ensure appropriate:

- a) identification and description (e.g. a title, date, author or reference number);
- b) format (e.g. language, software version, graphics) and media (e.g. paper, electronic);
- c) review and approval for suitability and adequacy.

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7.5 Documented information

7.5.3 Control of documented information

Documented information required by the OH&S management system and by this document shall be controlled to ensure:

- a) it is available and suitable for use, where and when it is needed;
- b) it is adequately protected (e.g. from loss of confidentiality, improper use or loss of integrity).

For the control of documented information, the organization shall address the following activities, as applicable:

- distribution, access, retrieval and use;
- storage and preservation, including preservation of legibility;
- control of changes (e.g. version control);
- retention and disposition.

Documented information of external origin determined by the organization to be necessary for the planning and operation of the OH&S management system shall be identified, as appropriate, and controlled.

NOTE 1 Access can imply a decision regarding the permission to view the documented information only, or the permission and authority to view and change the documented information.

NOTE 2 Access to relevant documented information includes access by workers, and, where they exist, workers' representatives.

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7.5 Documented information

Specified requirements for documented information

- 4.3 Scope of the OH&S MS
- 5.2 OH&S policy
- 6.1 Actions to address risks and opportunities
 - 6.1.2.2 Assessment of OH&S risks
 - 6.1.3 Legal obligations
- 7.2 Evidence of competence
- 7.4 Communication
- 8.1 Operational planning and control
- 8.2 Emergency preparedness and response
- 9.1.1 Monitoring, measurement, analysis and performance evaluation
- 9.1.2 Evaluation of compliance
- 9.2 Internal audit
- 9.3 Management review
- 10.2 Incident, nonconformity and corrective action
- 10.3 Continual improvement

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8.1 Operational planning and control

8.1.1 General

The organization shall plan, implement, control and maintain the processes needed to meet requirements of the OH&S management system, and to implement the actions determined in [Clause 6](#), by:

- a) establishing criteria for the processes;
- b) implementing control of the processes in accordance with the criteria;
- c) maintaining and retaining documented information to the extent necessary to have confidence that the processes have been carried out as planned;
- d) adapting work to workers.

At multi-employer workplaces, the organization shall coordinate the relevant parts of the OH&S management system with the other organizations.

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8.1 Operational planning and control

8.1.2 Eliminating hazards and reducing OH&S risks

The organization shall establish, implement and maintain a process(es) for the elimination of hazards and reduction of OH&S risks using the following hierarchy of controls:

- a) eliminate the hazard;
- b) substitute with less hazardous processes, operations, materials or equipment;
- c) use engineering controls and reorganization of work;
- d) use administrative controls, including training;
- e) use adequate personal protective equipment.

NOTE In many countries, legal requirements and other requirements include the requirement that personal protective equipment (PPE) is provided at no cost to workers.

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8.1 Operational planning and control

8.1.3 Management of change

The organization shall establish a process(es) for the implementation and control of planned temporary and permanent changes that impact OH&S performance, including:

- a) new products, services and processes, or changes to existing products, services and processes, including:
 - workplace locations and surroundings;
 - work organization;
 - working conditions;
 - equipment;
 - work force;
- b) changes to legal requirements and other requirements;
- c) changes in knowledge or information about hazards and OH&S risks;
- d) developments in knowledge and technology.

The organization shall review the consequences of unintended changes, taking action to mitigate any adverse effects, as necessary.

NOTE Changes can result in risks and opportunities.

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8.1 Operational planning and control

8.1.4 Procurement

8.1.4.1 General

The organization shall establish, implement and maintain a process(es) to control the procurement of products and services in order to ensure their conformity to its OH&S management system.

8.1.4.2 Contractors

The organization shall coordinate its procurement process(es) with its contractors, in order to identify hazards and to assess and control the OH&S risks arising from:

- a) the contractors' activities and operations that impact the organization;
- b) the organization's activities and operations that impact the contractors' workers;
- c) the contractors' activities and operations that impact other interested parties in the workplace.

The organization shall ensure that the requirements of its OH&S management system are met by contractors and their workers. The organization's procurement process(es) shall define and apply occupational health and safety criteria for the selection of contractors.

NOTE It can be helpful to include the occupational health and safety criteria for the selection of contractors in the contractual documents.

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8.1 Operational planning and control

8.1.4.3 Outsourcing

The organization shall ensure that outsourced functions and processes are controlled. The organization shall ensure that its outsourcing arrangements are consistent with legal requirements and other requirements and with achieving the intended outcomes of the OH&S management system. The type and degree of control to be applied to these functions and processes shall be defined within the OH&S management system.

NOTE Coordination with external providers can assist an organization to address any impact that outsourcing has on its OH&S performance.

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8.1 Operational planning and control

Examples of operational control of the processes include:

- a) the use of procedures and systems of work;
- b) ensuring the competence of workers;
- c) establishing preventive or predictive maintenance and inspection programmes;
- d) specifications for the procurement of goods and services;
- e) application of legal requirements and other requirements, or manufacturers' instructions for equipment;
- f) engineering and administrative controls;
- g) adapting work to workers; for example, by:
 - 1) defining, or redefining, how the work is organized;
 - 2) the induction of new workers;
 - 3) defining, or redefining, processes and working environments;
 - 4) using ergonomic approaches when designing new, or modifying, workplaces, equipment, etc.

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8.2 Emergency preparedness and response

The organization shall establish, implement and maintain a process(es) needed to prepare for and respond to potential emergency situations, as identified in 6.1.2.1, including:

- a) establishing a planned response to emergency situations, including the provision of first aid;
- b) providing training for the planned response;
- c) periodically testing and exercising the planned response capability;
- d) evaluating performance and, as necessary, revising the planned response, including after testing and, in particular, after the occurrence of emergency situations;
- e) communicating and providing relevant information to all workers on their duties and responsibilities;
- f) communicating relevant information to contractors, visitors, emergency response services, government authorities and, as appropriate, the local community;
- g) taking into account the needs and capabilities of all relevant interested parties and ensuring their involvement, as appropriate, in the development of the planned response.

The organization shall maintain and retain documented information on the process(es) and on the plans for responding to potential emergency situations.

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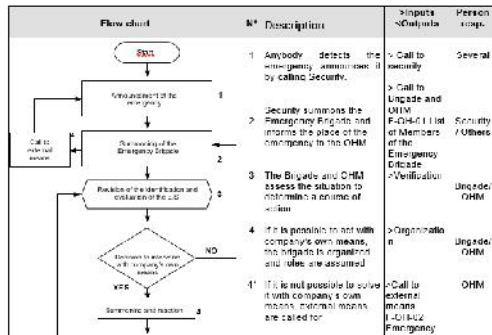
8.2 Emergency preparedness and response



Emergency Preparedness and Response

Code: EPR-001
Revision: 1

5. Flow chart



Year: 2019

Drill	Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fire	Production	S											
	C												
Chemical product spillage	Production	S											
	C												
Spillage of chemical product	Lab	S											
	C												
General evacuation	Production	S											
	C												
Personal Accidents w/ transportation of injured person	Production	S											
	C												

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9.1 Monitoring, measurement, analysis and performance evaluation

9.1.1 General

The organization shall establish, implement and maintain a process(es) for monitoring, measurement, analysis and performance evaluation.

The organization shall determine:

a) what needs to be monitored and measured, including:

- 1) the extent to which legal requirements and other requirements are fulfilled;
- 2) its activities and operations related to identified hazards, risks and opportunities;
- 3) progress towards achievement of the organization's OH&S objectives;
- 4) effectiveness of operational and other controls;

b) the methods for monitoring, measurement, analysis and performance evaluation, as applicable, to ensure valid results;

c) the criteria against which the organization will evaluate its OH&S performance;

d) when the monitoring and measuring shall be performed;

e) when the results from monitoring and measurement shall be analysed, evaluated and communicated.

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9.1 Monitoring, measurement, analysis and performance evaluation

The organization shall evaluate the OH&S performance and determine the effectiveness of the OH&S management system.

The organization shall ensure that monitoring and measuring equipment is calibrated or verified as applicable, and is used and maintained as appropriate.

NOTE There can be legal requirements or other requirements (e.g. national or international standards) concerning the calibration or verification of monitoring and measuring equipment.

The organization shall retain appropriate documented information:

- as evidence of the results of monitoring, measurement, analysis and performance evaluation;
- on the maintenance, calibration or verification of measuring equipment.

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9.1.2 Evaluation of compliance

The organization shall establish, implement and maintain a process(es) for evaluating compliance with legal requirements and other requirements (see 6.1.3).

The organization shall:

- a) determine the frequency and method(s) for the evaluation of compliance;
- b) evaluate compliance and take action if needed (see 10.2);
- c) maintain knowledge and understanding of its compliance status with legal requirements and other requirements;
- d) retain documented information of the compliance evaluation result(s).

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9.2 Internal audit

9.2.1 General

The organization shall conduct internal audits at planned intervals to provide information on whether the OH&S management system:

- a) conforms to:
 - 1) the organization's own requirements for its OH&S management system, including the OH&S policy and OH&S objectives;
 - 2) the requirements of this document;
- b) is effectively implemented and maintained.

9.2.2 Internal audit programme

The organization shall:

- a) plan, establish, implement and maintain an audit programme(s) including the frequency, methods, responsibilities, consultation, planning requirements and reporting, which shall take into consideration the importance of the processes concerned and the results of previous audits;
- b) define the audit criteria and scope for each audit;
- c) select auditors and conduct audits to ensure objectivity and the impartiality of the audit process;
- d) ensure that the results of the audits are reported to relevant managers; ensure that relevant audit results are reported to workers, and, where they exist, workers' representatives, and other relevant interested parties;
- e) take action to address nonconformities and continually improve its OH&S performance (see [Clause 10](#));
- f) retain documented information as evidence of the implementation of the audit programme and the audit results.

NOTE For more information on auditing and the competence of auditors, see ISO 19011.

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9.3 Management review

Top management shall review the organization's OH&S management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness.

The management review shall include consideration of:

- a) the status of actions from previous management reviews;
- b) changes in external and internal issues that are relevant to the OH&S management system, including:
 - 1) the needs and expectations of interested parties;
 - 2) legal requirements and other requirements;
 - 3) risks and opportunities;
- c) the extent to which the OH&S policy and the OH&S objectives have been met;
- d) information on the OH&S performance, including trends in:
 - 1) incidents, nonconformities, corrective actions and continual improvement;
 - 2) monitoring and measurement results;
 - 3) results of evaluation of compliance with legal requirements and other requirements;
 - 4) audit results;
 - 5) consultation and participation of workers;
 - 6) risks and opportunities;

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9.3 Management review

e) adequacy of resources for maintaining an effective OH&S management system;

f) relevant communication(s) with interested parties;

g) opportunities for continual improvement.

The outputs of the management review shall include decisions related to:

— the continuing suitability, adequacy and effectiveness of the OH&S management system in achieving its intended outcomes;

— continual improvement opportunities;

— any need for changes to the OH&S management system;

— resources needed;

— actions, if needed;

— opportunities to improve integration of the OH&S management system with other business processes;

— any implications for the strategic direction of the organization.

Top management shall communicate the relevant outputs of management reviews to workers, and, where they exist, workers' representatives (see [7.4](#)).

The organization shall retain documented information as evidence of the results of management reviews.

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10 Improvement

10.1 General

The organization shall determine opportunities for improvement (see [Clause 9](#)) and implement necessary actions to achieve the intended outcomes of its OH&S management system.

10.2 Incident, nonconformity and corrective action

The organization shall establish, implement and maintain a process(es), including reporting, investigating and taking action, to determine and manage incidents and nonconformities.

When an incident or a nonconformity occurs, the organization shall:

a) react in a timely manner to the incident or nonconformity and, as applicable:

1) take action to control and correct it;

2) deal with the consequences;

b) evaluate, with the participation of workers (see [5.4](#)) and the involvement of other relevant interested parties, the need for corrective action to eliminate the root cause(s) of the incident or nonconformity, in order that it does not recur or occur elsewhere, by:

1) investigating the incident or reviewing the nonconformity;

2) determining the cause(s) of the incident or nonconformity;

3) determining if similar incidents have occurred, if nonconformities exist, or if they could potentially occur;

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10 Improvement

- c) review existing assessments of OH&S risks and other risks, as appropriate (see 6.1);
- d) determine and implement any action needed, including corrective action, in accordance with the hierarchy of controls (see 8.1.2) and the management of change (see 8.1.3);
- e) assess OH&S risks that relate to new or changed hazards, prior to taking action;
- f) review the effectiveness of any action taken, including corrective action;
- g) make changes to the OH&S management system, if necessary.

Corrective actions shall be appropriate to the effects or potential effects of the incidents or nonconformities encountered.

The organization shall retain documented information as evidence of:

- the nature of the incidents or nonconformities and any subsequent actions taken;
- the results of any action and corrective action, including their effectiveness.

The organization shall communicate this documented information to relevant workers, and, where they exist, workers' representatives, and other relevant interested parties.

NOTE The reporting and investigation of incidents without undue delay can enable hazards to be eliminated and associated OH&S risks to be minimized as soon as possible.

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10 Improvement

10.3 Continual improvement

The organization shall continually improve the suitability, adequacy and effectiveness of the OH&S management system, by:

- a) enhancing OH&S performance;
- b) promoting a culture that supports an OH&S management system;
- c) promoting the participation of workers in implementing actions for the continual improvement of the OH&S management system;
- d) communicating the relevant results of continual improvement to workers, and, where they exist, workers' representatives;
- e) maintaining and retaining documented information as evidence of continual improvement.

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10 Improvement

Examples of continual improvement issues include, but are not limited to:

- a) new technology;
- b) good practices, both internal and external to the organization;
- c) suggestions and recommendations from interested parties;
- d) new knowledge and understanding of occupational health and safety-related issues;
- e) new or improved materials;
- f) changes in worker capabilities or competence;
- g) achieving improved performance with fewer resources (i.e. simplification, streamlining, etc.).

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Thank You