Hazard Identification, Assessment & Control

This training will provide you with knowledge on:

- Definitions used within hazard assessment
- How to identify an occupational hazard
- How to implement controls for a hazard
- Reporting procedures for incidents, accidents & hazard identification
- Understanding our Job Hazard Assessment Matrix

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Applicable legislation regarding hazard assessments can be found in the Occupational Health & Safety Code Handbook – Part 2 (Section 7: 1-4 & Section 8: 1-2), Part 14 (Section 210 & 211), Part 27 (Section 389) and Part 28 (Section 393:2).

The purpose of our hazard assessment process is to develop and maintain a list of all tasks and activities performed by Swab Master Ltd. employees, and to make sure that those employees are aware of all the Health & Safety hazards that currently exist or have the potential to occur.

The Management at Swab Master Ltd. is responsible for ensuring that these assessments cover all known or potential hazards and to take corrective actions as soon as possible to control the hazard.

The workers are responsible for identifying hazards before beginning work, reporting hazards as soon as they become aware of them and trying to control the hazard to the best of their ability.

The formal hazard assessments kept on file for each job position are reviewed annually by all staff to ensure that they are kept as up-to-date as possible.

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DEFINITIONS

Hazard: any circumstance or condition, which poses the risk of an accident. Hazards are identified as being either a health or safety hazard

Health Hazard: are not immediately seen or felt, but result in chronic (long term) effects such as asbestos, dusts, repetitive strains, noise, etc.

Safety Hazard: that have immediate effects such as cuts, scrapes, bruises, burns, etc.

Assessment: a thorough examination of a task or operation for the purpose of identifying what actual and potential hazards exist.

Likelihood: the probability of getting hurt when completing a task

Exposure: how frequently the hazard presents itself or the employee is exposed to it.

Consequence: the outcome or result of the hazard happening

Controls: are ways of ensuring the identified hazards to workers do not go un-addressed.

Types of Occupational Hazards

Occupational hazards are those hazards that are present or may occur in the workplace.
Health Hazards can be subdivided into 5 categories: Chemical, Biological, Physical, Ergonomic or Psychosocial.

HEALTH				
Chemical	Biological	Physical	Ergonomic	Psychosocial
Dusts	Insects	Noise	Lifting	Shift Work
Fumes	Animals	Heat	Awkward Posture	Fatigue
Mists	Blood	Cold	Repetitive Motion	Mental Stress
Vapors	Bodily Fluids	Ionizing	Overuse	Violence
Gases	Viruses	Radiation		Harassment
Oxygen Deficiency	Allergies	Ultraviolent Radiation		
Skin Contact		Heat (Hot Surfaces)		
Eye Contact		Electrical Burn		
Ingestion				
Inhalation				
Welding Flash				
Lead Exposure				
Chemical Burn				
SAFETY				
Work Environment	Material Handling	Vehicles/Mobile Equipment	Tools	Energy
Slip / Trip / Fall	Lifting / Carrying	Collisions	Hand Tools	
Fall From Height	Bending	Traffic	Power Tools	Pressurized Systems
Fire	Pushing	Powered Equipment	Pinch Points	Electricity
Explosion	Pulling	Struck by Equipment	Cranes	
Excavations	Overreaching	Pinched Between Equipment	Grinding	Overhead Power Lines
Confined Space	Cuts / Scrapes		Soldering	
Weather	Contusion		Welding	Compressed Air / Gases
Shock	Material Shifting			Hydraulic Pressure
Electrocution	Falling Objects			Steam
Glare				Burns
Insufficient Lighting				

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Methods of Identifying Hazards

Recognition of hazards is the first step in determining what hazards could possibly be removed or what controls need to be implemented. The following are methods used at Swab Master Ltd.

- **Hazard Analysis:** each position at Swab Master Ltd. has had a hazard assessment done by each job task & has been prioritized by the highest risk task to the lowest risk task
- **Inspections:** each level of employee at Swab Master Ltd. is responsible for some type of inspection. Inspections are meant to identify existing and potential hazards.
- **Safety Audits:** as a member of the Alberta Association for Safety Partnerships, we have an annual audit completed to identify deficiencies in our Health & Safety Program and to maintain our standing within the COR program.
- **Review:** we periodically review our incident reports, accident reports and near miss reports to identify trends in health and safety hazards.
- **Maintenance:** our equipment and tools are checked frequently for wear, tear and other maintenance requirements.
- **Pre-Job Safety Meetings:** done prior to engaging in field work on site to identify possible hazards associated with the job and to implement controls where required.

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Hazard Identification Risk Rating

We rate our job tasks using the table below.
The mathematical equation used to determine the risk of each hazard is:
Likelihood + Exposure + Consequence / 3.
The mathematical equation used to determine the risk of each task is:
All Hazard Ratings / Number of Hazards listed
The mathematical equation used to determine the overall job risk rating is:
All Task Risk Ratings / Number of Tasks for the position.

5. **EXTREME**: very high risk; change or elimination required

4. **HIGH**: immediate correction required

3. **MEDIUM**: substantial risk, controls / correction needed

2. **LOW**: risk is acceptable with controls

1. **REMOTE**: not much chance of happening

HAZARD IDENTIFICATION RISK RATING TABLE	
LIKELIHOOD: is the probability of getting hurt when completing the task.	
5	Occurs under normal operating conditions
4	Occurs in unusual operating conditions
3	May occur if the worker is inattentive or equipment is poorly maintained
2	Only likely in abnormal conditions (i.e.: loss of power, incapacitated worker, emergency conditions, etc.)
1	Not likely to happen – remotely possible – only in extreme conditions
EXPOSURE: is how frequently the hazard presents itself.	
5	Continually – on a daily basis – on or more times per day
4	Frequently – one/two times per week
3	Possible – once a month
2	Some chance of occurring
1	Not likely to happen – very remote possibility
CONSEQUENCE: is the outcome or result of the hazard.	
5	Catastrophic/Disastrous – numerous fatalities – widespread serous chronic health effects – extreme property or equipment damage
4	Single fatality – a single incident could cause serious injury resulting in permanent disability – serious property or equipment damage
3	Any single event injury requiring hospitalization for more than a day or a single event resulting in long term disability, that results in a lost time injury or where repeated exposure causes a serious long-term disability.
2	Anything requiring a hospital visit or doctors examination
1	Anything requiring first aid treatment or where repeated exposure could result in minor long-term disability

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Swab Master Ltd. Job Hazard Assessment Matrix

NAME OF POSITION

IDENTIFIED HAZARDS

LIKELIHOOD EXPOSURE CONSEQUENCE

OVERALL RISK RATING FOR THE POSITION:

TOTAL RISK RATING FOR ALL TASKS / TOTAL # OF TASKS LISTED

TASKS FOR THIS POSITION

OVERALL TASK RISK RATING:

ALL HAZARD RATINGS / 9 IDENTIFIED HAZARDS

CONTROLS FOR IDENTIFIED HAZARDS

TOTAL RISK RATING FOR ALL TASKS

HEALTH or SAFETY HAZARD IDENTIFIED

HAZARD RISK RATING

LIKELIHOOD = 1
+
EXPOSURE = 1
+
CONSEQUENCE = 2
LEC = 4 / 3 = 1.3

Job Hazard Assessment Matrix

JOB DESCRIPTION: Maintenance Mechanic

Overall Rating: 1.8

Duties / Job Tasks	H/S	Pressure / Pinch Points L E C		Slip / Trip / Fall L E C		Fire / Explosion L E C		Extreme Weather L E C		Chemical Exposure (H2S, Methane, Etc.) L E C		Workplace Violence / Harassment L E C		Musculoskeletal Injury L E C		Noise L E C		Fall From Height L E C		CONTROLS (Engineering, Administrative, PPE)	TOTALS
Repairs to equipment	H/S	3 5 4	4.0	2 3 3	2.7	2 4 5	3.7	1 2 3	2.0	3 4 5	4.0	2 4 4	3.3	4 5 4	4.3	5 3 4	4.0	3 3 5	3.7	machine guarding; safe work procedures; training; PPE	3.5
Equipment Maintenance	H/S	3 5 4	4.0	2 3 3	2.7	2 3 5	3.3	0 0 0	0.0	2 3 5	3.3	2 3 3	2.7	4 5 4	4.3	5 3 4	4.0	3 3 5	3.7	machine guarding; safe work procedures; training; PPE	3.1
General Shop Labour	H/S	2 2 3	2.3	2 3 3	2.7	2 3 5	3.3	0 0 0	0.0	2 3 5	3.3	1 1 3	1.7	3 4 4	3.7	5 3 4	4.0	3 2 5	3.3	machine guarding; safe work procedures; training; PPE	2.7
Ordering / Stocking	H/S	2 2 3	2.3	2 2 4	2.7	1 1 4	2.0	0 0 0	0.0	1 1 4	2.0	1 1 2	1.3	4 4 3	3.7	2 2 3	2.3	3 2 4	3.0	safe work procedures, training; proper use of equipment; PPE	2.1
Welding	H/S	2 2 3	2.3	0 0 0	0.0	3 4 5	4.0	0 0 0	0.0	2 1 2	1.7	0 0 0	0.0	2 2 3	2.3	3 3 3	3.0	1 1 3	1.7	Safe Work Procedures; Training; JSA; ERP; PPE	1.7
Inspections	H/S	1 1 3	1.7	2 1 3	2.0	1 2 5	2.7	0 0 0	0.0	1 2 4	2.3	0 0 0	0.0	0 0 0	0.0	3 3 3	3.0	1 2 4	2.3	proper use of equipment; PPE	1.6
Driving / Backing up	H/S											4 2 1	2.3	2 5 1	2.7	0 0 0	0.0	0 0 0	0.0	seat belts; proper seating; inspections	1.6
Computer Use	S	1	1.0		0.0		0.0		0.0		0.0	2 1 2	1.7	3 2 2	2.3	0 0 0	0.0	0 0 0	0.0	ergonomic workspace; frequent breaks;	0.6
Paperwork	S	1 1 1	1.0	0 0 0	0.0	0 0 0	0.0	0 0 0	0.0	0 0 0	0.0	1 1 1	1.0	1 1 2	1.3	0 0 0	0.0	0 0 0	0.0	ergonomic workspace; frequent breaks;	0.4
			0.0		0.0		0.0		0.0												0
			0.0		0.0		0.0		0.0												0
			0.0		0.0		0.0		0.0												0

TOTAL 17

LOCATION: | PARTICIPANTS: | SIGN OFF:

Emergency Control of a Hazard

If an emergency action is required to control or eliminate a hazard that is dangerous to the health or safety of an employee:

1. Only the workers who are competent in correcting the condition, and the minimum number necessary to correct the condition, may be exposed to the hazard.
2. Every reasonable effort must be made to control the hazard while risk controls are established.

Introduction of New Hazards

When a new hazard is introduced to the work place (new tool, process, tasks or equipment), all employees are responsible for completing an Opportunity Report. The report should contain a detailed description of the new tool, task or equipment and what associated hazards they believe exist.

If the scope of work changes while the job is on-going, then work should stop and a new Pre-Job Safety Meeting should take place to identify new hazards that may occur.

Management and the employees will then review the new hazards during safety meetings and develop controls for them.

Methods of Control

Controls are ways of ensuring the identified hazards to workers do not go un-addressed. Measures taken, including devices, to regulate a machine, apparatus, system or action within prescribed limits or standards of safety and operational effectiveness.

As per the Occupational Health & Safety Code – Part 2 (Section 9: 1-5), Swab Master Ltd. will make every effort to ensure that all hazards are identified and controls are put in place. It is important to understand that the hazard identification process begins with the workers, who are more likely to be exposed to the hazards. We cannot identify or control a hazard we are not aware of – the team based approach will allow us to ensure that our Health & Safety Program is up-to-date and effective.

The 3 methods of controls are:

- ENGINEERING
- ADMINISTRATIVE
- PPE (Personal Protective Equipment)

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ENGINEERING CONTROLS

Are specifically designed to remove (eliminate) the hazard or to minimize the risk; giving the most protection to a worker.

- The most effective method of control is ELIMINATION. Removal of a hazard from the workplace is the best solution however may not be an option.
- The second best form of control would be SUBSTITUTION. Substitution often involves chemicals.

Example: If a solvent is used as a cleaning agent possibly it could be substituted for a detergent which is much safer and environmentally friendly.

ADMINISTRATIVE CONTROLS

Administrative controls are probably the most used control measure in the workplace. Administrative controls direct people's actions. Administrative controls are legislated to be used only after consideration is given to an engineering control mechanism.

Example: polices, safe work procedures & training,

PPE (Personal Protective Equipment

PPE is the last option that is to be considered and only considered when all other options have been completely and thoroughly discussed.

Example: Gloves, hard hat, hearing protection

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Some key points to remember when developing and implementing controls are:

- Be reasonable and practical
- Ensure the control is fit for purpose and understand the limitations of the control

It may be necessary to use a combination of control measures in order to effectively reduce the risk of the hazard. Remember we do not live in a perfect world. Not all hazards can be eliminated or engineered out; combinations of controls are very effective.

Engineering		Administrative	Personal Protective Equipment (PPE)
Ventilation Systems	Vacuum Guards	Safe Work Procedures	CSA Approved Hard Hat
Machine Guards	Location of Start Switch	Worker Training	Leather Gloves
Emergency Stop	Extension Bars	On Site Training	Chemical Resistant Gloves
Button	Emergency Lighting	WHMIS	Latex Gloves
Roll Cages	Back Up Sensors	First Aid	Full Face Shield
Seat Belts	Back Up Alarms	Emergency Response	Respirator
Auto Dispensers	LCD Monitors	Plan	Eye Protection
Gel Pads	Hydraulic Lifts	Safety Meetings	Ear Protection
Stabilizing Bars	Substitution of:	Inspections	Kevlar Gloves & Sleeves
Isolation of:	Removal of:	Company Policies	Steel Toed Boots
Design of:	Trolleys, carts, lifts	Hazard Assessments	Dust Masks
Cages or Containment	Fire Suppression Systems	Signs	Fire Retardant Coveralls
Gas Monitors	Hands Free Devices	Directions	Self Contained Breathing Apparatus

HAZARD IDENTIFICATION EXERCISE

How many hazards do you see

?